**BEFORE COMMISIONERS APPOINTED**
**BY THE OTAGO REGIONAL COUNCIL**

| | |
|---|---|
| **IN THE MATTER** | of the Resource Management Act 1991 |
| **AND** | |
| **IN THE MATTER** | of the Proposed Otago Regional Policy Statement 2021 (Non-freshwater parts) |
| **AND** | |
| **IN THE MATTER** | of the First Schedule to the Act |
| **AND** | |
| **IN THE MATTER** | of a submission under clause 6 of the First Schedule. |
| **BY** | **BEEF + LAMB NEW ZEALAND LIMITED**<br>**Submitter** |

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# BRIEF OF EVIDENCE OF ANDREW NEIL BURTT FOR BEEF+LAMB NEW ZEALAND LIMITED

**23 November 2022**

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## BACKGROUND

### Qualifications and Experience

1. My name is Andrew Neil Burtt.

2. I am employed by Beef + Lamb New Zealand Ltd (B+LNZ) as Chief Economist.

3. I hold a B.Agr.Econ. from Massey University.

4. I have been employed by organisations that became part of B+LNZ since the mid 1980s. I started as a Research Economist with the then New Zealand Meat & Wool Boards' Economic Service. In mid-1990, I joined the staff of the New Zealand Meat Producers Board and have spent the majority of the period since then in trade policy analysis and advocacy in both New Zealand and overseas – in Brussels and Washington DC. I spent three years in Brussels and nearly 10 – in two tranches – in Washington DC representing New Zealand sheep and beef farmers. In 2012, I returned to New Zealand to my current role.

5. In preparing this evidence relevant to my area of expertise I have read the following:

   (a) Expert evidence of Mr Tom Orchiston; and

   (b) Expert evidence of Dr Jane Chrystal.

6. I have read the Code of Conduct for Expert Witnesses in the Environment Court 2014 Practice Note and agree to comply with it. I confirm this evidence has been prepared in accordance with the Code of Conduct for Expert Witnesses set out in the 2014 Environment Court Practice Note. I declare I am an employee of the submitter B+LNZ. I confirm that the opinions I have expressed in this brief of evidence represent my true and complete professional opinions. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

## SCOPE OF EVIDENCE

7. I have been asked by B+LNZ to prepare evidence that provides background to the sheep and beef cattle sector. This includes:

(a) Background to B+LNZ's Economic Service and its Sheep and Beef Farm Survey;

(b) Background to sheep and beef farming enterprises in Otago; and

(c) Data from B+LNZ's Sheep and Beef Farm Survey for Otago as it relates to the proposed Regional Policy Statement, namely data to demonstrate objectively that sheep and beef farming is:

i. a significant industry in Otago;

ii. complex and diverse; and

iii. becoming more efficient over time.

8. A description of the B+LNZ Sheep and Beef Farm Survey is attached as Appendix 1: Description of B+LNZ Sheep and Beef Farm Survey.

**SUMMARY**

9. Sheep and beef farming in Otago is conducted in diverse and complex environments.

10. This is reflected in the average area of different classes of farm. On average, South Island High Country farms are over 20 times the area of South Island Finishing farms in the region.

11. Overall, an average of about 85 per cent of a farm's total area is used for grazing. The other 15 per cent provides non-farming services – such as native vegetation cover. There is a significant amount of carbon-sequestering woody vegetation on sheep and beef land – covering approximately two million hectares, or just under 20% of all sheep and beef land area (Case, 2020). The majority of New Zealand's covenants that protect land in perpetuity under the QEII National Trust are on sheep and beef farms.

12. New Zealand sheep meat and beef have carbon footprints that are among the lowest in the world.

13. The average stocking rate for sheep and beef farms in Otago remained almost unchanged between 1990-91 and 2020-21 when the weighted average Stocking Rate was 4.1 stock units per hectare of grazed area, which is equivalent to about one half of one Friesian dairy cow per ha.

14. While there was some conversion of better land to dairying most farms continued to be farmed with the natural capital of the properties and long-term sustainability – economic, environmental and social – in mind.

15. Dairy Grazing Revenue averages less than one per cent of total gross farm revenue in Otago.

16. Sheep dominate the region, as is widely known intuitively.

17. The number of **sheep decreased** – by 40 per cent between 1990-91 and 2021-22.

18. The number of **beef cattle increased** – by 40 per cent.

19. The number of **dairy cows increased** – by over 80 per cent from a very low base.

20. The total number of **Stock Units decreased** – by nearly 9 per cent.

21. The **application** of elemental Nitrogen, Phosphorus, Potassium and Sulphur is low.

22. Nutrient **losses** are low, with other evidence, particularly that of Dr Chrystal, addressing this point in more detail.

**EVIDENCE**

23. The data discussed in this evidence largely comes from B+LNZ's Sheep and Beef Farm Survey.

24. B+LNZ's Economic Service provides credible, authoritative and independent information analysis about the sheep and beef value chain, and farming in particular, in New Zealand that supports informed decision-making.

25. A core part of this is the Sheep and Beef Farm Survey, which was initiated after a 1949 Royal Commission that was instructed by the government of the day to "Inquire into and Report Upon the Sheep-Farming Industry", concluded "there is no consistency of facts on which we can rely".

26. The Survey has been conducted annually and continuously since 1950, which means it is over 70 years old and makes it the longest running such primary sector survey on Earth as far as I know.

27. It has not remained static but has evolved and changed to meet the changing needs of the industry and issues of the time.

28. The Survey framework and the operational structure of B+LNZ's Economic Service supports making credible forecasts of production and farm outcomes.

29. The Survey involves a farm visit to gather information and discuss its interpretation with the farmer, and extensive financial analysis of each farm's financial accounts.

**Data limitations and constraints**

30. The Sheep and Beef Farm Survey is a sample survey in which the sample is randomly selected from the business frame used in the country's Agricultural Production Census of producers to reflect New Zealand's livestock base. Statistical methods can be used to reliably represent the real world, albeit with some measure of variability/uncertainty. Generally, the discipline of statistics reduces such uncertainty, but absolute knowledge cannot be assured until the population of farms across a region and timeframes envisaged by policy measures is surveyed. That is not practicable for such policy development.

**Background to sheep and beef farming in Otago**

31. The sheep and beef farming sector is complex and diverse in New Zealand, and Otago is no exception. Indeed, it is one of the most diverse. Commercial sheep and beef farms have multiple enterprises for a variety of reasons, including:

    (a) The physical characteristics of the property;

    (b) The objectives of the owner(s); and

    (c) Because sheep and beef cattle complement each other on individual properties in a number of production and financial ways, e.g. to mitigate financial risks, to manage pasture, to manage parasites.

32. The "farms" in the Survey are classified into eight Farm Classes. This classification is about the nature of the farm ***business***, which includes, but is not limited to, topography, and the way in which the farm is managed. While Land Use Capability (LUC) class is one of the factors considered

when our staff classify a "farm", there are a number of other factors considered.

