

# ECONOMIC ANALYSIS OF FOOD + FIBRE IN THE GREAT SOUTH COAST

## A Report for Food & Fibre-Great South Coast Inc.

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Prepared by

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## ABBREVIATIONS

|        |   |
|--------|---|
| ABARES | Australian Bureau of Agricultural and Resource Economics and Sciences |
| ABS    | Australian Bureau of Statistics                                       |
| ANZSIC | Australia and New Zealand Standard Industrial Classification          |
| DJPR   | Department of Jobs, Precincts and Regions                             |
| DPC    | Department of the Premier and Cabinet                                 |
| fte    | full-time equivalent  |
| GRP    | Gross Regional Product  |
| GSP    | Gross State Product   |
| GSC    | Great South Coast   |
| FFGSC  | Food and Fibre Great South Coast                                      |
| GVP    | Gross Value of Production   |
| I-O    | Input-Output (analysis)   |
| LGA    | Local Government Area   |
| NRM    | Natural Resource Management   |
| RISE   | Regional Industry Structure and Employment (impact model)             |
| RP     | Regional Partnership  |
| SA4    | Statistical Area Level 4  |
| Vic.   | Victoria  |

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## EXECUTIVE SUMMARY

Food and Fibre Great South Coast (FFGSC) is the representative body for the food and fibre industry in the Great South Coast. The Great South Coast (GSC) is Victoria's largest food and fibre region, with enormous potential to grow further. FFGSC aims to realise the region's untapped capacity to increase food and fibre production, and value-add to build the viability and resilience of local communities. To assist in these aims, FFGSC commissioned BDO EconSearch to produce summary economic data of the region, and to undertake economic impact analysis of increased water use in agriculture in the region.

This report has been funded with contributions from Food and Fibre Great South Coast, Corangamite Shire Council, Deakin University, Warrnambool, Moyne Shire Council, Southern Grampians Shire Council and Wannon Water.

### Method

Two methods of economic analysis were employed: economic contribution analysis and economic impact analysis. The economic contribution analysis was based on input-output modelling. Input-output models describe the industrial structure of a region and allow for quantification of the economic contribution of individual sectors. BDO EconSearch developed a regional economic model known as the RISE model for the RP GSC region in the 2019/20 financial year, and a model of each component LGA, for this purpose. The economic contribution description focused on the food and fibre producing and processing sectors.

The economic impact analysis made use of production data from ABS and ABARES to estimate the increase in production associated with a 10 per cent increase in water use in agriculture for different commodities. This increase in production was input into the RISE model of the region to estimate the flow-on economic impacts of the increase on the broader regional economy in terms of employment, household income and gross state product.

The analysis includes the increase in input costs associated with the increase in production from using more water. However, it excludes the up-front investment cost of on-farm or off-farm infrastructure that might be required in order to begin delivering more water, such as centre pivots, channels, pipes, pumps etc.

### Economic Structure of the Regional Economy

In 2019/20, there were approximately 12,900 jobs (equivalent to 16,200 full time jobs) in the food and fibre sectors in RP GSC. Of total jobs in RP GSC (54,400 fte jobs), the top five food and fibre sector contributors to full-time equivalent (fte) employment in the region were meat and animal fibres, dairy, other agriculture & services, prepared foods and forest products.

Contribution to GRP by food and fibre sectors in RP GSC in 2019/20 was estimated to be \$1.2 billion. The top five food and fibre sector contributors to GRP were meat and animal fibres, dairy, other agriculture & services, forest products and prepared foods.

Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the meat and animal fibres sector.

### The economic impact of additional agricultural water

The total GRP impact expected from a 10 per cent increase in water use in agriculture in 2019/20, on the GSC regional economy, is approximately \$39.3 million. The fte employment impact generated by the same increase in water use is estimated to be about 395 fte jobs.

## 1. INTRODUCTION

Food and Fibre Great South Coast (FFGSC) is the representative body for the food and fibre industry in the Great South Coast. The Great South Coast (GSC) is Victoria's largest food and fibre region, with enormous potential to grow further. FFGSC aims to realise the region's untapped capacity to increase food and fibre production, and value-add to build the viability and resilience of local communities. To assist in these aims, FFGSC commissioned BDO EconSearch to produce summary economic data of the region, and to undertake economic impact analysis of increased water use in agriculture in the region.

The analysis in this report utilises the Regional Industry Structure and Employment (RISE) models, recently prepared for the Victorian Department of Jobs, Precincts and Regions (DJPR) (BDO EconSearch 2021). The RISE model has input–output (I-O) analysis as its core. I-O models, such as RISE, provide a detailed picture of the structure of an economy at a particular point in time. The latest models provide updated data for the 2019/20 financial year. Spatially, the models include the State of Victoria, Victorian Regional Partnerships (RP), Local government area (LGAs) in each RP, and Greater Melbourne. This report uses RISE models of the GSC RP region and its underlying LGAs.

The GSC region extends from the South Australian border to Colac, taking in the Grampians and south-west Victorian coastal areas. With its reliable rainfall and rich soils, this region supports a vibrant food and fibre sector, including red meat production, grains and cropping, aquaculture, forestry, wool and dairying. GSC includes the regions of

- Colac-Otway Shire<sup>1</sup>
- Corangamite Shire
- Glenelg Shire
- Moyne Shire
- Southern Grampians Shire
- City of Warrnambool

Economic data have been compiled based on the above geographies and for the region as a whole. Each of the three data sets are compiled by industry (11-sector definition in this report) and the data are estimated for 2019/20. The data sets cover the following three areas:

- Employment, household income and household expenditure
- Components of gross regional product (GRP)
- Value of imports and exports.

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<sup>1</sup> Spatially, the Colac Otway Shire is within the Barwon RP region, and is therefore not part of the GSC RISE model. Accordingly, Colac Otway Shire was excluded from the summary economic data of the region.



## 2. METHOD OF ANALYSIS

### 2.1. Regional Definition

The summary economic data and RISE models used to undertake economic impact assessment conforms to the RP GSC. RP GSC and its LGAs are set out in Figure 2-1.

Figure 2-1 The RP GSC and five LGA regions



Source: Victorian Department of the Premier and Cabinet (DPC) 2021

## 2.2. Definitions

The detailed profile of the economic structure of RP GSC and its LGAs for 2019/20 (provided below) are consistent with the method and data sources used by BDO EconSearch in preparing State and regional economic models (RISE models) for DJPR (BDO EconSearch 2021).

Economic activity in the region in 2019/20 is presented in Table 3-1 to Table 3-18, in terms of the following indicators:

- **Employment** is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalents and total (i.e. full-time and part-time) jobs. Employment is measured by place of remuneration rather than place of residence.
- **(Value of) Output** is a measure of the gross revenue of goods and services produced by commercial organisations (e.g. farm-gate value of production) and gross expenditure by government agencies. Total output needs to be used with care as it includes elements of double counting (e.g. the value of winery output includes the farm-gate value of grapes) and overstates the real contribution to economic activity.
- **Gross regional product (GRP)** is a measure of the net contribution of an activity to the regional economy. Gross regional product is measured as value of output less the cost of goods and services (including imports) used in producing the output. In other words, it can be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land).
- **Household income** is a component of GRP and is a measure of wages and salaries paid in cash and in kind, drawings by owner operators and other payments to labour including overtime payments, employer's superannuation contributions and income tax, but excluding payroll tax.
- **Other value added** is another component of GRP and includes gross operating surplus (excluding the drawings of working proprietors) and all taxes, less subsidies.
- **Imports** are a measure of the value of goods and services purchased by intermediate sectors and by components of final demand in the region/state of interest from other regions, interstate and overseas.
- **Tourism expenditure** is a measure of the value of sales of goods and services to visitors to the state or region.
- **Exports (other)** are a measure of the value of goods and services sold from the region/state of interest to consumers in other regions, interstate and overseas, net of sales to visitors to the region.

## 2.3. Economic Impact Analysis

An important component of the economic analysis task is to undertake an economic impact assessment of increased water use in agriculture in the GSC region. The regional economic impact analysis uses 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 impact applications.

Input-output (I-O) models are widely used to assess the economic contribution of existing economic activity or the economic impact of changing levels of economic activity. The RISE I-O models, constructed by BDO EconSearch, are available at the national, state and regional levels. RISE models of RP GCS and its LGA economies were developed for the Department of Jobs, Precincts and Regions (BDO EconSearch 2021), and were utilised for this analysis.

The analysis focuses on the ongoing operational economic impact on the GSC region of an increase in water use in agriculture. As such, it includes the increase in input costs associated with the increase in production from using more water. However, it excludes the up-front investment cost of on-farm or off-farm infrastructure that might be required in order to begin delivering more water, such as centre pivots, channels, pipes, pumps etc. These investment costs would create a larger impact on the region up-front but have been excluded due to data constraints and a decision to focus on on-going effects.

The flow-on effects of increased water use in agriculture in the GSC region have been estimated using I-O analysis. Estimates of regional economic impact are presented in terms of

- direct contribution
- flow-on (or indirect) contribution
- total contribution

**Direct impact** is the initial round of output, employment and household income generated by an economic activity. The following stages in the marketing chain have been included in the quantifiable economic impact:

- the value of agricultural output from food and fibre producers
- the value of food and fibre manufacturing

**Flow-on (or indirect) impact** is the sum of production-induced effects and consumption-induced effects. Production-induced effects are additional output, employment and household income resulting from re-spending by firms (e.g. veterinary services) that receive payments from the sale of goods and services to firms undertaking, for example, dairy production. Consumption-induced effects are additional output, employment and household income resulting from re-spending by households that receive income from employment in direct and indirect activities.

**Total contribution** is the sum of direct and flow-on contribution.

### 3. ECONOMIC STRUCTURE OF THE REGIONAL ECONOMY

#### 3.1. Regional Partnership Great South Coast

##### 3.1.1. Employment

In 2019/20, there were approximately 12,900 jobs (equivalent to 16,200 full time jobs) in the food and fibre sectors in RP GSC (Table 3-1). A sectoral breakdown of employment, household income and household expenditure for RP GSC in 2019/20 is provided in Table 3-1. Of total jobs in RP GSC (54,400 fte jobs), the top five food and fibre sector contributors to fte employment in the region in 2019/20 were:

- Meat and animal fibres (14.2 per cent)
- Dairy (10.4 per cent)
- Other agriculture & services (2.0 per cent)
- Prepared foods (1.1 per cent)
- Forest products (0.8 per cent).

##### 3.1.2. Gross Regional Product

Contribution to GRP by food and fibre sectors in RP GSC in 2019/20 was estimated to be \$1.2 billion (Table 3-2). The contribution of an individual industry to GRP is calculated as the sum of household income, gross operating surplus and gross mixed income and indirect taxes less subsidies. In 2019/20, the top five food and fibre sector contributors to GRP (\$6.7 billion in 2019/20) were:

- Meat and animal fibres (7.5 per cent)
- Dairy (7.3 per cent)
- Other agriculture & services (1.1 per cent)
- Forest products (0.9 per cent).

### 3.1.3. Imports and Exports

A breakdown of the value of imports and exports by industry sector for the RP GSC in 2019/20 is provided in Table 3-3. These data were derived from an I-O model for the region. Some of the key points to note from these data follow.

- Expenditure by households accounted for almost 26 per cent of the total value of goods and services imported into the region in 2019/20 from intrastate (i.e. other regions within Vic.), interstate and overseas.
- Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the meat and animal fibres (6 per cent) sector.
- Expenditure by tourists (\$667m) contributed approximately 11 per cent of the total value of exports from the region in 2019/20. The balance (i.e. 'other exports'), about \$5.2b, represents the value of goods and services purchased by consumers (i.e. households, businesses, governments, etc.) in other regions within Vic., interstate and internationally.
- Total regional expenditure by tourists (\$667m) comprised about 3 per cent of the Vic. total expenditure by tourists in 2019/20 (\$21.9b).
- The top food and fibre contributors to the value of 'other exports' from the region in 2019/20 were the dairy (25 per cent) and meat and animal fibres (23 per cent) sectors.
- The trade balance (i.e. exports less imports) in the RP GSC in 2019/20 was approximately -\$510m.