33. The Farm Class and LUC classification systems both use single digits ranging from 1 to 8, however the classes are defined differently.

34. Mr Orchiston provides more detail and a graphic of the LUC system in his evidence.

35. Sheep and beef farms in Otago vary considerably in size and on other measures for such reasons. For example, "farms" vary greatly in size (whether according to one or more physical or financial characteristics), which is often overlooked when the generic term "farm" is used. "Farm" and any metric taken alone oversimplifies the situation because it understates heterogeneity and overstates homogeneity of the businesses, which are frequently multi-generational family businesses.

36. All the High Country farms in the Survey are over 1000 ha, while two out of five Hill Country, one in seven Breeding Finishing and none of the Finishing farms are over 1000 ha.

37. Agriculture's share of GDP is higher in Otago than in New Zealand overall. The share of GDP from agriculture, which was 5.6 per cent in the year ended March 2019, compared with 4.1 per cent, for New Zealand overall, according to Statistics New Zealand Regional GDP data (MBIE, 2019). In 2020, Otago's GDP per person of ~$57,800 was 91 per cent of the national average of ~$63,500 (MBIE, 2019). These trends reflect what we know intuitively about Otago's economy, e.g. the significance of the Agriculture and "tourism", which relies on industries such as Accommodation and Food and Beverage Services, and the businesses in Otago that further process farm outputs, and supply farming.

38. Breaking Otago into the Territorial Authorities (TAs), Agriculture's share of GDP in the year ended March 2019 was 17, 22 and 15 per cent in Central Otago, Clutha and Waitaki respectively, whereas Agriculture's share of GDP in Queenstown-Lakes and Dunedin City is less than 2%. Central Otago, Clutha and Waitaki each had GDP per capita close to the national average, whereas Dunedin City's was over 15% lower than the national average and Queenstown-Lakes' was over 15% higher than the national average (MBIE, 2019).

**Livestock Numbers and Livestock Units**

39. The charts below provide an overview of the trends in livestock numbers in Otago as measured by New Zealand's official statistics about agriculture, which are gathered through the Agricultural Production Census (APC). The APC is funded by the Ministry for Primary Industries (MPI) and conducted by Statistics New Zealand (SNZ). 1990-91 is used as the starting point for many of the observations/analysis because:

    (a) We consider 1990-91 the season by which the vast majority of support had been removed after the mid-1980s deregulation by the Labour government that won the 1984 general election;

    (b) The Resource Management Act 1991 came into force on 1 October 1991[1]; and

    (c) Calendar 1990 is the base year against which many climate change measures are assessed internationally and domestically.

40. Sheep and beef cattle dominate the region's livestock population (Figure 1).

41. In Otago, between 1990-91 and 2021-22:

    (a) The **share of sheep and beef stock units in total stock units decreased** – from over 95 per cent to 75 per cent (Figure 1).

    (b) The **share of dairy stock units in total stock units increased** – from less than five per cent to nearly 25 per cent (Figure 1).

    (c) The number of **sheep decreased** – by nearly 40 per cent (Figure 2).

    (d) The number of **beef cattle increased** – by nearly 40 per cent (Figure 3).

    (e) The number of **dairy cows increased** – by nearly 800 per cent – but from a very low base (Figure 4).

    (f) The total number of **Stock Units decreased** – by nearly 9 per cent (Figure 5).

[1] https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

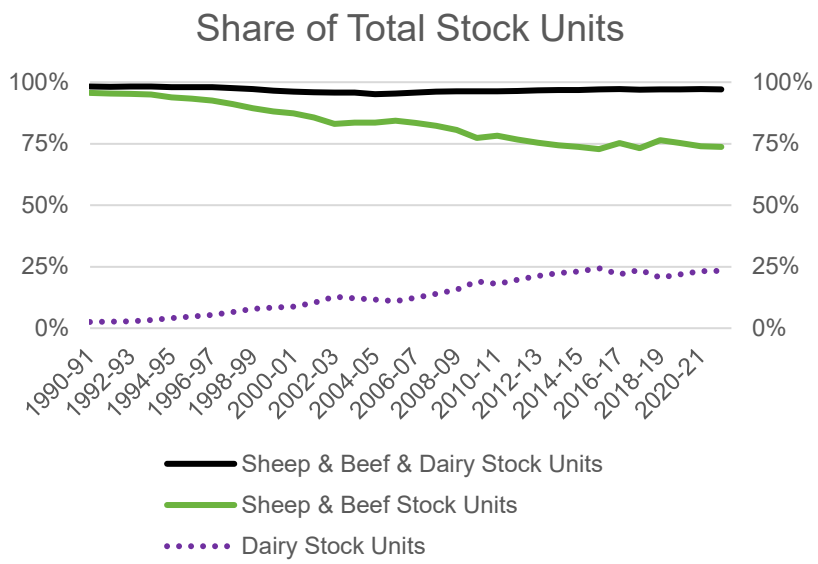


**Figure 1: Share of Total Stock Units**

42. As at 30 June 2021[2], Otago had:

    (a) Around 20% of New Zealand's sheep;

    (b) Around 9% of New Zealand's beef cattle; and

    (c) Around 7% of New Zealand's dairy cows.

43. As at 30 June 2021, of Otago's stock units:

    (a) Around half were sheep, which is the highest share of all regions in New Zealand;

    (b) Around 19% were beef cattle, which is lower than the average; and

    (c) Around 28% were dairy cattle, compared with 48% for New Zealand overall.

[2] The figures for 30 June 2021, i.e. the result of the 2021 Agriculture Production Survey (APS), were released in May 2022. Results of the Agriculture Production Census (APC) that was conducted in 2022 will be released by May 2023.