Table 3-1 Employment, household income and household expenditure, RP GSC, 2019/20

|  | Total Employment |               | FTE Employment  |               | Household Income |               | Household Expenditure |               |
|--|------------------|---------------|-----------------|---------------|------------------|---------------|-----------------------|---------------|
|  | (jobs)           | (%)           | (fte)           | (%)           | (\$m)            | (%)           | (\$m)                 | (%)           |
| Meat and animal fibres                     | 6,381.9          | 11.5%         | 7,743.4         | 14.2%         | 305.6            | 7.8%          | 29.5                  | 0.7%          |
| Dairy                                      | 4,020.9          | 7.3%          | 5,663.3         | 10.4%         | 252.8            | 6.5%          | 23.7                  | 0.5%          |
| Horticulture                               | 77.0             | 0.1%          | 86.1            | 0.2%          | 3.3              | 0.1%          | 13.6                  | 0.3%          |
| Prepared foods                             | 588.5            | 1.1%          | 574.7           | 1.1%          | 30.1             | 0.8%          | 39.3                  | 0.9%          |
| Grains                                     | 337.5            | 0.6%          | 432.4           | 0.8%          | 16.8             | 0.4%          | 0.0                   | 0.0%          |
| Forest products                            | 369.7            | 0.7%          | 436.3           | 0.8%          | 19.9             | 0.5%          | 1.7                   | 0.0%          |
| Wine                                       | 48.5             | 0.1%          | 54.7            | 0.1%          | 2.2              | 0.1%          | 4.9                   | 0.1%          |
| Skins, hides, textile, clothing & footwear | 51.0             | 0.1%          | 37.7            | 0.1%          | 1.3              | 0.0%          | 1.0                   | 0.0%          |
| Seafood                                    | 120.4            | 0.2%          | 135.7           | 0.2%          | 5.0              | 0.1%          | 2.4                   | 0.1%          |
| Other agriculture & services               | 900.9            | 1.6%          | 1,075.6         | 2.0%          | 39.6             | 1.0%          | 1.5                   | 0.0%          |
| Other sectors                              | 42,400.4         | 76.7%         | 38,166.5        | 70.2%         | 3,234.1          | 82.7%         | 2,264.8               | 52.1%         |
| <b>Total Intermediate</b>                  | <b>55,296.6</b>  | <b>100.0%</b> | <b>54,406.5</b> | <b>100.0%</b> | <b>3,910.8</b>   | <b>100.0%</b> | <b>2,382.3</b>        | <b>54.8%</b>  |
| <b>PRIMARY INPUTS</b>                      |                  |               |                 |               |                  |               |                       |               |
| Household Income                           | -                | -             | -               | -             | -                | -             | 0.0                   | 0.0%          |
| GOS and GMI*                               | -                | -             | -               | -             | -                | -             | 0.0                   | 0.0%          |
| Taxes Less Subsidies                       | -                | -             | -               | -             | -                | -             | 310.0                 | 7.1%          |
| Imports                                    | -                | -             | -               | -             | -                | -             | 1,655.4               | 38.1%         |
| <b>Primary Inputs Total</b>                | <b>0.0</b>       | <b>0.0%</b>   | <b>0.0</b>      | <b>0.0%</b>   | <b>0.0</b>       | <b>0.0%</b>   | <b>1,965.5</b>        | <b>45.2%</b>  |
| <b>GRAND TOTAL</b>                         | <b>55,296.6</b>  | <b>100.0%</b> | <b>54,406.5</b> | <b>100.0%</b> | <b>3,910.8</b>   | <b>100.0%</b> | <b>4,347.8</b>        | <b>100.0%</b> |

\* Gross operating surplus and gross mixed income.

Source: BDO EconSearch analysis

Table 3-2 Components of gross regional product in RP GSC by industry, 2019/20

|  | Household Income |               | GOS and GMI*   |               | Taxes less Subsidies (TLS)** |               | Gross Regional Product |              | Output          |               |
|--|------------------|---------------|----------------|---------------|------------------------------|---------------|------------------------|--------------|-----------------|---------------|
|  | (\$m)            | (%)           | (\$m)          | (%)           | (\$m)                        | (%)           | (\$m)                  | (%)          | (\$m)           | (%)           |
| Meat and animal fibres                     | 305.6            | 7.8%          | 170.2          | 7.9%          | 28.2                         | 13.8%         | 504.0                  | 7.5%         | 1,533.8         | 11.1%         |
| Dairy                                      | 252.8            | 6.5%          | 208.6          | 9.7%          | 26.1                         | 12.8%         | 487.5                  | 7.3%         | 1,963.8         | 14.1%         |
| Horticulture                               | 3.3              | 0.1%          | 3.7            | 0.2%          | 0.3                          | 0.1%          | 7.3                    | 0.1%         | 16.4            | 0.1%          |
| Prepared foods                             | 30.1             | 0.8%          | 23.4           | 1.1%          | 1.5                          | 0.8%          | 55.1                   | 0.8%         | 209.5           | 1.5%          |
| Grains                                     | 16.8             | 0.4%          | 24.3           | 1.1%          | 2.6                          | 1.3%          | 43.7                   | 0.6%         | 116.6           | 0.8%          |
| Forest products                            | 19.9             | 0.5%          | 35.8           | 1.7%          | 2.1                          | 1.0%          | 57.8                   | 0.9%         | 145.1           | 1.0%          |
| Wine                                       | 2.2              | 0.1%          | 1.3            | 0.1%          | 0.2                          | 0.1%          | 3.7                    | 0.1%         | 12.5            | 0.1%          |
| Skins, hides, textile, clothing & footwear | 1.3              | 0.0%          | 1.2            | 0.1%          | 0.1                          | 0.0%          | 2.6                    | 0.0%         | 8.5             | 0.1%          |
| Seafood                                    | 5.0              | 0.1%          | 5.8            | 0.3%          | 0.6                          | 0.3%          | 11.4                   | 0.2%         | 32.3            | 0.2%          |
| Other agriculture & services               | 39.6             | 1.0%          | 30.4           | 1.4%          | 3.3                          | 1.6%          | 73.3                   | 1.1%         | 203.3           | 1.5%          |
| Other sectors                              | 3,234.1          | 82.7%         | 1,638.8        | 76.4%         | 139.3                        | 68.2%         | 5,012.2                | 74.6%        | 9,638.3         | 69.4%         |
| <b>Total</b>                               | <b>3,910.8</b>   | <b>100.0%</b> | <b>2,143.7</b> | <b>100.0%</b> | <b>204.3</b>                 | <b>100.0%</b> | <b>6,258.8</b>         | <b>93.1%</b> | <b>13,880.2</b> | <b>100.0%</b> |
| <b>Net Taxes in Final Demand</b>           | -                | -             | -              | -             | -                            | -             | 461.4                  | 6.9%         | -               | -             |
| <b>Gross Regional Product</b>              | -                | -             | -              | -             | -                            | -             | 6,720.2                | 100.0%       | -               | -             |

Source: BDO EconSearch analysis

Table 3-3 Value of imports and exports by industry, RP GSC by industry, 2019/20

|  | Tourism |        | Other Exports |        | Total Exports |        | Imports |        |
|--|---------|--------|---------------|--------|---------------|--------|---------|--------|
|  | (\$m)   | (%)    | (\$m)         | (%)    | (\$m)         | (%)    | (\$m)   | (%)    |
| Meat and animal fibres                     | 4.5     | 0.7%   | 1,188.5       | 22.8%  | 1,193.0       | 20.3%  | 410.9   | 6.4%   |
| Dairy                                      | 6.3     | 1.0%   | 1,309.4       | 25.1%  | 1,315.7       | 22.4%  | 354.5   | 5.5%   |
| Horticulture                               | 1.2     | 0.2%   | 0.8           | 0.0%   | 1.9           | 0.0%   | 4.1     | 0.1%   |
| Prepared foods                             | 7.1     | 1.1%   | 63.2          | 1.2%   | 70.3          | 1.2%   | 69.5    | 1.1%   |
| Grains                                     | 0.0     | 0.0%   | 15.5          | 0.3%   | 15.5          | 0.3%   | 30.2    | 0.5%   |
| Forest products                            | 0.0     | 0.0%   | 75.4          | 1.4%   | 75.4          | 1.3%   | 26.3    | 0.4%   |
| Wine                                       | 6.0     | 0.9%   | 0.8           | 0.0%   | 6.7           | 0.1%   | 5.0     | 0.1%   |
| Skins, hides, textile, clothing & footwear | 1.1     | 0.2%   | 4.3           | 0.1%   | 5.4           | 0.1%   | 2.3     | 0.0%   |
| Seafood                                    | 1.8     | 0.3%   | 19.1          | 0.4%   | 20.9          | 0.4%   | 6.9     | 0.1%   |
| Other agriculture & services               | 0.0     | 0.0%   | 25.4          | 0.5%   | 25.4          | 0.4%   | 58.5    | 0.9%   |
| Other sectors                              | 371.2   | 55.6%  | 2,388.8       | 45.8%  | 2,760.0       | 46.9%  | 2,773.0 | 43.4%  |
| Intermediate Total                         | 399.3   | 59.8%  | 5,091.1       | 97.7%  | 5,490.4       | 93.4%  | 3,741.2 | 58.6%  |
| PRIMARY INPUTS                             |         |        |               |        |               |        |         |        |
| Household Income                           | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| GOS and GMI*                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| Taxes Less Subsidies                       | 55.1    | 8.3%   | 1.8           | 0.0%   | 56.9          | 1.0%   | -       | -      |
| Imports                                    | 212.9   | 31.9%  | 118.9         | 2.3%   | 331.8         | 5.6%   | -       | -      |
| Primary Inputs Total                       | 268.1   | 40.2%  | 120.7         | 2.3%   | 388.7         | 6.6%   | -       | -      |
| FINAL DEMAND                               |         |        |               |        |               |        |         |        |
| Household Expenditure                      | -       | -      | -             | -      | -             | -      | 1,655.4 | 25.9%  |
| Government Expenditure                     | -       | -      | -             | -      | -             | -      | 223.2   | 3.5%   |
| Gross Fixed Capital                        | -       | -      | -             | -      | -             | -      | 437.6   | 6.8%   |
| Change in Inventories                      | -       | -      | -             | -      | -             | -      | -0.3    | 0.0%   |
| Tourism                                    | -       | -      | -             | -      | -             | -      | 212.9   | 3.3%   |
| Other Exports                              | -       | -      | -             | -      | -             | -      | 118.9   | 1.9%   |
| Final Demand Total                         | -       | -      | -             | -      | -             | -      | 2,647.8 | 41.4%  |
| GRAND TOTAL                                | 667.3   | 100.0% | 5,211.8       | 100.0% | 5,879.1       | 100.0% | 6,389.0 | 100.0% |

Source: BDO EconSearch analysis



## 3.2. Corangamite Shire

### 3.2.1. Employment

It was estimated that there were about 3,500 jobs (around 4,600 fte jobs) in the food and fibre sectors in Corangamite for 2019/20 (Table 3-4). A sectoral breakdown of employment, household income and household expenditure for Corangamite in 2019/20 is provided in Table 3-4. Of total jobs in Corangamite (9,200 fte jobs), the top five food and fibre sector contributors to fte employment in the region in 2019/20 were:

- Dairy (27.5 per cent)
- Meat and animal fibres (13.4 per cent)
- Other agriculture & services (3.3 per cent)
- Prepared foods (2.7 per cent)
- Grains (2.4 per cent).

### 3.2.2. Gross Regional Product

Contribution to GRP by food and fibre sectors in Corangamite in 2019/20 was estimated to be \$363 million (Table 3-5). In 2019/20, the top five food and fibre sector contributors to GRP (\$1.2 billion in 2019/20) were:

- Dairy (17.5 per cent)
- Meat and animal fibres (6.4 per cent)
- Prepared foods (3.1 per cent)
- Grains (1.9 per cent).
- Other agriculture & services (1.7 per cent)

### 3.2.3. Imports and Exports

A breakdown of the value of imports and exports by industry sector for Corangamite in 2019/20 is provided in Table 3-6. Some of the key points to note from these data follow.

- Expenditure by households accounted for almost 26 per cent of the total value of goods and services imported into the region in 2019/20 from intrastate (i.e. other regions within Vic.), interstate and overseas.
- Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the dairy (19 per cent) sector.
- Expenditure by tourists (\$90m) contributed approximately 7 per cent of the total value of exports from the region in 2019/20. The balance (i.e. 'other exports'), about \$1.2b, represents the value of goods and services purchased by consumers (i.e. households, businesses, governments, etc.) in other regions within Vic., interstate and internationally.
- Total regional expenditure by tourists (\$90m) comprised less than 1 per cent of the Vic. total expenditure by tourists in 2019/20 (\$21.9b).
- The top food and fibre contributors to the value of 'other exports' from the region in 2019/20 were the dairy (47 per cent) and meat and animal fibres (14 per cent) sectors.
- The trade balance (i.e. exports less imports) in Corangamite in 2019/20 was approximately -\$40m.

Table 3-4 Employment, household income and household expenditure, Corangamite, 2019/20

|  | Total Employment |               | FTE Employment |               | Household Income |               | Household Expenditure |               |
|--|------------------|---------------|----------------|---------------|------------------|---------------|-----------------------|---------------|
|  | (jobs)           | (%)           | (fte)          | (%)           | (\$m)            | (%)           | (\$m)                 | (%)           |
| Meat and animal fibres                     | 1,045.9          | 12.1%         | 1,242.4        | 13.4%         | 46.9             | 8.1%          | 3.6                   | 0.5%          |
| Dairy                                      | 1,727.3          | 20.0%         | 2,540.5        | 27.5%         | 107.5            | 18.6%         | 3.9                   | 0.5%          |
| Horticulture                               | 15.2             | 0.2%          | 18.5           | 0.2%          | 0.8              | 0.1%          | 1.5                   | 0.2%          |
| Prepared foods                             | 226.8            | 2.6%          | 253.0          | 2.7%          | 15.1             | 2.6%          | 5.6                   | 0.8%          |
| Grains                                     | 176.5            | 2.0%          | 222.5          | 2.4%          | 8.8              | 1.5%          | 0.0                   | 0.0%          |
| Forest products                            | 5.4              | 0.1%          | 7.3            | 0.1%          | 0.4              | 0.1%          | 0.0                   | 0.0%          |
| Wine                                       | 0.0              | 0.0%          | 0.0            | 0.0%          | 0.0              | 0.0%          | 0.0                   | 0.0%          |
| Skins, hides, textile, clothing & footwear | 10.9             | 0.1%          | 9.4            | 0.1%          | 0.4              | 0.1%          | 0.1                   | 0.0%          |
| Seafood                                    | 5.5              | 0.1%          | 6.6            | 0.1%          | 0.2              | 0.0%          | 0.1                   | 0.0%          |
| Other agriculture & services               | 241.4            | 2.8%          | 306.5          | 3.3%          | 11.1             | 1.9%          | 0.2                   | 0.0%          |
| Other sectors                              | 5,181.5          | 60.0%         | 4,641.9        | 50.2%         | 386.9            | 66.9%         | 301.3                 | 41.8%         |
| <b>Total Intermediate</b>                  | <b>8,636.3</b>   | <b>100.0%</b> | <b>9,248.5</b> | <b>100.0%</b> | <b>578.2</b>     | <b>100.0%</b> | <b>316.2</b>          | <b>43.9%</b>  |
| <b>PRIMARY INPUTS</b>                      |                  |               |                |               |                  |               |                       |               |
| Household Income                           | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| GOS and GMI*                               | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| Taxes Less Subsidies                       | -                | -             | -              | -             | -                | -             | 51.4                  | 7.1%          |
| Imports                                    | -                | -             | -              | -             | -                | -             | 352.8                 | 49.0%         |
| <b>Primary Inputs Total</b>                | <b>0.0</b>       | <b>0.0%</b>   | <b>0.0</b>     | <b>0.0%</b>   | <b>0.0</b>       | <b>0.0%</b>   | <b>404.2</b>          | <b>56.1%</b>  |
| <b>GRAND TOTAL</b>                         | <b>8,636.3</b>   | <b>100.0%</b> | <b>9,248.5</b> | <b>100.0%</b> | <b>578.2</b>     | <b>100.0%</b> | <b>720.3</b>          | <b>100.0%</b> |

\* Gross operating surplus and gross mixed income.

Source: BDO EconSearch analysis

Table 3-5 Components of gross regional product in Corangamite by industry, 2019/20

|  | Household Income |               | GOS and GMI* |               | Taxes less Subsidies (TLS)** |               | Gross Regional Product |              | Output         |               |
|--|------------------|---------------|--------------|---------------|------------------------------|---------------|------------------------|--------------|----------------|---------------|
|  | (\$m)            | (%)           | (\$m)        | (%)           | (\$m)                        | (%)           | (\$m)                  | (%)          | (\$m)          | (%)           |
| Meat and animal fibres                     | 46.9             | 8.1%          | 23.9         | 4.9%          | 4.2                          | 11.1%         | 75.0                   | 6.4%         | 202.4          | 8.2%          |
| Dairy                                      | 107.5            | 18.6%         | 86.5         | 17.8%         | 11.4                         | 30.4%         | 205.4                  | 17.5%        | 727.8          | 29.3%         |
| Horticulture                               | 0.8              | 0.1%          | 0.7          | 0.1%          | 0.1                          | 0.2%          | 1.5                    | 0.1%         | 3.3            | 0.1%          |
| Prepared foods                             | 15.1             | 2.6%          | 20.8         | 4.3%          | 0.9                          | 2.4%          | 36.8                   | 3.1%         | 144.0          | 5.8%          |
| Grains                                     | 8.8              | 1.5%          | 12.5         | 2.6%          | 1.3                          | 3.5%          | 22.6                   | 1.9%         | 60.0           | 2.4%          |
| Forest products                            | 0.4              | 0.1%          | 0.4          | 0.1%          | 0.0                          | 0.1%          | 0.9                    | 0.1%         | 3.3            | 0.1%          |
| Wine                                       | 0.0              | 0.0%          | 0.0          | 0.0%          | 0.0                          | 0.0%          | 0.0                    | 0.0%         | 0.0            | 0.0%          |
| Skins, hides, textile, clothing & footwear | 0.4              | 0.1%          | 0.4          | 0.1%          | 0.0                          | 0.1%          | 0.8                    | 0.1%         | 3.0            | 0.1%          |
| Seafood                                    | 0.2              | 0.0%          | 0.4          | 0.1%          | 0.0                          | 0.1%          | 0.7                    | 0.1%         | 1.5            | 0.1%          |
| Other agriculture & services               | 11.1             | 1.9%          | 7.7          | 1.6%          | 0.9                          | 2.4%          | 19.7                   | 1.7%         | 56.9           | 2.3%          |
| Other sectors                              | 386.9            | 66.9%         | 332.1        | 68.4%         | 18.7                         | 49.8%         | 737.6                  | 62.7%        | 1,279.1        | 51.6%         |
| <b>Total</b>                               | <b>578.2</b>     | <b>100.0%</b> | <b>485.5</b> | <b>100.0%</b> | <b>37.5</b>                  | <b>100.0%</b> | <b>1,101.1</b>         | <b>93.5%</b> | <b>2,481.2</b> | <b>100.0%</b> |
| Net Taxes in Final Demand                  | -                | -             | -            | -             | -                            | -             | 76.0                   | 6.5%         | -              | -             |
| Gross Regional Product                     | -                | -             | -            | -             | -                            | -             | 1,177.1                | 100.0%       | -              | -             |

Source: BDO EconSearch analysis

Table 3-6 Value of imports and exports by industry, Corangamite by industry, 2019/20

|  | Tourism |        | Other Exports |        | Total Exports |        | Imports |        |
|--|---------|--------|---------------|--------|---------------|--------|---------|--------|
|  | (\$m)   | (%)    | (\$m)         | (%)    | (\$m)         | (%)    | (\$m)   | (%)    |
| Meat and animal fibres                     | 0.6     | 0.7%   | 177.1         | 14.4%  | 177.7         | 13.5%  | 46.6    | 3.4%   |
| Dairy                                      | 0.9     | 1.0%   | 577.0         | 46.9%  | 577.9         | 43.8%  | 252.5   | 18.6%  |
| Horticulture                               | 0.0     | 0.0%   | 0.9           | 0.1%   | 0.9           | 0.1%   | 1.0     | 0.1%   |
| Prepared foods                             | 0.9     | 1.0%   | 58.3          | 4.7%   | 59.2          | 4.5%   | 69.4    | 5.1%   |
| Grains                                     | 0.0     | 0.0%   | 10.8          | 0.9%   | 10.8          | 0.8%   | 0.0     | 0.0%   |
| Forest products                            | 0.0     | 0.0%   | 2.0           | 0.2%   | 2.0           | 0.1%   | 1.5     | 0.1%   |
| Wine                                       | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | 0.0     | 0.0%   |
| Skins, hides, textile, clothing & footwear | 0.2     | 0.2%   | 1.9           | 0.2%   | 2.0           | 0.2%   | 1.3     | 0.1%   |
| Seafood                                    | 0.0     | 0.0%   | 1.1           | 0.1%   | 1.1           | 0.1%   | 0.6     | 0.0%   |
| Other agriculture & services               | 0.0     | 0.0%   | 5.5           | 0.4%   | 5.5           | 0.4%   | 26.0    | 1.9%   |
| Other sectors                              | 48.8    | 54.2%  | 395.4         | 32.1%  | 444.2         | 33.6%  | 398.6   | 29.3%  |
| Intermediate Total                         | 51.4    | 57.0%  | 1,229.8       | 100.0% | 1,281.2       | 97.0%  | 797.5   | 58.6%  |
| PRIMARY INPUTS                             |         |        |               |        |               |        |         |        |
| Household Income                           | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| GOS and GMI*                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| Taxes Less Subsidies                       | 7.2     | 8.0%   | 0.3           | 0.0%   | 7.6           | 0.6%   | -       | -      |
| Imports                                    | 31.5    | 35.0%  | 0.0           | 0.0%   | 31.5          | 2.4%   | -       | -      |
| Primary Inputs Total                       | 38.8    | 43.0%  | 0.3           | 0.0%   | 39.1          | 3.0%   | -       | -      |
| FINAL DEMAND                               |         |        |               |        |               |        |         |        |
| Household Expenditure                      | -       | -      | -             | -      | -             | -      | 352.8   | 25.9%  |
| Government Expenditure                     | -       | -      | -             | -      | -             | -      | 91.0    | 6.7%   |
| Gross Fixed Capital                        | -       | -      | -             | -      | -             | -      | 87.9    | 6.5%   |
| Change in Inventories                      | -       | -      | -             | -      | -             | -      | -0.5    | 0.0%   |
| Tourism                                    | -       | -      | -             | -      | -             | -      | 31.5    | 2.3%   |
| Other Exports                              | -       | -      | -             | -      | -             | -      | 0.0     | 0.0%   |
| Final Demand Total                         | -       | -      | -             | -      | -             | -      | 562.8   | 41.4%  |
| GRAND TOTAL                                | 90.1    | 100.0% | 1,230.1       | 100.0% | 1,320.2       | 100.0% | 1,360.3 | 100.0% |

Source: BDO EconSearch analysis

### 3.3. Glenelg Shire

#### 3.3.1. Employment

It was estimated that there were about 1,900 jobs (around 2,300 fte jobs) in the food and fibre sectors in Glenelg for 2019/20 (Table 3-7). A sectoral breakdown of employment, household income and household expenditure for Glenelg in 2019/20 is provided in Table 3-7. Of total jobs in Glenelg (2,300 fte jobs), the top five food and fibre sector contributors to fte employment in the region in 2019/20 were:

- Meat and animal fibres (14.7 per cent)
- Other agriculture & services (2.9 per cent)
- Forest products (2.3 per cent).
- Dairy (1.7 per cent)
- Seafood (1.1 per cent)

#### 3.3.2. Gross Regional Product

Contribution to GRP by food and fibre sectors in Glenelg in 2019/20 was estimated to be \$169 million (Table 3-8). In 2019/20, the top five food and fibre sector contributors to GRP (\$1.2 billion in 2019/20) were:

- Meat and animal fibres (6.8 per cent)
- Forest products (2.8 per cent).
- Other agriculture & services (2.0 per cent)
- Dairy (1.0 per cent)
- Seafood (0.7 per cent)

### 3.3.3. Imports and Exports

A breakdown of the value of imports and exports by industry sector for Glenelg in 2019/20 is provided in Table 3-9. Some of the key points to note from these data follow.

- Expenditure by households accounted for about 27 per cent of the total value of goods and services imported into the region in 2019/20 from intrastate (i.e. other regions within Vic.), interstate and overseas.
- Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the meat and animal fibres (7 per cent) sector.
- Expenditure by tourists (\$118m) contributed approximately 9 per cent of the total value of exports from the region in 2019/20. The balance (i.e. 'other exports'), about \$1.2b, represents the value of goods and services purchased by consumers (i.e. households, businesses, governments, etc.) in other regions within Vic., interstate and internationally.
- Total regional expenditure by tourists (\$118m) comprised less than 1 per cent of the Vic. total expenditure by tourists in 2019/20 (\$21.9b).
- The top food and fibre contributors to the value of 'other exports' from the region in 2019/20 were the meat and animal fibres (18 per cent) and forest products (6 per cent) sectors.
- The trade balance (i.e. exports less imports) in Glenelg in 2019/20 was approximately -\$194m.

Table 3-7 Employment, household income and household expenditure, Glenelg, 2019/20

|  | Total Employment |               | FTE Employment |               | Household Income |               | Household Expenditure |               |
|--|------------------|---------------|----------------|---------------|------------------|---------------|-----------------------|---------------|
|  | (jobs)           | (%)           | (fte)          | (%)           | (\$m)            | (%)           | (\$m)                 | (%)           |
| Meat and animal fibres                     | 1,153.7          | 11.9%         | 1,373.3        | 14.7%         | 52.4             | 7.7%          | 0.9                   | 0.1%          |
| Dairy                                      | 98.3             | 1.0%          | 156.5          | 1.7%          | 5.9              | 0.9%          | 0.0                   | 0.0%          |
| Horticulture                               | 46.6             | 0.5%          | 50.9           | 0.5%          | 1.6              | 0.2%          | 2.6                   | 0.3%          |
| Prepared foods                             | 50.2             | 0.5%          | 42.3           | 0.5%          | 2.1              | 0.3%          | 4.9                   | 0.5%          |
| Grains                                     | 6.4              | 0.1%          | 8.1            | 0.1%          | 0.3              | 0.0%          | 0.0                   | 0.0%          |
| Forest products                            | 162.9            | 1.7%          | 212.4          | 2.3%          | 9.1              | 1.3%          | 0.5                   | 0.1%          |
| Wine                                       | 27.4             | 0.3%          | 31.3           | 0.3%          | 1.4              | 0.2%          | 3.2                   | 0.4%          |
| Skins, hides, textile, clothing & footwear | 0.2              | 0.0%          | 0.2            | 0.0%          | 0.0              | 0.0%          | 0.0                   | 0.0%          |
| Seafood                                    | 92.3             | 1.0%          | 103.2          | 1.1%          | 3.8              | 0.6%          | 0.5                   | 0.1%          |
| Other agriculture & services               | 238.2            | 2.5%          | 272.8          | 2.9%          | 9.8              | 1.4%          | 0.5                   | 0.1%          |
| Other sectors                              | 7,835.0          | 80.7%         | 7,059.3        | 75.8%         | 592.2            | 87.3%         | 399.6                 | 44.9%         |
| <b>Total Intermediate</b>                  | <b>9,711.3</b>   | <b>100.0%</b> | <b>9,310.2</b> | <b>100.0%</b> | <b>678.5</b>     | <b>100.0%</b> | <b>412.6</b>          | <b>46.4%</b>  |
| <b>PRIMARY INPUTS</b>                      |                  |               |                |               |                  |               |                       |               |
| Household Income                           | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| GOS and GMI*                               | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| Taxes Less Subsidies                       | -                | -             | -              | -             | -                | -             | 63.4                  | 7.1%          |
| Imports                                    | -                | -             | -              | -             | -                | -             | 413.1                 | 46.5%         |
| <b>Primary Inputs Total</b>                | <b>0.0</b>       | <b>0.0%</b>   | <b>0.0</b>     | <b>0.0%</b>   | <b>0.0</b>       | <b>0.0%</b>   | <b>476.4</b>          | <b>53.6%</b>  |
| <b>GRAND TOTAL</b>                         | <b>9,711.3</b>   | <b>100.0%</b> | <b>9,310.2</b> | <b>100.0%</b> | <b>678.5</b>     | <b>100.0%</b> | <b>889.0</b>          | <b>100.0%</b> |

\* Gross operating surplus and gross mixed income.