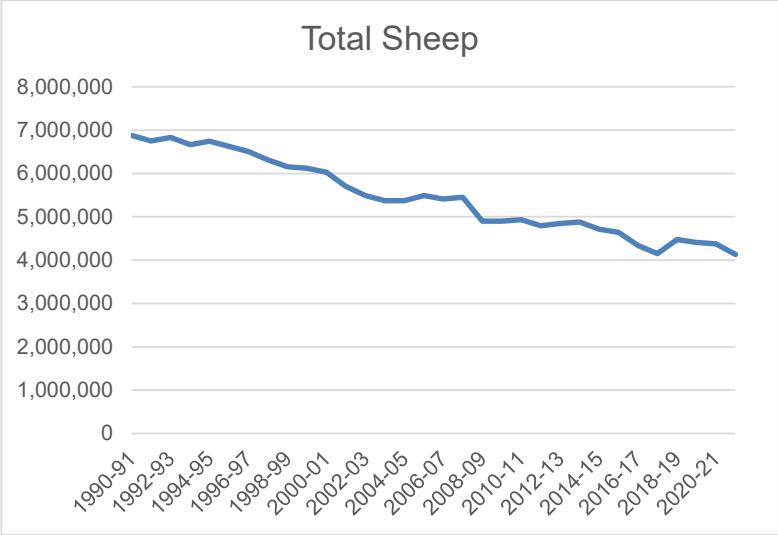


**Figure 2: Livestock Numbers – Sheep**

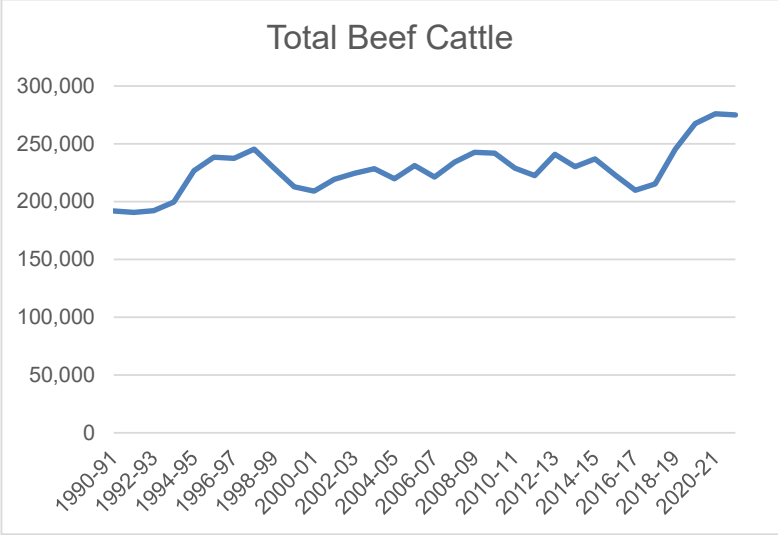


**Figure 3: Livestock Numbers – Beef Cattle**

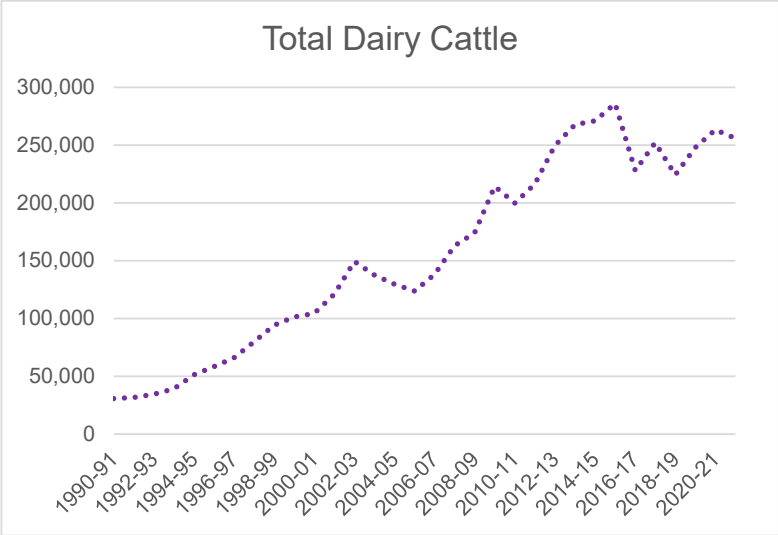


**Figure 4: Livestock Numbers – Dairy Cattle**

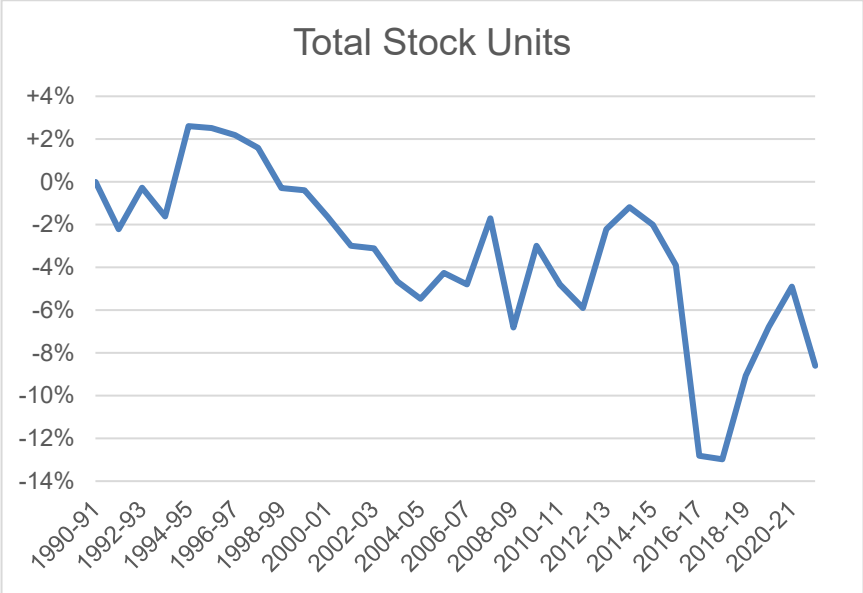


**Figure 5: Percentage Change in Livestock Units ("Stock Units") since 1990-91**

45. We are often asked the following questions about stock units:

    (a) What is a "stock unit"?; and

    (b) Why use "stock units"?

46. A stock unit, which is abbreviated to SU, reflects feed consumption (or utilisation or demand) by animals.

47. A stock unit provides a means of comparing like-with-like. It provides a "common currency" that allows the counts of different species to be reported consistently, or, more colloquially, to compare apples with apples (to mix industries). It measures different livestock ages and classes relative to a breeding ewe. For example, a Friesian dairy cow was calculated to be 8.5 stock units, i.e. a Friesian dairy cow has 8.5 times the feed consumption/demand of a breeding ewe.

48. The factors used to convert stock numbers to stock units are available in the "Definitions" tab on B+LNZ's Benchmarking Tool page on the B+LNZ website.[3] They are those that resulted from detailed research by Lincoln University.

**Livestock Numbers from 2010-11 to 2020-21**

49. Over the 10 years from 2010-11 to 2020-21, Otago experienced (Figure 7):

    (a) A decrease in the absolute ***number*** of sheep;

    (b) The largest increase of all regions in New Zealand in the absolute ***number*** of beef cattle; and

    (c) The largest increase of all regions in New Zealand in the absolute ***number*** of dairy cattle.

50. Over the 10 years from 2010-11 to 2020-21, of all regions, Otago experienced (Figure 8):

    (a) The smallest decrease in the percentage change in the ***number*** of sheep;

    (b) The third-largest percentage increase in the ***number*** of beef cattle; and

    (c) The second-largest percentage increase in the ***number*** of dairy cattle.

**Livestock Units from 2010-11 to 2020-21**

[3] https://beeflambnz.com/data-tools/benchmarking-tool

51. Over the 10 years from 2010-11 to 2020-21, Otago experienced (Figure 9):

    (a) A decrease in the absolute ***number*** of sheep stock units;

    (b) The largest increase in the absolute ***number*** of beef cattle stock units; and

    (c) The second-largest increase in the absolute ***number*** of dairy cattle stock units.