Source: BDO EconSearch analysis



Table 3-8 Components of gross regional product in Glenelg by industry, 2019/20

|  | Household Income |               | GOS and GMI* |               | Taxes less Subsidies (TLS)** |               | Gross Regional Product |              | Output         |               |
|--|------------------|---------------|--------------|---------------|------------------------------|---------------|------------------------|--------------|----------------|---------------|
|  | (\$m)            | (%)           | (\$m)        | (%)           | (\$m)                        | (%)           | (\$m)                  | (%)          | (\$m)          | (%)           |
| Meat and animal fibres                     | 52.4             | 7.7%          | 24.5         | 6.3%          | 4.7                          | 13.4%         | 81.7                   | 6.8%         | 215.1          | 8.5%          |
| Dairy                                      | 5.9              | 0.9%          | 5.0          | 1.3%          | 0.7                          | 1.9%          | 11.6                   | 1.0%         | 30.6           | 1.2%          |
| Horticulture                               | 1.6              | 0.2%          | 2.6          | 0.7%          | 0.2                          | 0.5%          | 4.4                    | 0.4%         | 9.4            | 0.4%          |
| Prepared foods                             | 2.1              | 0.3%          | 0.7          | 0.2%          | 0.1                          | 0.3%          | 2.8                    | 0.2%         | 10.3           | 0.4%          |
| Grains                                     | 0.3              | 0.0%          | 0.5          | 0.1%          | 0.0                          | 0.1%          | 0.8                    | 0.1%         | 2.2            | 0.1%          |
| Forest products                            | 9.1              | 1.3%          | 22.9         | 5.9%          | 1.3                          | 3.5%          | 33.2                   | 2.8%         | 82.3           | 3.2%          |
| Wine                                       | 1.4              | 0.2%          | 1.1          | 0.3%          | 0.1                          | 0.3%          | 2.5                    | 0.2%         | 8.3            | 0.3%          |
| Skins, hides, textile, clothing & footwear | 0.0              | 0.0%          | 0.0          | 0.0%          | 0.0                          | 0.0%          | 0.0                    | 0.0%         | 0.0            | 0.0%          |
| Seafood                                    | 3.8              | 0.6%          | 4.6          | 1.2%          | 0.4                          | 1.2%          | 8.8                    | 0.7%         | 26.0           | 1.0%          |
| Other agriculture & services               | 9.8              | 1.4%          | 12.6         | 3.2%          | 1.0                          | 3.0%          | 23.4                   | 2.0%         | 62.2           | 2.4%          |
| Other sectors                              | 592.2            | 87.3%         | 313.6        | 80.8%         | 26.9                         | 75.8%         | 932.7                  | 78.2%        | 2,092.4        | 82.4%         |
| <b>Total</b>                               | <b>678.5</b>     | <b>100.0%</b> | <b>388.0</b> | <b>100.0%</b> | <b>35.5</b>                  | <b>100.0%</b> | <b>1,101.9</b>         | <b>92.4%</b> | <b>2,538.8</b> | <b>100.0%</b> |
| Net Taxes in Final Demand                  | -                | -             | -            | -             | -                            | -             | 90.4                   | 7.6%         | -              | -             |
| Gross Regional Product                     | -                | -             | -            | -             | -                            | -             | 1,192.3                | 100.0%       | -              | -             |

Source: BDO EconSearch analysis

Table 3-9 Value of imports and exports by industry, Glenelg by industry, 2019/20

|  | Tourism |        | Other Exports |        | Total Exports |        | Imports |        |
|--|---------|--------|---------------|--------|---------------|--------|---------|--------|
|  | (\$m)   | (%)    | (\$m)         | (%)    | (\$m)         | (%)    | (\$m)   | (%)    |
| Meat and animal fibres                     | 0.1     | 0.1%   | 210.8         | 17.7%  | 210.8         | 16.1%  | 97.9    | 6.5%   |
| Dairy                                      | 0.0     | 0.0%   | 30.5          | 2.6%   | 30.5          | 2.3%   | 8.0     | 0.5%   |
| Horticulture                               | 0.0     | 0.0%   | 5.8           | 0.5%   | 5.8           | 0.4%   | 2.2     | 0.1%   |
| Prepared foods                             | 1.2     | 1.0%   | 3.3           | 0.3%   | 4.5           | 0.3%   | 5.3     | 0.4%   |
| Grains                                     | 0.0     | 0.0%   | -0.1          | 0.0%   | -0.1          | 0.0%   | 1.2     | 0.1%   |
| Forest products                            | 0.0     | 0.0%   | 69.1          | 5.8%   | 69.1          | 5.3%   | 19.5    | 1.3%   |
| Wine                                       | 1.4     | 1.2%   | 2.6           | 0.2%   | 4.0           | 0.3%   | 4.0     | 0.3%   |
| Skins, hides, textile, clothing & footwear | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | 0.0     | 0.0%   |
| Seafood                                    | 0.3     | 0.3%   | 22.2          | 1.9%   | 22.5          | 1.7%   | 10.6    | 0.7%   |
| Other agriculture & services               | 0.0     | 0.0%   | 17.5          | 1.5%   | 17.5          | 1.3%   | 14.4    | 1.0%   |
| Other sectors                              | 60.3    | 51.2%  | 831.2         | 69.7%  | 891.6         | 68.0%  | 742.1   | 49.3%  |
| Intermediate Total                         | 63.3    | 53.7%  | 1,193.0       | 100.0% | 1,256.3       | 95.8%  | 905.3   | 60.1%  |
| PRIMARY INPUTS                             |         |        |               |        |               |        |         |        |
| Household Income                           | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| GOS and GMI*                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| Taxes Less Subsidies                       | 9.5     | 8.0%   | 0.3           | 0.0%   | 9.8           | 0.7%   | -       | -      |
| Imports                                    | 45.1    | 38.3%  | 0.0           | 0.0%   | 45.1          | 3.4%   | -       | -      |
| Primary Inputs Total                       | 54.6    | 46.3%  | 0.3           | 0.0%   | 54.9          | 4.2%   | -       | -      |
| FINAL DEMAND                               |         |        |               |        |               |        |         |        |
| Household Expenditure                      | -       | -      | -             | -      | -             | -      | 413.1   | 27.4%  |
| Government Expenditure                     | -       | -      | -             | -      | -             | -      | 53.9    | 3.6%   |
| Gross Fixed Capital                        | -       | -      | -             | -      | -             | -      | 88.6    | 5.9%   |
| Change in Inventories                      | -       | -      | -             | -      | -             | -      | -0.9    | -0.1%  |
| Tourism                                    | -       | -      | -             | -      | -             | -      | 45.1    | 3.0%   |
| Other Exports                              | -       | -      | -             | -      | -             | -      | 0.0     | 0.0%   |
| Final Demand Total                         | -       | -      | -             | -      | -             | -      | 599.8   | 39.9%  |
| GRAND TOTAL                                | 117.9   | 100.0% | 1,193.3       | 100.0% | 1,311.2       | 100.0% | 1,505.1 | 100.0% |

Source: BDO EconSearch analysis

### 3.4. Moyne Shire

#### 3.4.1. Employment

It was estimated that there were about 3,400 jobs (around 4,500 fte jobs) in the food and fibre sectors in Moyne in 2019/20 (Table 3-10). A sectoral breakdown of employment, household income and household expenditure for Moyne in 2019/20 is provided in Table 3-10. Of total jobs in Moyne (8,500 fte jobs), the top five food and fibre sector contributors to fte employment in the region in 2019/20 were:

- Meat and animal fibres (27.3 per cent)
- Dairy (21.3 per cent)
- Other agriculture & services (1.7 per cent)
- Grains (1.1 per cent)
- Prepared foods (0.8 per cent).

#### 3.4.2. Gross Regional Product

Contribution to GRP by food and fibre sectors in Moyne in 2019/20 was estimated to be \$320 million (Table 3-11). In 2019/20, the top five food and fibre sector contributors to GRP (\$0.9 billion in 2019/20) were:

- Dairy (16.7 per cent)
- Meat and animal fibres (16.0 per cent)
- Grains (1.0 per cent)
- Other agriculture & services (0.8 per cent)
- Forest products (0.7 per cent).

### 3.4.3. Imports and Exports

A breakdown of the value of imports and exports by industry sector for Moyne in 2019/20 is provided in Table 3-12. Some of the key points to note from these data follow.

- Expenditure by households accounted for almost 26 per cent of the total value of goods and services imported into the region in 2019/20 from intrastate (i.e. other regions within Vic.), interstate and overseas.
- Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the meat and animal fibres (15 per cent) sector.
- Expenditure by tourists (\$98m) contributed approximately 9 per cent of the total value of exports from the region in 2019/20. The balance (i.e. 'other exports'), about \$1.0b, represents the value of goods and services purchased by consumers (i.e. households, businesses, governments, etc.) in other regions within Vic., interstate and internationally.
- Total regional expenditure by tourists (\$98m) comprised less than 1 per cent of the Vic. total expenditure by tourists in 2019/20 (\$21.9b).
- The top food and fibre contributors to the value of 'other exports' from the region in 2019/20 were the dairy (40 per cent) and meat and animal fibres (35 per cent) sectors.
- The trade balance (i.e. exports less imports) in Moyne in 2019/20 was approximately -\$120m.

Table 3-10 Employment, household income and household expenditure, Moyne, 2019/20

|  | Total Employment |               | FTE Employment |               | Household Income |               | Household Expenditure |               |
|--|------------------|---------------|----------------|---------------|------------------|---------------|-----------------------|---------------|
|  | (jobs)           | (%)           | (fte)          | (%)           | (\$m)            | (%)           | (\$m)                 | (%)           |
| Meat and animal fibres                     | 1,843.7          | 23.5%         | 2,309.7        | 27.3%         | 88.8             | 17.5%         | 3.8                   | 0.6%          |
| Dairy                                      | 1,239.1          | 15.8%         | 1,803.8        | 21.3%         | 76.7             | 15.1%         | 3.3                   | 0.5%          |
| Horticulture                               | 6.3              | 0.1%          | 7.4            | 0.1%          | 0.4              | 0.1%          | 0.5                   | 0.1%          |
| Prepared foods                             | 75.6             | 1.0%          | 66.3           | 0.8%          | 3.2              | 0.6%          | 3.3                   | 0.5%          |
| Grains                                     | 67.3             | 0.9%          | 89.3           | 1.1%          | 3.3              | 0.7%          | 0.0                   | 0.0%          |
| Forest products                            | 44.9             | 0.6%          | 53.5           | 0.6%          | 1.8              | 0.4%          | 0.1                   | 0.0%          |
| Wine                                       | 0.7              | 0.0%          | 0.8            | 0.0%          | 0.0              | 0.0%          | 0.0                   | 0.0%          |
| Skins, hides, textile, clothing & footwear | 0.7              | 0.0%          | 0.5            | 0.0%          | 0.0              | 0.0%          | 0.0                   | 0.0%          |
| Seafood                                    | 20.2             | 0.3%          | 23.0           | 0.3%          | 0.8              | 0.2%          | 0.2                   | 0.0%          |
| Other agriculture & services               | 109.9            | 1.4%          | 140.6          | 1.7%          | 5.3              | 1.0%          | 0.1                   | 0.0%          |
| Other sectors                              | 4,447.6          | 56.6%         | 3,971.1        | 46.9%         | 327.7            | 64.5%         | 230.0                 | 38.0%         |
| <b>Total Intermediate</b>                  | <b>7,856.1</b>   | <b>100.0%</b> | <b>8,466.1</b> | <b>100.0%</b> | <b>508.2</b>     | <b>100.0%</b> | <b>241.3</b>          | <b>39.9%</b>  |
| <b>PRIMARY INPUTS</b>                      |                  |               |                |               |                  |               |                       |               |
| Household Income                           | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| GOS and GMI*                               | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| Taxes Less Subsidies                       | -                | -             | -              | -             | -                | -             | 43.1                  | 7.1%          |
| Imports                                    | -                | -             | -              | -             | -                | -             | 320.1                 | 53.0%         |
| <b>Primary Inputs Total</b>                | <b>0.0</b>       | <b>0.0%</b>   | <b>0.0</b>     | <b>0.0%</b>   | <b>0.0</b>       | <b>0.0%</b>   | <b>363.3</b>          | <b>60.1%</b>  |
| <b>GRAND TOTAL</b>                         | <b>7,856.1</b>   | <b>100.0%</b> | <b>8,466.1</b> | <b>100.0%</b> | <b>508.2</b>     | <b>100.0%</b> | <b>604.6</b>          | <b>100.0%</b> |

\* Gross operating surplus and gross mixed income.

Source: BDO EconSearch analysis

Table 3-11 Components of gross regional product in Moyne by industry, 2019/20

|  | Household Income |               | GOS and GMI* |               | Taxes less Subsidies (TLS)** |               | Gross Regional Product |              | Output         |               |
|--|------------------|---------------|--------------|---------------|------------------------------|---------------|------------------------|--------------|----------------|---------------|
|  | (\$m)            | (%)           | (\$m)        | (%)           | (\$m)                        | (%)           | (\$m)                  | (%)          | (\$m)          | (%)           |
| Meat and animal fibres                     | 88.8             | 17.5%         | 45.8         | 15.8%         | 8.3                          | 26.0%         | 142.9                  | 16.0%        | 395.2          | 19.5%         |
| Dairy                                      | 76.7             | 15.1%         | 64.3         | 22.2%         | 8.2                          | 25.7%         | 149.2                  | 16.7%        | 550.1          | 27.2%         |
| Horticulture                               | 0.4              | 0.1%          | 0.2          | 0.1%          | 0.0                          | 0.1%          | 0.6                    | 0.1%         | 1.4            | 0.1%          |
| Prepared foods                             | 3.2              | 0.6%          | 0.3          | 0.1%          | 0.1                          | 0.4%          | 3.6                    | 0.4%         | 12.6           | 0.6%          |
| Grains                                     | 3.3              | 0.7%          | 5.0          | 1.7%          | 0.5                          | 1.7%          | 8.8                    | 1.0%         | 24.1           | 1.2%          |
| Forest products                            | 1.8              | 0.4%          | 4.2          | 1.4%          | 0.2                          | 0.8%          | 6.3                    | 0.7%         | 13.3           | 0.7%          |
| Wine                                       | 0.0              | 0.0%          | 0.0          | 0.0%          | 0.0                          | 0.0%          | 0.1                    | 0.0%         | 0.3            | 0.0%          |
| Skins, hides, textile, clothing & footwear | 0.0              | 0.0%          | 0.0          | 0.0%          | 0.0                          | 0.0%          | 0.0                    | 0.0%         | 0.1            | 0.0%          |
| Seafood                                    | 0.8              | 0.2%          | 0.6          | 0.2%          | 0.1                          | 0.3%          | 1.5                    | 0.2%         | 4.1            | 0.2%          |
| Other agriculture & services               | 5.3              | 1.0%          | 1.3          | 0.5%          | 0.3                          | 1.0%          | 7.0                    | 0.8%         | 20.3           | 1.0%          |
| Other sectors                              | 327.7            | 64.5%         | 167.9        | 58.0%         | 14.0                         | 44.1%         | 509.7                  | 56.9%        | 1,000.7        | 49.5%         |
| <b>Total</b>                               | <b>508.2</b>     | <b>100.0%</b> | <b>289.6</b> | <b>100.0%</b> | <b>31.8</b>                  | <b>100.0%</b> | <b>829.6</b>           | <b>92.7%</b> | <b>2,022.1</b> | <b>100.0%</b> |
| Net Taxes in Final Demand                  | -                | -             | -            | -             | -                            | -             | 65.4                   | 7.3%         | -              | -             |
| Gross Regional Product                     | -                | -             | -            | -             | -                            | -             | 895.0                  | 100.0%       | -              | -             |

Source: BDO EconSearch analysis

Table 3-12 Value of imports and exports by industry, Moyne by industry, 2019/20

|  | Tourism |        | Other Exports |        | Total Exports |        | Imports |        |
|--|---------|--------|---------------|--------|---------------|--------|---------|--------|
|  | (\$m)   | (%)    | (\$m)         | (%)    | (\$m)         | (%)    | (\$m)   | (%)    |
| Meat and animal fibres                     | 0.7     | 0.7%   | 364.2         | 35.3%  | 364.9         | 32.3%  | 191.1   | 15.3%  |
| Dairy                                      | 1.0     | 1.0%   | 409.5         | 39.7%  | 410.4         | 36.3%  | 157.1   | 12.6%  |
| Horticulture                               | 0.1     | 0.1%   | 0.6           | 0.1%   | 0.7           | 0.1%   | 0.4     | 0.0%   |
| Prepared foods                             | 1.0     | 1.0%   | 4.6           | 0.4%   | 5.6           | 0.5%   | 6.7     | 0.5%   |
| Grains                                     | 0.0     | 0.0%   | 2.0           | 0.2%   | 2.0           | 0.2%   | 13.7    | 1.1%   |
| Forest products                            | 0.0     | 0.0%   | 10.3          | 1.0%   | 10.3          | 0.9%   | 5.5     | 0.4%   |
| Wine                                       | 0.2     | 0.2%   | 0.0           | 0.0%   | 0.2           | 0.0%   | 0.2     | 0.0%   |
| Skins, hides, textile, clothing & footwear | 0.0     | 0.0%   | 0.1           | 0.0%   | 0.1           | 0.0%   | 0.0     | 0.0%   |
| Seafood                                    | 0.0     | 0.0%   | 3.7           | 0.4%   | 3.7           | 0.3%   | 2.5     | 0.2%   |
| Other agriculture & services               | 0.0     | 0.0%   | 1.5           | 0.1%   | 1.5           | 0.1%   | 8.6     | 0.7%   |
| Other sectors                              | 51.5    | 52.7%  | 235.5         | 22.8%  | 287.0         | 25.4%  | 362.3   | 29.0%  |
| Intermediate Total                         | 54.4    | 55.7%  | 1,031.8       | 100.0% | 1,086.2       | 96.2%  | 748.2   | 59.8%  |
| PRIMARY INPUTS                             |         |        |               |        |               |        |         |        |
| Household Income                           | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| GOS and GMI*                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| Taxes Less Subsidies                       | 7.8     | 8.0%   | 0.3           | 0.0%   | 8.1           | 0.7%   | -       | -      |
| Imports                                    | 35.4    | 36.2%  | 0.0           | 0.0%   | 35.4          | 3.1%   | -       | -      |
| Primary Inputs Total                       | 43.2    | 44.3%  | 0.3           | 0.0%   | 43.5          | 3.8%   | -       | -      |
| FINAL DEMAND                               |         |        |               |        |               |        |         |        |
| Household Expenditure                      | -       | -      | -             | -      | -             | -      | 320.1   | 25.6%  |
| Government Expenditure                     | -       | -      | -             | -      | -             | -      | 64.7    | 5.2%   |
| Gross Fixed Capital                        | -       | -      | -             | -      | -             | -      | 82.6    | 6.6%   |
| Change in Inventories                      | -       | -      | -             | -      | -             | -      | -0.8    | -0.1%  |
| Tourism                                    | -       | -      | -             | -      | -             | -      | 35.4    | 2.8%   |
| Other Exports                              | -       | -      | -             | -      | -             | -      | 0.0     | 0.0%   |
| Final Demand Total                         | -       | -      | -             | -      | -             | -      | 502.0   | 40.2%  |
| GRAND TOTAL                                | 97.7    | 100.0% | 1,032.1       | 100.0% | 1,129.7       | 100.0% | 1,250.2 | 100.0% |

Source: BDO EconSearch analysis

### 3.5. Southern Grampians Shire

#### 3.5.1. Employment

It was estimated that there were about 2,300 jobs (around 2,800 fte jobs) in the food and fibre sectors in Southern Grampians for 2019/20 (Table 3-13). A sectoral breakdown of employment, household income and household expenditure for Southern Grampians in 2019/20 is provided in Table 3-13. Of total jobs in Southern Grampians (8,800 fte jobs), the top five food and fibre sector contributors to fte employment in the region in 2019/20 were:

- Meat and animal fibres (25.3 per cent)
- Other agriculture & services (3.4 per cent)
- Grains (1.2 per cent)
- Forest products (0.9 per cent)
- Prepared foods (0.8 per cent).

#### 3.5.2. Gross Regional Product

Contribution to GRP by food and fibre sectors in Southern Grampians in 2019/20 was estimated to be \$197 million (Table 3-14). In 2019/20, the top five food and fibre sector contributors to GRP (\$1.0 billion in 2019/20) were:

- Meat and animal fibres (14.4 per cent)
- Other agriculture & services (1.8 per cent)
- Grains (1.0 per cent)
- Forest products (1.0 per cent)
- Prepared foods (0.5 per cent).



### 3.5.3. Imports and Exports

A breakdown of the value of imports and exports by industry sector for Southern Grampians in 2019/20 is provided in Table 3-15. Some of the key points to note from these data follow.

- Expenditure by households accounted for about 28 per cent of the total value of goods and services imported into the region in 2019/20 from intrastate (i.e. other regions within Vic.), interstate and overseas.
- Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the meat and animal fibres (15 per cent) sector.
- Expenditure by tourists (\$60m) contributed approximately 6 per cent of the total value of exports from the region in 2019/20. The balance (i.e. 'other exports'), about \$0.9b, represents the value of goods and services purchased by consumers (i.e. households, businesses, governments, etc.) in other regions within Vic., interstate and internationally.
- Total regional expenditure by tourists (\$60m) comprised less than 1 per cent of the Vic. total expenditure by tourists in 2019/20 (\$21.9b).
- The top food and fibre contributors to the value of 'other exports' from the region in 2019/20 were the meat and animal fibres (43 per cent) and forest products (2 per cent) sectors.
- The trade balance (i.e. exports less imports) in Southern Grampians in 2019/20 was approximately -\$133m.

Table 3-13 Employment, household income and household expenditure, Southern Grampians, 2019/20

|  | Total Employment |               | FTE Employment |               | Household Income |               | Household Expenditure |               |
|--|------------------|---------------|----------------|---------------|------------------|---------------|-----------------------|---------------|
|  | (jobs)           | (%)           | (fte)          | (%)           | (\$m)            | (%)           | (\$m)                 | (%)           |
| Meat and animal fibres                     | 1,794.2          | 20.4%         | 2,213.6        | 25.3%         | 84.0             | 13.7%         | 1.1                   | 0.2%          |
| Dairy                                      | 32.3             | 0.4%          | 50.4           | 0.6%          | 1.8              | 0.3%          | 0.0                   | 0.0%          |
| Horticulture                               | 0.4              | 0.0%          | 0.4            | 0.0%          | 0.0              | 0.0%          | 0.1                   | 0.0%          |
| Prepared foods                             | 72.2             | 0.8%          | 67.0           | 0.8%          | 3.4              | 0.6%          | 6.7                   | 0.9%          |
| Grains                                     | 81.4             | 0.9%          | 106.0          | 1.2%          | 4.2              | 0.7%          | 0.0                   | 0.0%          |
| Forest products                            | 77.4             | 0.9%          | 83.0           | 0.9%          | 3.8              | 0.6%          | 0.2                   | 0.0%          |
| Wine                                       | 12.5             | 0.1%          | 13.7           | 0.2%          | 0.4              | 0.1%          | 0.8                   | 0.1%          |
| Skins, hides, textile, clothing & footwear | 10.8             | 0.1%          | 9.6            | 0.1%          | 0.3              | 0.0%          | 0.1                   | 0.0%          |
| Seafood                                    | 0.5              | 0.0%          | 0.6            | 0.0%          | 0.0              | 0.0%          | 0.1                   | 0.0%          |
| Other agriculture & services               | 262.9            | 3.0%          | 301.6          | 3.4%          | 11.4             | 1.9%          | 0.2                   | 0.0%          |
| Other sectors                              | 6,460.5          | 73.4%         | 5,911.6        | 67.5%         | 505.0            | 82.2%         | 364.8                 | 49.9%         |
| <b>Total Intermediate</b>                  | <b>8,805.1</b>   | <b>100.0%</b> | <b>8,757.5</b> | <b>100.0%</b> | <b>614.4</b>     | <b>100.0%</b> | <b>374.1</b>          | <b>51.2%</b>  |
| <b>PRIMARY INPUTS</b>                      |                  |               |                |               |                  |               |                       |               |
| Household Income                           | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| GOS and GMI*                               | -                | -             | -              | -             | -                | -             | 0.0                   | 0.0%          |
| Taxes Less Subsidies                       | -                | -             | -              | -             | -                | -             | 52.1                  | 7.1%          |
| Imports                                    | -                | -             | -              | -             | -                | -             | 304.3                 | 41.7%         |
| <b>Primary Inputs Total</b>                | <b>0.0</b>       | <b>0.0%</b>   | <b>0.0</b>     | <b>0.0%</b>   | <b>0.0</b>       | <b>0.0%</b>   | <b>356.4</b>          | <b>48.8%</b>  |
| <b>GRAND TOTAL</b>                         | <b>8,805.1</b>   | <b>100.0%</b> | <b>8,757.5</b> | <b>100.0%</b> | <b>614.4</b>     | <b>100.0%</b> | <b>730.5</b>          | <b>100.0%</b> |

\* Gross operating surplus and gross mixed income.

Source: BDO EconSearch analysis

Table 3-14 Components of gross regional product in Southern Grampians by industry, 2019/20

|  | Household Income |               | GOS and GMI* |               | Taxes less Subsidies (TLS)** |               | Gross Regional Product |              | Output         |               |
|--|------------------|---------------|--------------|---------------|------------------------------|---------------|------------------------|--------------|----------------|---------------|
|  | (\$m)            | (%)           | (\$m)        | (%)           | (\$m)                        | (%)           | (\$m)                  | (%)          | (\$m)          | (%)           |
| Meat and animal fibres                     | 84.0             | 13.7%         | 55.1         | 17.9%         | 8.6                          | 27.0%         | 147.7                  | 14.4%        | 391.9          | 20.2%         |
| Dairy                                      | 1.8              | 0.3%          | 1.7          | 0.5%          | 0.2                          | 0.7%          | 3.7                    | 0.4%         | 9.8            | 0.5%          |
| Horticulture                               | 0.0              | 0.0%          | 0.0          | 0.0%          | 0.0                          | 0.0%          | 0.0                    | 0.0%         | 0.1            | 0.0%          |
| Prepared foods                             | 3.4              | 0.6%          | 1.7          | 0.5%          | 0.2                          | 0.5%          | 5.2                    | 0.5%         | 19.5           | 1.0%          |
| Grains                                     | 4.2              | 0.7%          | 5.9          | 1.9%          | 0.6                          | 2.0%          | 10.7                   | 1.0%         | 28.6           | 1.5%          |
| Forest products                            | 3.8              | 0.6%          | 6.2          | 2.0%          | 0.4                          | 1.2%          | 10.4                   | 1.0%         | 23.9           | 1.2%          |
| Wine                                       | 0.4              | 0.1%          | 0.0          | 0.0%          | 0.0                          | 0.1%          | 0.4                    | 0.0%         | 1.3            | 0.1%          |
| Skins, hides, textile, clothing & footwear | 0.3              | 0.0%          | 0.1          | 0.0%          | 0.0                          | 0.0%          | 0.4                    | 0.0%         | 1.0            | 0.0%          |
| Seafood                                    | 0.0              | 0.0%          | 0.0          | 0.0%          | 0.0                          | 0.0%          | 0.0                    | 0.0%         | 0.1            | 0.0%          |
| Other agriculture & services               | 11.4             | 1.9%          | 6.6          | 2.1%          | 0.9                          | 2.7%          | 18.9                   | 1.8%         | 52.1           | 2.7%          |
| Other sectors                              | 505.0            | 82.2%         | 230.6        | 74.9%         | 21.0                         | 65.9%         | 756.7                  | 73.7%        | 1,414.8        | 72.8%         |
| <b>Total</b>                               | <b>614.4</b>     | <b>100.0%</b> | <b>307.9</b> | <b>100.0%</b> | <b>31.9</b>                  | <b>100.0%</b> | <b>954.2</b>           | <b>93.0%</b> | <b>1,943.2</b> | <b>100.0%</b> |
| <b>Net Taxes in Final Demand</b>           | -                | -             | -            | -             | -                            | -             | 71.9                   | 7.0%         | -              | -             |
| <b>Gross Regional Product</b>              | -                | -             | -            | -             | -                            | -             | 1,026.1                | 100.0%       | -              | -             |