52. Over the 10 years from 2010-11 to 2020-21, of all regions, Otago experienced (Figure 10):

    (a) The smallest decrease in the percentage change in the ***number*** of ***sheep stock units***;

    (b) The third-largest percentage increase in the ***number*** of beef cattle ***stock units***; and

    (c) The second-largest percentage increase in the ***number*** of dairy cattle ***stock units*** after Auckland, which has less than two per cent of the country's dairy cattle stock units compared with Otago's 11 per cent and Waikato's 18 per cent.

53. New Zealand sheepmeat has a cradle-to-grave carbon footprint of just under 15 kgCO2-e per kg liveweight sold, while the carbon footprint of New Zealand beef is just under 22 kgCO2-e per kgLW sold. This makes the country's red meat among the most efficient in the world. (Ledgard, Falconer, & Mazzetto, 2021)

54. Compared to other countries, the research found the carbon footprint of exported New Zealand beef or sheepmeat is lower or very similar to domestically produced red meat in those countries.

**Key Physical and Financial Features of Commercial Sheep and Beef Farms in Otago[4]**

55. This section shows and discusses key information about commercial sheep and beef farms in Otago.

[4] The definition of commercial sheep and beef farm is included in the Appendix.

56. The figures shown are averages – simple averages for like farms, and a weighted average for the All Classes figures, which takes into account the different proportions the estimated number of farms in each individual Farm Class make up of the total population of commercial sheep and beef farms. The Sheep and Beef Farm Survey sample is drawn in proportion to livestock units, which are the productive base of the industry.

57. The Survey analyses and reports on farm businesses, which primarily means combining financial accounts because there is usually more than one set of accounts (and therefore more than one legal entity) associated with a "farm". Further, the financial structures of farm businesses vary greatly, for various reasons.

58. The averages for the region are influenced by the large physical and financial size of the Farm Class 1 South Island High Country farm businesses. So, while per farm measures provide a perspective of the sector and should be considered, removing the "size effect" by using measures per hectare, or more often per stock unit, provides a more sensible comparison of metrics.

59. In summary, using data from the B+LNZ Sheep and Beef Farm Survey of 2020-21:

    (a) On average, Farm Class 1 South Island High Country farms are:

        i. About seven times the area of Farm Class 2 South Island Hill Country farms;

        ii. Over 12 times the area of Farm Class 6 South Island Finishing Breeding farms, which are the most populous in the region; and

        iii. Over 20 times the area of Farm Class 7 South Island Finishing farms.

    (b) Overall, an average about 85 per cent of a farm's total area is used for grazing. The other 15 per cent provides non-farming services.

    (c) On average, there were fewer than 10 dairy cattle on hand at balance date.

(d) Dairy Grazing Revenue averages less than one per cent of total Gross Farm Revenue.

(e) The weighted average Stocking Rate was around four SU per grazed hectare, which is equivalent to less than one half of one Friesian dairy cow per ha.[5]

(f) Commercial sheep and beef farms in Otago have the equivalent of about 1.8 FTEs on average, with:

i. the large South Island High Country farms having an average of 3.3 FTE; and

ii. the most populous type of farm (Farm Class 6 South Island Finishing Breeding) having an average of 1.6 FTE.

[5] One dairy cow is equivalent to 8.5 SU.

*Table 2: Characteristics of Otago farms by farm class in 2020-21*

| Characteristic | Farm Class 1 South Island High Country | Farm Class 2 South Island High Country | Farm Class 6 South Island Finishing Breeding Farms | Farm Class 7 South Island Finishing Farms | Weighted Average All Farm Classes |
|---|---|---|---|---|---|
| Number of farms in B+LNZ survey sample | 7 | 10 | 17 | 7 | 41 |
| Total farm area (hectares) | 7,345 | 1,225 | 633 | 360 | 1,529 |
| Grazed area (hectares) | 6,292 | 1,061 | 525 | 338 | 1,306 |
| Non-grazed (forestry and 'set aside') | 14% | 13% | 17% | 6% | 15% |
| Labour units (FTE per farm) | 3.29 | 1.84 | 1.59 | 1.45 | 1.83 |
| Number of sheep | 9,353 | 5,028 | 4,077 | 3,197 | 4,792 |
| Number of cattle | 414 | 255 | 157 | 131 | 205 |
| Number of deer | 65 | 58 | 3 | 69 | 30 |
| Sheep to cattle ratio | 23 | 20 | 26 | 24 | 23 |
| Sheep stock units | 8,189 | 4,660 | 3,648 | 3,001 | 4,317 |
| Cattle stock units | 1,559 | 1,256 | 745 | 543 | 923 |
| Deer stock units | 108 | 102 | 5 | 114 | 52 |
| Total stock units | 10,206 | 6,004 | 4,404 | 3,749 | 5,344 |
| Stocking rate (stock units/grazed ha) | 1.6 | 5.7 | 8.4 | 11.1 | 4.1 |
| Lambing performance* | 109.9% | 124.0% | 135.3% | 141.1% | 128.6% |
| Calving performance* | 79.3% | 82.9% | 85.2% | - | 83.6% |
| Wool sold (kg/sheep 'at open')** | 4.85 | 4.25 | 4.75 | 5.15 | 4.70 |
| Wool sold (kg) | 45,316 | 21,371 | 19,371 | 16,468 | 22,531 |
| Number of lambs sold | 2,731 | 3,805 | 3,677 | 3,289 | 3,537 |
| Number of sheep sold | 2,704 | 849 | 719 | 623 | 972 |
| Number of cattle sold | 264 | 129 | 101 | 107 | 127 |
| Number of deer sold | 27 | 34 | 0 | 26 | 14 |

*Source: B+LNZ Economic Service Sheep and Beef Farm Survey*
*Note: * 100% performance is an average of one lamb for every ewe or one calf for every cow. ** 'At open' refers to the start of each new farming year or 'season', which runs from 1 July to 30 June. Grazed and non-grazed areas are explained in Section 3.4.5.*

**Table 1: Key Physical and Financial Features of Commercial Sheep and Beef Farms in Otago 2020-21[6]**

[6] Table 2 in (Moran, 2022).

**Sheep and beef farming is complex and heterogeneous**

60. Within Otago, sheep and beef farming is carried out on all land types, climate zones, and topographies, and there are considerable differences in farm size as discussed earlier. Thus, sheep and beef farming is as diverse as these characteristics combined with the diversity that is farmers as humans and how they adapt to those factors while endeavouring to meet their objectives. The fundamental principle is to optimise the farming systems considering the natural capital of the land and the farming business's objectives, which are multi-year and multi-generation. This includes considering intra-seasonal patterns of pasture growth and means drystock[7] farmers carefully manage their resources. As a result, they are resilient and responsive to climate, weather and market signals.

61. The complexity and diversity includes the connections throughout the value chain. Some sheep and beef farms, particularly hill country, specialise in breeding stock that are sold as what are called "store stock" to other farms that finish[8] them for processing. This is an integrated market system of stock flow – from breeding to finishing to processing to sales to both domestic and export markets.