Source: BDO EconSearch analysis

Table 3-15 Value of imports and exports by industry, Southern Grampians by industry, 2019/20

|  | Tourism |        | Other Exports |        | Total Exports |        | Imports |        |
|--|---------|--------|---------------|--------|---------------|--------|---------|--------|
|  | (\$m)   | (%)    | (\$m)         | (%)    | (\$m)         | (%)    | (\$m)   | (%)    |
| Meat and animal fibres                     | 0.3     | 0.5%   | 383.1         | 42.9%  | 383.4         | 40.2%  | 160.8   | 14.8%  |
| Dairy                                      | 0.0     | 0.0%   | 9.8           | 1.1%   | 9.8           | 1.0%   | 2.0     | 0.2%   |
| Horticulture                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | 0.0     | 0.0%   |
| Prepared foods                             | 0.6     | 1.1%   | 7.7           | 0.9%   | 8.4           | 0.9%   | 9.7     | 0.9%   |
| Grains                                     | 0.0     | 0.0%   | 7.8           | 0.9%   | 7.8           | 0.8%   | 14.3    | 1.3%   |
| Forest products                            | 0.0     | 0.0%   | 15.4          | 1.7%   | 15.4          | 1.6%   | 8.0     | 0.7%   |
| Wine                                       | 0.5     | 0.8%   | 0.0           | 0.0%   | 0.5           | 0.1%   | 0.8     | 0.1%   |
| Skins, hides, textile, clothing & footwear | 0.2     | 0.4%   | 0.4           | 0.0%   | 0.6           | 0.1%   | 0.3     | 0.0%   |
| Seafood                                    | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | 0.1     | 0.0%   |
| Other agriculture & services               | 0.0     | 0.0%   | 11.1          | 1.2%   | 11.1          | 1.2%   | 14.8    | 1.4%   |
| Other sectors                              | 32.1    | 53.4%  | 457.7         | 51.2%  | 489.8         | 51.4%  | 431.0   | 39.7%  |
| Intermediate Total                         | 33.8    | 56.1%  | 893.1         | 100.0% | 926.9         | 97.2%  | 641.7   | 59.1%  |
| PRIMARY INPUTS                             |         |        |               |        |               |        |         |        |
| Household Income                           | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| GOS and GMI*                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| Taxes Less Subsidies                       | 6.4     | 10.6%  | 0.2           | 0.0%   | 6.6           | 0.7%   | -       | -      |
| Imports                                    | 20.1    | 33.3%  | 0.0           | 0.0%   | 20.1          | 2.1%   | -       | -      |
| Primary Inputs Total                       | 26.5    | 43.9%  | 0.2           | 0.0%   | 26.7          | 2.8%   | -       | -      |
| FINAL DEMAND                               |         |        |               |        |               |        |         |        |
| Household Expenditure                      | -       | -      | -             | -      | -             | -      | 304.3   | 28.0%  |
| Government Expenditure                     | -       | -      | -             | -      | -             | -      | 35.7    | 3.3%   |
| Gross Fixed Capital                        | -       | -      | -             | -      | -             | -      | 85.0    | 7.8%   |
| Change in Inventories                      | -       | -      | -             | -      | -             | -      | -0.2    | 0.0%   |
| Tourism                                    | -       | -      | -             | -      | -             | -      | 20.1    | 1.8%   |
| Other Exports                              | -       | -      | -             | -      | -             | -      | 0.0     | 0.0%   |
| Final Demand Total                         | -       | -      | -             | -      | -             | -      | 444.9   | 40.9%  |
| GRAND TOTAL                                | 60.2    | 100.0% | 893.3         | 100.0% | 953.6         | 100.0% | 1,086.6 | 100.0% |

Source: BDO EconSearch analysis

### 3.6. City of Warrnambool

#### 3.6.1. Employment

It was estimated that there were about 1,800 jobs (around 2,000 fte jobs) in the food and fibre sectors in Warrnambool for 2019/20 (Table 3-16). A sectoral breakdown of employment, household income and household expenditure for Warrnambool in 2019/20 is provided in Table 3-16. Of total jobs in Warrnambool (18,600 fte jobs), the top five food and fibre sector contributors to fte employment in the region in 2019/20 were:

- Dairy (6.0 per cent)
- Meat and animal fibres (3.2 per cent)
- Prepared foods (0.8 per cent)
- Forest products (0.4 per cent)
- Other agriculture & services (0.3 per cent).

#### 3.6.2. Gross Regional Product

Contribution to GRP by food and fibre sectors in Warrnambool in 2019/20 was estimated to be \$196 million (Table 3-17). In 2019/20, the top five food and fibre sector contributors to GRP (\$2.4 billion in 2019/20) were:

- Dairy (4.8 per cent)
- Meat and animal fibres (2.3 per cent)
- Forest products (0.3 per cent)
- Prepared foods (0.3 per cent)
- Other agriculture & services (0.2 per cent).

### 3.6.3. Imports and Exports

A breakdown of the value of imports and exports by industry sector for Warrnambool in 2019/20 is provided in Table 3-18. Some of the key points to note from these data follow.

- Expenditure by households accounted for about 20 per cent of the total value of goods and services imported into the region in 2019/20 from intrastate (i.e. other regions within Vic.), interstate and overseas.
- Among the intermediate sectors, the top importing food and fibre sector in the region in 2019/20 was the Dairy (12 per cent) sector.
- Expenditure by tourists (\$301m) contributed approximately 12 per cent of the total value of exports from the region in 2019/20. The balance (i.e. 'other exports'), about \$2.2b, represents the value of goods and services purchased by consumers (i.e. households, businesses, governments, etc.) in other regions within Vic., interstate and internationally.
- Total regional expenditure by tourists (\$301m) comprised about 1 per cent of the Vic. total expenditure by tourists in 2019/20 (\$21.9b).
- The top food and fibre contributors to the value of 'other exports' from the region in 2019/20 were the dairy (24 per cent) and meat and animal fibres (13 per cent) sectors.
- The trade balance (i.e. exports less imports) in Warrnambool in 2019/20 was approximately -\$21m.

Table 3-16 Employment, household income and household expenditure, Warrnambool, 2019/20

|  | Total Employment |               | FTE Employment  |               | Household Income |               | Household Expenditure |               |
|--|------------------|---------------|-----------------|---------------|------------------|---------------|-----------------------|---------------|
|  | (jobs)           | (%)           | (fte)           | (%)           | (\$m)            | (%)           | (\$m)                 | (%)           |
| Meat and animal fibres                     | 544.4            | 2.7%          | 604.4           | 3.2%          | 33.5             | 2.2%          | 8.3                   | 0.6%          |
| Dairy                                      | 924.0            | 4.6%          | 1,112.1         | 6.0%          | 60.8             | 4.0%          | 7.6                   | 0.5%          |
| Horticulture                               | 8.5              | 0.0%          | 8.9             | 0.0%          | 0.4              | 0.0%          | 0.8                   | 0.1%          |
| Prepared foods                             | 163.7            | 0.8%          | 146.2           | 0.8%          | 6.4              | 0.4%          | 7.0                   | 0.5%          |
| Grains                                     | 5.8              | 0.0%          | 6.6             | 0.0%          | 0.3              | 0.0%          | 0.0                   | 0.0%          |
| Forest products                            | 79.1             | 0.4%          | 80.1            | 0.4%          | 4.8              | 0.3%          | 0.3                   | 0.0%          |
| Wine                                       | 7.9              | 0.0%          | 8.8             | 0.0%          | 0.4              | 0.0%          | 0.7                   | 0.0%          |
| Skins, hides, textile, clothing & footwear | 28.5             | 0.1%          | 18.1            | 0.1%          | 0.6              | 0.0%          | 0.6                   | 0.0%          |
| Seafood                                    | 1.9              | 0.0%          | 2.3             | 0.0%          | 0.1              | 0.0%          | 0.1                   | 0.0%          |
| Other agriculture & services               | 48.4             | 0.2%          | 54.1            | 0.3%          | 2.0              | 0.1%          | 0.1                   | 0.0%          |
| Other sectors                              | 18,475.7         | 91.1%         | 16,582.6        | 89.0%         | 1,422.3          | 92.9%         | 770.6                 | 54.9%         |
| <b>Total Intermediate</b>                  | <b>20,287.9</b>  | <b>100.0%</b> | <b>18,624.1</b> | <b>100.0%</b> | <b>1,531.5</b>   | <b>100.0%</b> | <b>796.3</b>          | <b>56.7%</b>  |
| <b>PRIMARY INPUTS</b>                      |                  |               |                 |               |                  |               |                       |               |
| Household Income                           | -                | -             | -               | -             | -                | -             | 0.0                   | 0.0%          |
| GOS and GMI*                               | -                | -             | -               | -             | -                | -             | 0.0                   | 0.0%          |
| Taxes Less Subsidies                       | -                | -             | -               | -             | -                | -             | 100.1                 | 7.1%          |
| Imports                                    | -                | -             | -               | -             | -                | -             | 507.0                 | 36.1%         |
| <b>Primary Inputs Total</b>                | <b>0.0</b>       | <b>0.0%</b>   | <b>0.0</b>      | <b>0.0%</b>   | <b>0.0</b>       | <b>0.0%</b>   | <b>607.0</b>          | <b>43.3%</b>  |
| <b>GRAND TOTAL</b>                         | <b>20,287.9</b>  | <b>100.0%</b> | <b>18,624.1</b> | <b>100.0%</b> | <b>1,531.5</b>   | <b>100.0%</b> | <b>1,403.3</b>        | <b>100.0%</b> |

\* Gross operating surplus and gross mixed income.

Source: BDO EconSearch analysis

Table 3-17 Components of gross regional product in Warrnambool by industry, 2019/20

|  | Household Income |               | GOS and GMI* |               | Taxes less Subsidies (TLS)** |               | Gross Regional Product |              | Output         |               |
|--|------------------|---------------|--------------|---------------|------------------------------|---------------|------------------------|--------------|----------------|---------------|
|  | (\$m)            | (%)           | (\$m)        | (%)           | (\$m)                        | (%)           | (\$m)                  | (%)          | (\$m)          | (%)           |
| Meat and animal fibres                     | 33.5             | 2.2%          | 20.9         | 3.1%          | 2.4                          | 3.6%          | 56.8                   | 2.3%         | 329.2          | 6.7%          |
| Dairy                                      | 60.8             | 4.0%          | 51.1         | 7.6%          | 5.7                          | 8.4%          | 117.6                  | 4.8%         | 645.5          | 13.2%         |
| Horticulture                               | 0.4              | 0.0%          | 0.3          | 0.0%          | 0.0                          | 0.0%          | 0.7                    | 0.0%         | 2.3            | 0.0%          |
| Prepared foods                             | 6.4              | 0.4%          | 0.0          | 0.0%          | 0.3                          | 0.4%          | 6.6                    | 0.3%         | 23.2           | 0.5%          |
| Grains                                     | 0.3              | 0.0%          | 0.4          | 0.1%          | 0.0                          | 0.1%          | 0.7                    | 0.0%         | 1.8            | 0.0%          |
| Forest products                            | 4.8              | 0.3%          | 2.2          | 0.3%          | 0.2                          | 0.3%          | 7.1                    | 0.3%         | 22.3           | 0.5%          |
| Wine                                       | 0.4              | 0.0%          | 0.2          | 0.0%          | 0.0                          | 0.0%          | 0.7                    | 0.0%         | 2.6            | 0.1%          |
| Skins, hides, textile, clothing & footwear | 0.6              | 0.0%          | 0.7          | 0.1%          | 0.1                          | 0.1%          | 1.3                    | 0.1%         | 4.4            | 0.1%          |
| Seafood                                    | 0.1              | 0.0%          | 0.2          | 0.0%          | 0.0                          | 0.0%          | 0.3                    | 0.0%         | 0.7            | 0.0%          |
| Other agriculture & services               | 2.0              | 0.1%          | 2.3          | 0.3%          | 0.2                          | 0.3%          | 4.5                    | 0.2%         | 11.8           | 0.2%          |
| Other sectors                              | 1,422.3          | 92.9%         | 594.5        | 88.4%         | 58.7                         | 86.8%         | 2,075.5                | 85.4%        | 3,851.5        | 78.7%         |
| <b>Total</b>                               | <b>1,531.5</b>   | <b>100.0%</b> | <b>672.8</b> | <b>100.0%</b> | <b>67.7</b>                  | <b>100.0%</b> | <b>2,272.0</b>         | <b>93.5%</b> | <b>4,895.2</b> | <b>100.0%</b> |
| <b>Net Taxes in Final Demand</b>           | -                | -             | -            | -             | -                            | -             | 157.8                  | 6.5%         | -              | -             |
| <b>Gross Regional Product</b>              | -                | -             | -            | -             | -                            | -             | 2,429.7                | 100.0%       | -              | -             |

Source: BDO EconSearch analysis



Table 3-18 Value of imports and exports by industry, Warrnambool by industry, 2019/20

|  | Tourism |        | Other Exports |        | Total Exports |        | Imports |        |
|--|---------|--------|---------------|--------|---------------|--------|---------|--------|
|  | (\$m)   | (%)    | (\$m)         | (%)    | (\$m)         | (%)    | (\$m)   | (%)    |
| Meat and animal fibres                     | 2.1     | 0.7%   | 283.0         | 13.0%  | 285.1         | 11.5%  | 220.5   | 8.8%   |
| Dairy                                      | 2.9     | 1.0%   | 516.0         | 23.7%  | 518.9         | 20.9%  | 287.5   | 11.5%  |
| Horticulture                               | 1.1     | 0.4%   | 0.3           | 0.0%   | 1.4           | 0.1%   | 0.9     | 0.0%   |
| Prepared foods                             | 1.5     | 0.5%   | 9.7           | 0.4%   | 11.1          | 0.4%   | 11.9    | 0.5%   |
| Grains                                     | 0.0     | 0.0%   | 0.4           | 0.0%   | 0.4           | 0.0%   | 1.0     | 0.0%   |
| Forest products                            | 0.0     | 0.0%   | 9.5           | 0.4%   | 9.5           | 0.4%   | 9.8     | 0.4%   |
| Wine                                       | 1.8     | 0.6%   | 0.0           | 0.0%   | 1.8           | 0.1%   | 1.6     | 0.1%   |
| Skins, hides, textile, clothing & footwear | 0.0     | 0.0%   | 2.2           | 0.1%   | 2.2           | 0.1%   | 1.6     | 0.1%   |
| Seafood                                    | 0.0     | 0.0%   | 0.5           | 0.0%   | 0.5           | 0.0%   | 0.2     | 0.0%   |
| Other agriculture & services               | 0.0     | 0.0%   | 6.5           | 0.3%   | 6.5           | 0.3%   | 4.2     | 0.2%   |
| Other sectors                              | 168.3   | 55.8%  | 1,352.1       | 62.0%  | 1,520.3       | 61.3%  | 1,128.4 | 45.1%  |
| Intermediate Total                         | 177.7   | 59.0%  | 2,180.0       | 100.0% | 2,357.8       | 95.0%  | 1,667.7 | 66.6%  |
| PRIMARY INPUTS                             |         |        |               |        |               |        |         |        |
| Household Income                           | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| GOS and GMI*                               | 0.0     | 0.0%   | 0.0           | 0.0%   | 0.0           | 0.0%   | -       | -      |
| Taxes Less Subsidies                       | 24.2    | 8.0%   | 0.6           | 0.0%   | 24.8          | 1.0%   | -       | -      |
| Imports                                    | 99.5    | 33.0%  | 0.0           | 0.0%   | 99.5          | 4.0%   | -       | -      |
| Primary Inputs Total                       | 123.7   | 41.0%  | 0.6           | 0.0%   | 124.3         | 5.0%   | -       | -      |
| FINAL DEMAND                               |         |        |               |        |               |        |         |        |
| Household Expenditure                      | -       | -      | -             | -      | -             | -      | 507.0   | 20.3%  |
| Government Expenditure                     | -       | -      | -             | -      | -             | -      | 83.0    | 3.3%   |
| Gross Fixed Capital                        | -       | -      | -             | -      | -             | -      | 146.1   | 5.8%   |
| Change in Inventories                      | -       | -      | -             | -      | -             | -      | -0.2    | 0.0%   |
| Tourism                                    | -       | -      | -             | -      | -             | -      | 99.5    | 4.0%   |
| Other Exports                              | -       | -      | -             | -      | -             | -      | 0.0     | 0.0%   |
| Final Demand Total                         | -       | -      | -             | -      | -             | -      | 835.4   | 33.4%  |
| GRAND TOTAL                                | 301.4   | 100.0% | 2,180.6       | 100.0% | 2,482.1       | 100.0% | 2,503.1 | 100.0% |

Source: BDO EconSearch analysis

## 4. ECONOMIC IMPACT OF ADDITIONAL AGRICULTURAL WATER

FFGSC is concentrating its focus and resources to optimise impact and unlock the opportunities to grow the value and capacity of the Great South Coast's food and fibre industry. To foster regional growth and capacity, FFGSC has adopted four strategic platforms:

- Drive regional value-add, investment and sustainability
- Champion food and fibre advocacy
- Realise the water opportunity
- Nurture food and fibre careers

This section of the report focuses on the strategic platform to “realise the water opportunity”. The objectives of this strategic platform are

- Collaboratively capture the full potential of the Great South Coast's water resource through sustainable management of ground and surface water, and effective drainage systems.
- Advocacy and general promotion to raise decision-maker and general community awareness of the regional competitive advantage in groundwater; and optimise strategic opportunities for the food and fibre community to sustainably increase water productivity through strategic engagement on water rules, allocation, security and/or drainage.

The analysis in this report has adopted the scenario of a 10 per cent increase in water use in agriculture, to assess potential economic impact of the strategic platform.

### 4.1. Data and Analysis

Data used in the analysis were sourced from various Australian Bureau of Statistics (ABS), Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) and DJPR publications. The analysis also used data from the GSC RISE model.

The method involved the following:

1. Calculate yield and water use intensities for irrigated agriculture across relevant commodities for Corangamite and Glenelg Hopkins Natural Resource Management (NRM) regions.
2. Calculate comparable unirrigated yields.
3. Calculate the increase in yield attributable to irrigation (difference between 1 and 2).
4. Calculate the additional area irrigated, by commodity in GSC, based on 2019/20 water use in agriculture for GSC and water use intensities (from 1).
5. Calculate change in production based on area and yield.
6. Calculate change in economic activity (revenue, GRP, household income and employment) based on change in production.
7. Input change in direct economic activity into the GCS RISE model to calculate flow-on economic impact.
8. Separately analyse local processing activity using the IO transaction table in the RISE model.

#### 4.1.1. Change to agricultural activity

The scenario of a 10 per cent increase in water use in agriculture was used to estimate change to agricultural activity. The increase in water applied and area irrigated are illustrated in Table 4-1. Some of the key points to note from these data follow

- Existing irrigation (ha area and ML applied), were estimated from ABS Water use on Australian Farms 2019-20 (ABS 2021a) and Value of Agricultural Commodities Produced (ABS 2021b), for the Statistical Area 4 (SA4) region of Warrnambool and South West<sup>2</sup>
- Application rates (ML/ha), were calculated from ABS Water use on Australian Farms 2019-20 (ABS 2021a), for the combined Corangamite and Glenelg Hopkins NRM regions. NRM regions were used to provide consistency with the expected increases to yield.
- Water applied (ML) corresponds to a 10 per cent increase from existing irrigation (ML) for each commodity
- Area applied (ha), used to estimated change in agricultural production, is calculated based on Water applied (ML) and Application rate (ML/ha).

Table 4-1 Irrigation activity - 10 per cent increase in 2019-20 water use scenario

| Agricultural commodity                   | Existing irrigation |                 | Application rate<br>(ML/ha) | 10 per cent growth scenario |                      |
|--|---------------------|-----------------|-----------------------------|-----------------------------|----------------------|
|  | (ha)                | (ML)            |                             | Water applied<br>(ML)       | Area applied<br>(ha) |
| Cereals for grain & seed                 | 0.0                 | 0.0             | 1.1                         | 0.0                         | 0.0                  |
| Nurseries, cut flowers & cultivated turf | 35.4                | 185.8           | 1.5                         | 18.6                        | 12.6                 |
| Other broadacre crops                    | 92.9                | 232.2           | 2.9                         | 23.2                        | 8.0                  |
| Hay                                      | 350.3               | 1,133.8         | 3.2                         | 113.4                       | 35.3                 |
| Vegetables                               | 950.9               | 2,382.8         | 2.9                         | 238.3                       | 82.1                 |
| Fruit & nuts (excluding grapes)          | 43.5                | 1,740.1         | 27.2                        | 174.0                       | 6.4                  |
| Grapes                                   | 147.5               | 106.5           | 0.6                         | 10.7                        | 17.1                 |
| Dairy production                         | 10,754.6            | 68,638.7        | 6.9                         | 6,863.9                     | 998.3                |
| Production from meat cattle              | 1,197.3             | 7,641.3         | 6.9                         | 764.1                       | 111.1                |
| Production from sheep & other livestock  | 450.3               | 2,874.1         | 6.9                         | 287.4                       | 41.7                 |
| <b>Total</b>                             | <b>14,022.7</b>     | <b>84,935.1</b> | <b>7.1</b>                  | <b>8,493.5</b>              | <b>1,312.6</b>       |

Source: ABARES (2021), ABS (2021a), ABS (2021b) and BDO EconSearch Analysis

<sup>2</sup> This SA4 region includes water use in the Colac-Otway Shire. However, please note the GSC RISE model used to estimate economic impacts exclude this LGA.

The quantity and gross value of production (GVP) of agricultural commodities produced can be estimated using area applied from Table 4-1. The change to production and GVP is summarised in Table 4-2. Some of the key points to note from these data follow

- Increase in yield (t/ha), were estimated from the steps described above in section 4, and relate to the combined Corangamite and Glenelg Hopkins NRM regions.
- Production (t), were estimated from expected increase in yield (t/ha) and the area applied (with water) under the scenario. Production (t) were based on increase in yield (t/ha), as land use were assumed to shift from unirrigated to irrigated activity.
- GVP (\$m), were calculated using average agricultural prices (\$/t), from ABS Value of Agricultural Commodities Produced (ABS 2021b) and Agricultural Commodities (ABS 2021c), and the expected change to agricultural production (t).
- Nurseries, cut flowers & cultivated turf production (t) is not applicable. GVP for this industry was calculated on a \$/ha basis.

**Table 4-2      Agricultural production and GVP - 10 per cent increase in 2019-20 water use scenario**

| Agricultural commodity                   | Price<br>\$/t  | Increase<br>in yield<br>(t/ha) | 10 per cent growth scenario |                   |              |
|--|----------------|--------------------------------|-----------------------------|-------------------|--------------|
|  |                |                                | Area irrigated<br>(ha)      | Production<br>(t) | GVP<br>(\$m) |
| Cereals for grain & seed                 | 327.2          | 1.3                            | 0.0                         | 0.0               | 0.0          |
| Nurseries, cut flowers & cultivated turf | na             | na                             | 12.6                        | na                | 0.6          |
| Other broadacre crops                    | 552.9          | 1.4                            | 8.0                         | 11.2              | 0.0          |
| Hay                                      | 323.6          | 1.5                            | 35.3                        | 52.0              | 0.0          |
| Vegetables                               | 557.6          | 5.7                            | 82.1                        | 468.8             | 0.3          |
| Fruit & nuts (excluding grapes)          | 7,747.5        | 5.2                            | 6.4                         | 33.2              | 0.3          |
| Grapes                                   | 629.7          | 2.1                            | 17.1                        | 35.4              | 0.0          |
| Dairy production                         | 6,398.2        | 4.1                            | 998.3                       | 4,059.6           | 26.0         |
| Production from meat cattle              | 4,981.0        | 5.3                            | 111.1                       | 583.7             | 2.9          |
| Production from sheep & other livestock  | 5,339.6        | 4.5                            | 41.7                        | 187.1             | 1.0          |
| <b>Total</b>                             | <b>5,604.0</b> | <b>4.2</b>                     | <b>1,312.6</b>              | <b>5,431.1</b>    | <b>31.0</b>  |

Source: ABARES (2021), ABS (2021a-c,e), DJPR (2020) and BDO EconSearch Analysis

Change to GVP from the agricultural final demand shocks used in the I-O analysis. To be compatible with the RISE I-O model, the GVP values in Table 4-2 were re-expressed in terms of the agricultural sectors specified in RISE. Where activity related to more than one relevant RISE sector, GVP were attributed proportionally value of agricultural production in ABS (2021b). Table 4-3 summarises the direct agricultural impacts modelled in RISE.

Table 4-3 Direct agricultural GVP impacts - 10 per cent increase in 2019-20 water use scenario

| Sector            | 10 per cent growth scenario |              |
|-------------------|-----------------------------|--------------|
|                   | Production<br>(t)           | GVP<br>(\$m) |
| Dairy             | 4,059.6                     | 26.0         |
| Beef              | 583.7                       | 2.9          |
| Sheep             | 183.0                       | 1.0          |
| Grains            | 11.2                        | 0.0          |
| Poultry           | 0.0                         | 0.0          |
| Other Livestock   | 0.0                         | 0.0          |
| Vegetables        | 468.8                       | 0.3          |
| Winegrapes        | 35.4                        | 0.0          |
| Other Fruit       | 33.2                        | 0.3          |
| Nuts              | 0.0                         | 0.0          |
| Other Agriculture | na <sup>1</sup>             | 0.6          |

<sup>1</sup> Includes nurseries and cut flower, which production are not reported on a tonnage basis

Source: BDO EconSearch Analysis

#### 4.1.2. Change to manufacturing activity

Increase to agricultural activity is expect to also result in additional manufacturing activity in food and fibre sectors. Manufacturing activity was estimated using transactions ratios from the ABS national I-O tables (ABS 2021b). The ratios were calculated as GVP divided by the value of key agricultural inputs, for relevant food and fibre manufacturing sectors. The manufacturing ratios are summarised in Table 4-4.