62. Since the economic reforms in the 1980s, the expansion of dairy farming onto what was prime sheep finishing land, and opportunities provided by dairy grazing, a higher proportion of the lambs born on hill country is finished on hill country.

63. We estimate that in 1990-91 around 30 per cent of the lambs processed in New Zealand were finished on hill country, and 70 per cent were finished on finishing land. Now, the ratio is close to 50:50, i.e. half the lambs processed in New Zealand are finished in hill country.

64. In Otago, in 1990-91 an average of 90 per cent of all lambs sold per farm were finished on the property on which they were born, with 10 per cent of

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[7] "Drystock" is used in this document to cover sheep, beef cattle, deer and goats for production of meat and fibre as distinct from production of milk for processing in a manufacturing plant.

[8] Grow young livestock through to when they are ready for processing.

lamb sales being store stock that were finished by others. In 2020-21, less than two-thirds of the lambs sold were finished on the property they were born on, which indicates the sheep and beef farming sector's response to the clear signals from the red meat processing sector for consistency and quality of lambs to meet their customer needs and thus the integration between farms, which has resulted from and been facilitated by developments such as modern communication and transport systems.

**Types of Commercial Sheep and Beef Farms**

65. B+LNZ characterises farms (farm businesses) into eight farm classes, which, for the avoidance of doubt, combine physical and financial characteristics that contribute substantially to the farm business management.

66. I expect that others' evidence will use the term "class" meaning Land Use Capability (LUC) class, which, as the name suggests, focuses on an assessment of the productive capability of the land.

67. To be clear, Farm Class is broader than Land Use Capability (LUC) class. And, there usually are many LUC classes on what is colloquially understood as one "farm".

68. The constraints provided by the physical characteristics of a farmer's property are taken into account when establishing a business to meet the family's objectives so that farming is sustainable economically, which is about the use of physical and financial resources, socially and culturally.

69. The Farm Classes that are relevant in Otago, are:

    (a) Farm Class 1 – South Island High Country;

    (b) Farm Class 2 – South Island Hill Country;

    (c) Farm Class 6 – South Island Finishing Breeding; and

    (d) Farm Class 7 – South Island Finishing.

70. Their characteristics are described in Appendix 1: Description of B+LNZ Sheep and Beef Farm Survey.

**Number of Commercial Sheep and Beef Farms**

71. The number of commercial sheep and beef farms has declined for a number of reasons, including:

(a) amalgamation;

(b) conversion to dairy farming; and

(c) as technology has improved efficiency (Figure 11).

72. Although the percentage decrease in the number of Farm Class 6 Finishing Breeding farms (~50%) is less than that for Farm Class 7 farms (~80%), Farm Class 6 is the most populous in the region totalling more than the sum of the other three Farm Classes, and Farm Class 7 Finishing farms, so the decrease in absolute numbers is larger –over 500 farms.