Table 4-4 Direct agricultural impacts - 10 per cent increase in 2019-20 water use scenario

| Maufacturing sector                         | Agricultural input   | GVP/ input value ratio |
|---|--|------------------------|
| Meat & Meat Product Manufacturing           | Sheep, grains, beef and dairy cattle;<br>Poultry and other livestock | 1.5                    |
| Dairy Product Manufacturing                 | Sheep, grains, beef and dairy cattle                                 | 3.0                    |
| Fruit & Vegetable Product Manufacturing     | Other agriculture  | 4.6                    |
| Wine, Spirits & Tobacco Manufacturing       | Other agriculture  | 9.8                    |
| Textiles, Clothing & Footwear Manufacturing | Sheep, grains, beef and dairy cattle                                 | 2.9                    |

Source: ABS (2021d) and BDO EconSearch Analysis

Estimating direct manufacturing GVP impacts can be summarised as follows:

1. Manufacturing GVP ratios described in Table 4-4, were calculated using the ABS National Accounts I-O tables, Industry by industry flow table (indirect allocation of imports) (ABS 2021d).
2. Agricultural sector sales to manufacturing were calculated using agriculture sector GVP impacts (from Table 4-3) and transaction flows in the GSC RISE model. Sales to manufacturing were attributed proportionally to the transaction flows. For example, milk sales by the dairy sector to dairy processing in GSC represents 43 per cent of revenue received by dairy. Given direct dairy GVP impact of \$26.0m, we expect dairy processors in GCS to purchase about \$11.2m of milk inputs.
3. Direct manufacturing GVP impacts were calculated by multiplying the value of agricultural products sold to processors (step 2) by the appropriate manufacturing sector GVP/input ratio (step 1).
4. Change to GVP (step 3), from the manufacturing final demand shocks used in the I-O analysis. The shocks were adjusted to not induce economic impact from increase demand of agricultural input (step 2), as these impacts were account for in section 4.1.1.

## 4.2. Results of economic impact analysis

The impact of a 10 per cent increase in water use in agriculture on the GSC regional economy in 2019/20 are provided in Table 4-5. The direct impact measures for food and fibre are provided for primary production (e.g. raw milk, heads of livestock, etc.) and manufacturing production (e.g. pasteurised milk, cheese, processed meat, etc.). The flow-on impacts measures the economic effects in other sectors of the economy (trade, transport, manufacturing, etc.) generated by the food and fibre sector activity, that is, the multiplier effect.

### Gross regional product

As noted above, GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. The total GRP impact expected from increased water use in agriculture is approximately \$39.3 million. Of the total impact, \$11.8 million in primary production and \$5.8 million manufacturing were generated directly. Flow-on on business activity was estimated to generate \$21.6 million (\$14.7 million in production induced and \$6.9 million in consumption induced) from other sectors of the regional economy.

### Employment

The total employment impact expected from increased water use in agriculture is approximately 395 full-time equivalent (fte) jobs. Of the total impact, 164 fte jobs and 52 fte jobs were generated directly in primary production and manufacturing respectively. Flow-on on business activity was estimated to generate 178 fte jobs (132 fte jobs from production induced and 46 fte jobs from consumption induced) from other sectors of the regional economy.

## Household income

Household income of approximately \$21.7 million is expected to be earned (wages of employees and estimated drawings by owner/operators) due to the impact of increased water use in agriculture. Of the total impact, \$6.2 million and \$3.1 million is expected to be earned directly in primary production and manufacturing respectively. Flow-on on business activity was estimated to generate \$12.4 million (\$9.1 million in production induced and \$3.3 million in consumption induced) from other sectors of the regional economy.

**Table 4-5 Summary economic impacts - 10 per cent increase in 2019-20 water use scenario**

|                                     | Dairy       | Beef       | Sheep      | Grains     | Other Livestock | Vegetables | Wine-grapes | Other Fruit | Other Ag   | Total       |
|-------------------------------------|-------------|------------|------------|------------|-----------------|------------|-------------|-------------|------------|-------------|
| <b>Gross regional product (\$m)</b> |             |            |            |            |                 |            |             |             |            |             |
| <i>Direct</i>                       |             |            |            |            |                 |            |             |             |            |             |
| Primary production                  | 9.8         | 1.1        | 0.4        | 0.0        | 0.0             | 0.1        | 0.0         | 0.1         | 0.3        | 11.8        |
| Manufacturing                       | 5.5         | 0.3        | 0.0        | 0.0        | 0.0             | 0.0        | 0.0         | 0.0         | 0.0        | 5.8         |
| <i>Flow-on</i>                      |             |            |            |            |                 |            |             |             |            |             |
| Production Induced                  | 13.7        | 0.7        | 0.2        | 0.0        | 0.0             | 0.0        | 0.0         | 0.0         | 0.1        | 14.7        |
| Consumption Induced                 | 6.2         | 0.5        | 0.1        | 0.0        | 0.0             | 0.0        | 0.0         | 0.0         | 0.0        | 6.9         |
| <b>Total</b>                        | <b>35.2</b> | <b>2.6</b> | <b>0.7</b> | <b>0.0</b> | <b>0.0</b>      | <b>0.2</b> | <b>0.0</b>  | <b>0.2</b>  | <b>0.4</b> | <b>39.3</b> |
| <b>Employment (fte)</b>             |             |            |            |            |                 |            |             |             |            |             |
| <i>Direct</i>                       |             |            |            |            |                 |            |             |             |            |             |
| Primary production                  | 133         | 21         | 5          | 0          | 0               | 1          | 0           | 1           | 1          | 164         |
| Manufacturing                       | 49          | 3          | 0          | 0          | 0               | 0          | 0           | 0           | 0          | 52          |
| <i>Flow-on</i>                      |             |            |            |            |                 |            |             |             |            |             |
| Production Induced                  | 122         | 7          | 2          | 0          | 0               | 0          | 0           | 0           | 1          | 132         |
| Consumption Induced                 | 41          | 3          | 1          | 0          | 0               | 0          | 0           | 0           | 0          | 46          |
| <b>Total</b>                        | <b>345</b>  | <b>34</b>  | <b>8</b>   | <b>0</b>   | <b>0</b>        | <b>2</b>   | <b>0</b>    | <b>2</b>    | <b>3</b>   | <b>395</b>  |
| <b>Household income (\$m)</b>       |             |            |            |            |                 |            |             |             |            |             |
| <i>Direct</i>                       |             |            |            |            |                 |            |             |             |            |             |
| Primary production                  | 5.0         | 0.8        | 0.2        | 0.0        | 0.0             | 0.1        | 0.0         | 0.0         | 0.1        | 6.2         |
| Manufacturing                       | 2.9         | 0.2        | 0.0        | 0.0        | 0.0             | 0.0        | 0.0         | 0.0         | 0.0        | 3.1         |
| <i>Flow-on</i>                      |             |            |            |            |                 |            |             |             |            |             |
| Production Induced                  | 8.4         | 0.4        | 0.1        | 0.0        | 0.0             | 0.0        | 0.0         | 0.0         | 0.1        | 9.1         |
| Consumption Induced                 | 3.0         | 0.3        | 0.1        | 0.0        | 0.0             | 0.0        | 0.0         | 0.0         | 0.0        | 3.3         |
| <b>Total</b>                        | <b>19.4</b> | <b>1.7</b> | <b>0.4</b> | <b>0.0</b> | <b>0.0</b>      | <b>0.1</b> | <b>0.0</b>  | <b>0.1</b>  | <b>0.1</b> | <b>21.7</b> |

Source: BDO EconSearch Analysis

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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 Sector Definitions

Appendix Table 1-1 Intermediate sector specifications for the input-output models

| Food & fibre sectors, 2019/20<br><br>(11 Sectors) |                        | Food & fibre sectors (RISE consistent), 2019/20<br><br>(31 Sectors) |  | National Input-Output Table (2009 IOIG)<br><br>(111 sectors) |  | ABS ANZSIC 2006 (1 digit Sector)<br><br>(20 Sectors) |                                   |
|---|------------------------|---|--|--|--|--|-----------------------------------|
| 1   | Meat and animal fibres | 1   | Beef Cattle  | 101  | Sheep, Grains, Beef and Dairy Cattle                             | 1  | Agriculture, Forestry and Fishing |
|   |                        | 2   | Sheep  |  |  |  |                                   |
|   |                        | 3   | Poultry  | 102  | Poultry and Other Livestock                                      |  |                                   |
|   |                        | 4   | Other Livestock  |  |  |  |                                   |
|   |                        | 5   | Meat and Meat Product Manufacturing                              | 1101   | Meat and Meat product Manufacturing                              | 3  | Manufacturing                     |
| 2   | Dairy                  | 6   | Dairy Cattle   | 101  | Sheep, Grains, Beef and Dairy Cattle                             | 1  | Agriculture, Forestry and Fishing |
|   |                        | 7   | Dairy Product Manufacturing                                      | 1103   | Dairy Product Manufacturing                                      | 3  | Manufacturing                     |
| 3   | Horticulture           | 8   | Vegetables   | 103  | Other Agriculture  | 1  | Agriculture, Forestry and Fishing |
|   |                        | 9   | Other Fruit  | 103  | Other Agriculture  |  |                                   |
|   |                        | 10  | Nuts   | 103  | Other Agriculture  |  |                                   |
|   |                        | 11  | Fruit and Vegetable Product Manufacturing                        | 1104   | Fruit and Vegetable Product Manufacturing                        | 3  | Manufacturing                     |
| 4   | Prepared foods         | 12  | Oils and Fats Manufacturing                                      | 1105   | Oils and Fats Manufacturing                                      | 3  | Manufacturing                     |
|   |                        | 13  | Grain Mill and Cereal Product Manufacturing                      | 1106   | Grain Mill and Cereal Product Manufacturing                      |  |                                   |
|   |                        | 14  | Other Food Product Manufacturing                                 | 1107   | Bakery Product Manufacturing                                     |  |                                   |
|   |                        |   |  | 1108   | Sugar and Confectionary Manufacturing                            |  |                                   |
|   |                        |   |  | 1109   | Other Food Product Manufacturing                                 |  |                                   |
|   |                        | 15  | Other Beverages  | 1201   | Soft Drinks, Cordials and Syrup Manufacturing                    |  |                                   |
| 16  | Beer Manufacturing     | 1202  | Beer Manufacturing   |  |  |  |                                   |
| 5   | Grains                 | 17  | Grains   | 101  | Sheep, Grains, Beef and Dairy Cattle                             | 1  | Agriculture, Forestry and Fishing |
| 6   | Forest products        | 18  | Forestry and Logging   | 301  | Forestry and Logging   | 1  | Agriculture, Forestry and Fishing |
|   |                        | 19  | Sawmill Product Manufacturing                                    | 1401   | Sawmill Product Manufacturing                                    | 3  | Manufacturing                     |
|   |                        | 20  | Other Wood Product Manufacturing                                 | 1402   | Other Wood Product Manufacturing                                 |  |                                   |
|   |                        | 21  | Pulp, Paper and Paperboard Manufacturing                         | 1501   | Pulp, Paper and Paperboard Manufacturing                         |  |                                   |
|   |                        | 22  | Paper Stationery and Other Converted Paper Product Manufacturing | 1502   | Paper Stationery and Other Converted Paper Product Manufacturing |  |                                   |

| Food & fibre sectors, 2019/20<br>(11 Sectors) | Food & fibre sectors (RISE consistent), 2019/20<br>(31 Sectors) | National Input-Output Table (2009 IOIG)<br>(111 sectors)           | ABS ANZSIC 2006 (1 digit Sector)<br>(20 Sectors)   |
|---|---|--|--|
| 7 Wine  | 23 Winegrapes   | 103 Other Agriculture  | 1 Agriculture, Forestry and Fishing  |
|   | 24 Wine, Spirits and Tobacco Manufacturing                      | 1205 Wine, Spirits and Tobacco                                     | 3 Manufacturing  |
| 8 Skins, hides, textile, clothing & footwear  | 25 Textiles, Clothing and Footwear Manufacturing                | 1301 Textile Manufacturing   | 3 Manufacturing  |
|   |   | 1302 Tanned Leather, Dressed Fur and Leather Product Manufacturing |  |
|   |   | 1303 Textile Product Manufacturing                                 |  |
|   |   | 1304 Knitted Product Manufacturing                                 |  |
|   |   | 1305 Clothing Manufacturing  |  |
|   |   | 1306 Footwear Manufacturing  |  |
| 9 Seafood                                     | 26 Aquaculture  | 201 Aquaculture  | 1 Agriculture, Forestry and Fishing  |
|   | 27 Fishing, Hunting and Trapping                                | 401 Fishing, hunting and trapping                                  |  |
|   | 28 Processed Seafood Manufacturing                              | 1102 Processed Seafood Manufacturing                               | 3 Manufacturing  |
| 10 Other agriculture & services               | 29 Other Agriculture  | 103 Other Agriculture  | 1 Agriculture, Forestry and Fishing  |
|   | 30 Agriculture, Forestry and Fishing Support Services           | 501 Agriculture, Forestry and Fishing Support Services             |  |
| 11 Other sectors                              | 31 Other sectors  | 601-1001<br>1601-9502<br>Other sectors                             | 2 Mining<br>4 Electricity, Gas, Water and Waste services<br>5 Construction<br>6 Wholesale Trade<br>7 Retail Trade<br>8 Accommodation and Food Services<br>9 Transport, postal and warehousing<br>10 Information, Media and Telecommunications<br>11 Finance and Insurance<br>12 Rental, Hiring and Real Estate Services<br>13 Ownership of Dwellings<br>12 Rental, Hiring and Real Estate Services (cont.)<br>14 Professional, Scientific and Technical Services |

| Food & fibre sectors,<br>2019/20<br>(11 Sectors) | Food & fibre sectors<br>(RISE consistent),<br>2019/20<br>(31 Sectors) | National Input-Output<br>Table (2009 IOIG)<br>(111 sectors) | ABS ANZSIC 2006 (1<br>digit Sector)<br>(20 Sectors)   |
|--|---|---|---|
|  |   |   | 15 Administrative and Support Services<br>16 Public Administration and Safety<br>17 Education and Training<br>18 Health & Community Services<br>19 Cultural & Recreational Services<br>20 Personal & Other Services |



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