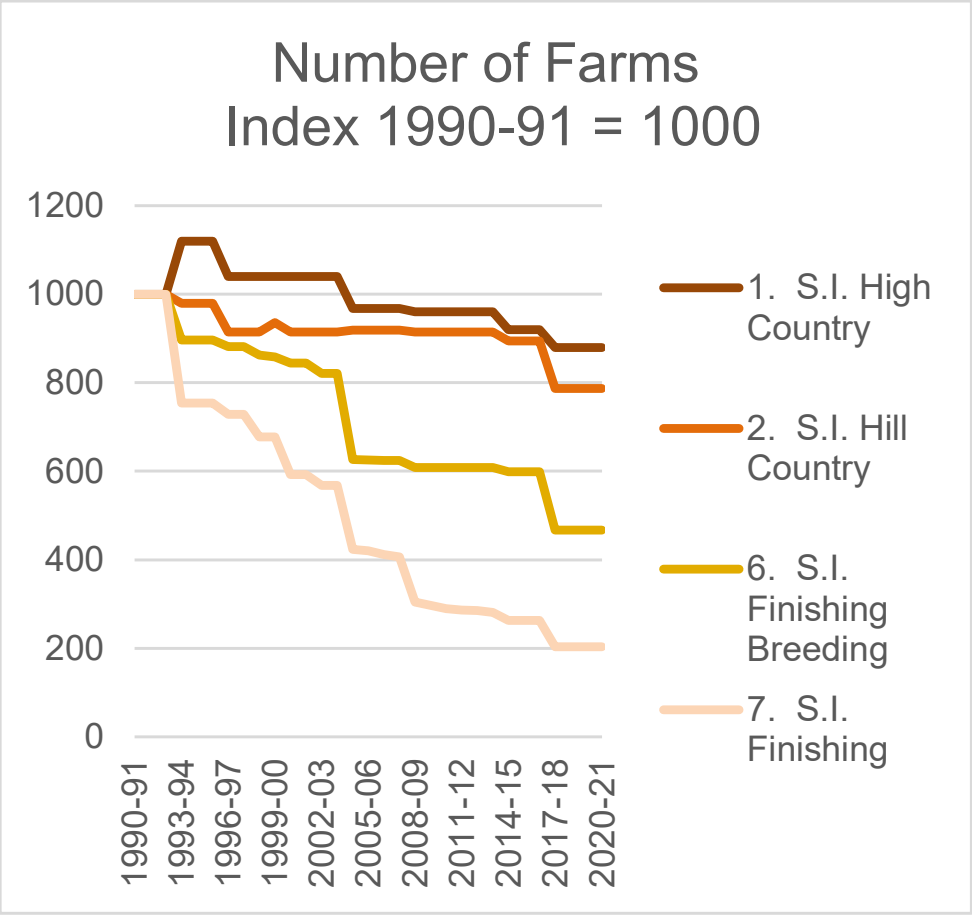



**Figure 6: Commercial Sheep and Beef Farms by Farm Class in Otago**

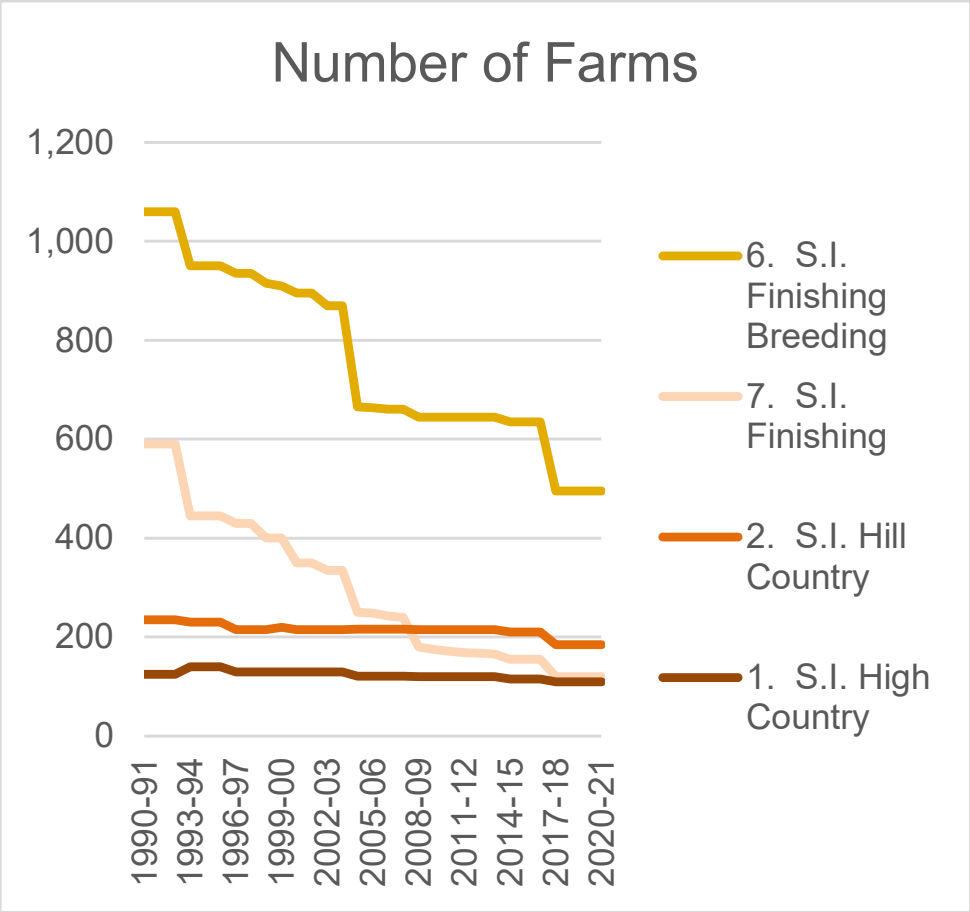



**Figure 7: Estimated Number of Commercial Sheep and Beef Farms in Otago**

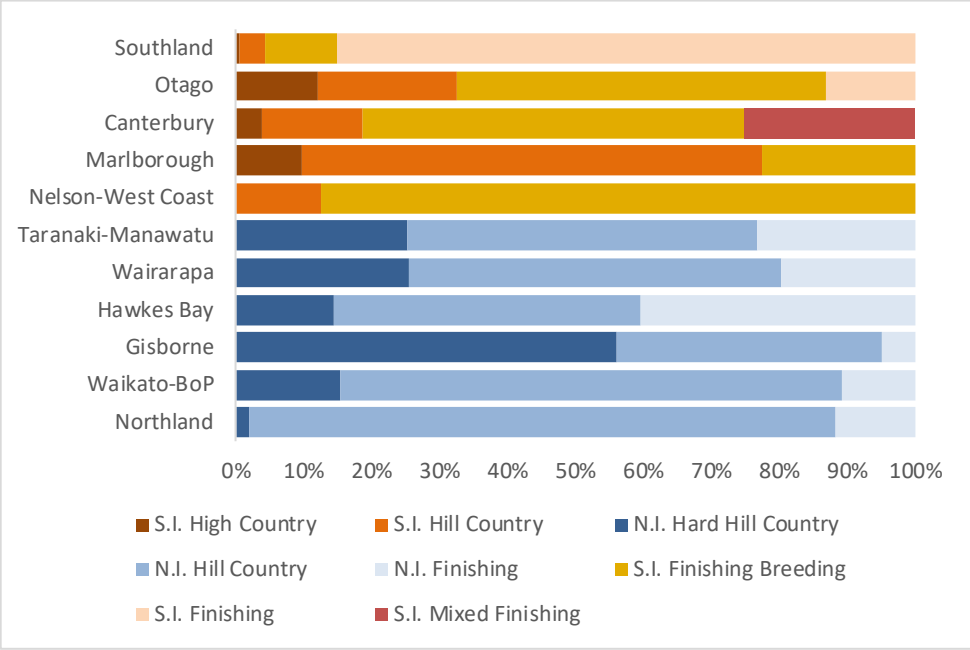



**Figure 8: Estimated Proportions of Commercial Sheep and Beef Farms by Region**

**Physical Characteristics of Commercial Sheep and Beef Farms**

***Farm Class 1 South Island High Country***

73. We estimate from New Zealand's official statistics that are collated by Statistics New Zealand, there were 110 Farm Class 1 South Island High Country farms in Otago in 2020-21, which is over half of the total population of 200 farms and thus the most of any region in New Zealand.

74. That measure oversimplifies the complexity and diversity of the farm businesses and people involved on High Country farms.

75. The Survey results estimate the grazing and cropping area averages over 6,000 ha per farm, which is huge compared with a typical suburban section, and is 85 per cent of the average total area of the farms of over 7,300 ha per farm. All these farms exceed 900 ha in total area. They have thousands (and often tens of thousands) of Stock Units (SU) but have a very low stocking rate – an average of around 1.5 SU/ha, which is equivalent to less than one-fifth of a Friesian cow per hectare and reflects the natural capital of the environment. The ratio of sheep and beef cattle SU averaged about 80:20 in 2020-21.

***Farm Class 2 South Island Hill Country***

76. We estimate there were around 185 Farm Class 2 South Island Hill Country farms in 2020-21.

77. On average, over 1,000 ha was used for grazing and cropping – around 85 per cent of average total area. The Survey estimates they carried around 6,000 SU in total at the start of the farming season (i.e. mid-winter) and thus had a stocking rate of about 5.7 SU/ha, which is equivalent to about two-thirds of a Friesian dairy cow per hectare. The ratio of sheep to beef cattle SU was 75:25.

***Farm Class 6 South Island Finishing Breeding***

78. The most populous type of farm by number in Otago is Farm Class 6 South Island Finishing Breeding. We estimate there were around 495 farms in 2020-21, or more than half of the estimated number of commercial sheep and beef farms in the region.

79. On average, they had a grazed and cropping area of around 525 ha (~83 per cent of the total area) and about 4,400 SU or an average stocking rate of about 8.4 SU/ha, which is equivalent to about one Friesian dairy cow per hectare. The ratio of sheep to beef cattle stock units averaged about 83:17.

***Farm Class 7 South Island Finishing***

80. We estimate there were around 120 Farm Class 7 South Island Finishing farms in Otago in 2020-21, which is about 15 per cent of the total number of Farm Class 7 farms because the majority (85%) are in Southland.

81. On average, they had a grazed and cropping area of around 340 ha (94 per cent of total area) and about 3,700 SU or an average stocking rate of about 11.1 SU/ha – which is equivalent to about 1.3 Friesian dairy cows per hectare. The split between sheep and beef cattle SU averaged about 80:17, which leaves ~3% of SU made up of other species – deer and dairy cattle.

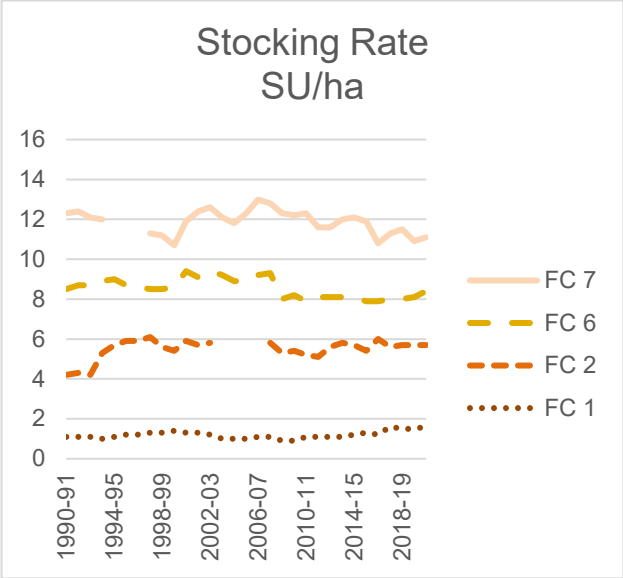



**Figure 9: Stocking Rate**

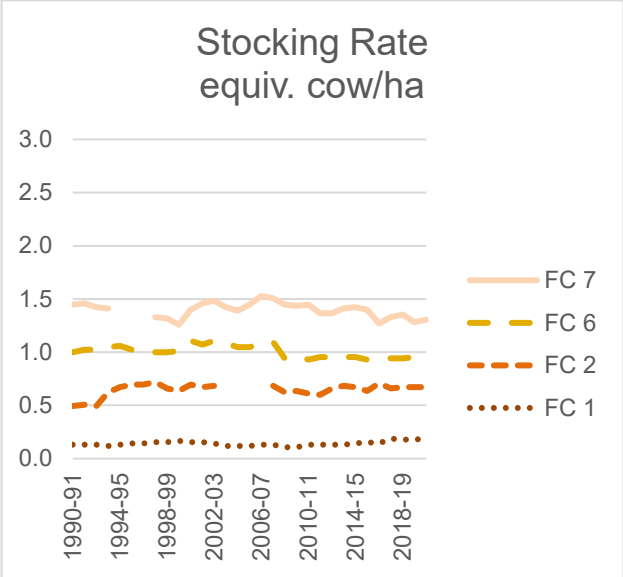



**Figure 10: Stocking Rate**

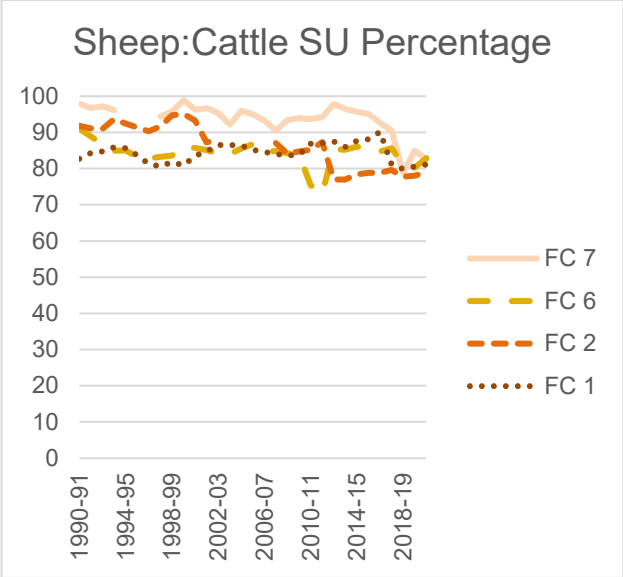



**Figure 11: Sheep SU as a Percentage of Total SU**

### Fertiliser Use

82. The following charts show time-series information about fertiliser ***applications*** on sheep and beef farms.

83. In summary, the application of elemental N, P, K and S is low.

84. Nutrient ***losses*** are covered in others' evidence, particularly that of Dr Jane Chrystal.

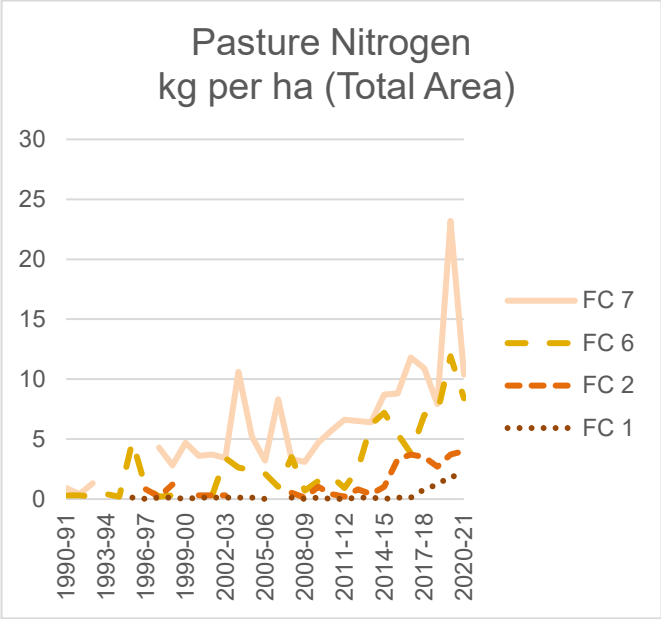



**Figure 12: Nitrogen Applied to Pasture**

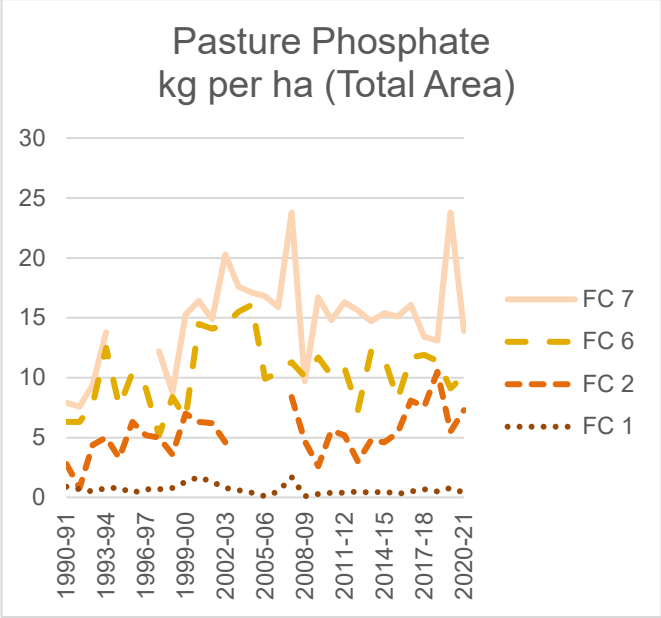



**Figure 13: Phosphate Applied to Pasture**

**Gross Farm Revenue**

85. The following sections provide a summary of the trends in sources of Gross Farm Revenue from the different Farm Classes of commercial sheep and beef farms in Otago. They are supplemented by the charts in Appendix 2: Background to the Sheep and Beef Sector. The All Classes average provides a useful overview for broad understanding of the trends in the region and sector. The figures are averages, so one should bear in mind that the complexity and diversity of farm businesses means there is a range around these averages.

***Farm Class 1 South Island High Country***

86. The proportion of Gross Farm Revenue from ***Sheep+Wool*** generally has been around 80 per cent as wool revenue has fallen and sheep revenue has increased. Dairy grazing revenue is almost non-existent.

***Farm Class 2 South Island Hill Country***

87. ***Sheep+Wool*** revenue declined from an average of 90 per cent of Gross Farm Revenue in 199091 to less than 80 per cent in the early 2010s and then improved to 80 per cent at the end of the period. Cattle revenue has increased since around 2000. Dairy Grazing Revenue is non-existent – on average.

***Farm Class 6 South Island Finishing Breeding***

88. On average, cattle revenue is equivalent to around 12 per cent of Gross Farm Revenue – well less than 20 per cent. ***Sheep+Wool*** revenue is the mainstay of revenue in these businesses at over 80 per cent. Dairy grazing revenue is almost non-existent on average – and less than ***Deer+Velvet*** – but is a consideration for some drystock farmers because it provides diversity of income and thus risk mitigation.

***Farm Class 7 South Island Finishing***

89. Cattle revenue was equivalent to around 1-5 per cent of Gross Farm Revenue for 25 years from 1990-91. It increased subsequently to around 10-15 per cent, partly due to the continued decline in wool revenue and partly due to an increase in production from beef cattle. ***Sheep+Wool*** revenue is the most significant revenue source, at 85-90 per cent for the 25

years from 1990-91 – with increased sheep revenue offsetting the decline in wool revenue. Dairy Grazing revenue is a small share of Gross Farm Revenue and declined from 5-8 per cent in the early 2000s to 2-3 per cent in recent years, about the same level as ***Deer+Velvet*** Revenue.

***Farm Class 9 Weighted Average All Classes***

90. The Weighted Average for All Classes combines the averages for each Farm Class into a regional average. ***Wool*** Revenue's share of Gross Farm Revenue declined steadily as wool prices decreased and ***Sheep*** Revenue increased. Combined ***Sheep+Wool*** Revenue has remained steady around 80-85 per cent of Gross Farm Revenue, with ***Cattle*** Revenue increasing to peak at under 20 per cent in 2016-17. On average, ***Dairy Grazing*** Revenue has been equivalent to less than one per cent of Gross Farm Revenue, and was the same level as ***Deer+Velvet*** Revenue in 202021 at 0.6 per cent of Gross Farm Revenue.

**Dairy Grazing Revenue**

91. "Winter/dairy/intensive grazing" means different things to different people because of the diversity and complexity of sheep and beef farming and the business relationships between sheep and beef farmers and those wanting grazing for their livestock.

92. Dairy Grazing Revenue is defined in the Sheep and Beef Farm Survey as revenue earned from grazing dairy livestock – of any age. Generally that means replacement livestock that are not being milked and thus are grazed off the so called "milking platform" for the full dairy season, and dairy cows that are grazed off the milking platform after they have been dried off and before they start calving and milking begins.

93. It is difficult to generalise about Dairy Grazing Revenue in the region because the data show relatively little revenue is earned from it. On average, less than one per cent of Gross Farm Revenue is earned from Dairy Grazing.

94. In 2020-21, over 95 per cent of commercial sheep and beef farms in Otago do not earn any Dairy Grazing Revenue. The financial accounts for 85 per cent of Farm Class 1 High Country farms, all Farm Class 2 Hill

Country and Farm Class 6 Finishing Breeding farms, and about 85 per cent of Farm Class 7 Finishing farms did not record revenue from Dairy Grazing.

**Expenditure**

95. Three major items of expenditure are considered below.

96. Interest & Rent[9] is a major expenditure item with the level of expenditure being influenced by:

    (a) levels of short-, i.e. working capital, and long-term debt;

    (b) the terms of such debt, e.g. fixed terms on mortgages; and

    (c) interest rates, e.g. the absolute levels, and mix of fixed and floating interest rates.

97. As a result, there is very limited discretion about interest and rent payments.

98. Fertiliser, Lime & Seeds expenditure, and particularly fertiliser, is more readily adjusted when budgeting, though reducing fertiliser applications has production implications.

**Profitability**

99. Profitability in sheep and beef farming has fluctuated over time. It weakened during the 1980s and 1990s following the deregulation in the New Zealand economy that was introduced by the Lange government in the mid1980s. Profitability improved in the early 2000s as depreciation of the New Zealand dollar boosted revenue. Subsequent fluctuations have been quite dramatic and the result of the volatility of product prices, and seasonal conditions, which impacted on productivity. It is important to note the diverse range of products that come from sheep and beef farms. This reflects farmers' approach to risk management as they respond to the limitations imposed by the factors of production – land, labour and capital – and to the physical and financial environment.

[9] B+LNZ considers Rent is a cost of capital, though it is generally small compared with Interest.

100. Profitability varies substantially (Figure 28), which reflects the variability and risk to which farmers are exposed. There are two important points:

(a) the pattern between Farm Classes is similar, which reflects the interconnectedness and interdependencies of Farm Classes, e.g. breeders breed and finish some lambs (commercial sheep and beef cattle farming businesses in Otago are substantially about sheep as shown earlier) while finishers finish more lambs than they breed; and

(b) the peaks and troughs reflect the mix of livestock and the fortunes of each, recalling that sheep enterprises are relatively more important in Otago than in many other regions of the country, particularly the North Island.

101. However, per-farm measures do not take account of farm size, which for the sheep and beef industry varies considerably as shown earlier (see Figure 1). The use of per hectare – and usually per ***grazing*** hectare except for extensive operations like South Island High and Hill Country, which are typically assessed using per stock unit – measures supports comparison between farms of different sizes on a consistent basis. Why take account of rent? As discussed earlier, in our view, it is necessary to take rent into account because rent is a cost of capital, and comparisons using EBIT[10] would consider a farm business that borrowed to buy freehold land as less profitable than if that same farm was operating on leased land for which it was paying rent.

102. Finishing farms compete with dairy.

**Meat Processing and Markets**

103. The sheep and beef cattle industry is important to Otago and New Zealand because of the value it adds to the economy and the jobs it involves. In Otago and Southland combined, the “red meat industry”, which is the integration of two sectors – sheep and beef livestock production and red

[10] Earnings Before Interest and Tax.

meat processing – is estimated to make up 12 per cent of economic activity and employment.[11]

104. The dairy industry and the meat processing sector are connected because of processing of cull dairy cattle and calves.

105. New Zealand's drystock industries mainly focus on exporting meat and meat products. As a general statement, at least 90% of the production of wool, lamb, mutton, beef and veal and deer is exported. Consequently, New Zealand's meat processors and exporters, and their suppliers of livestock, rely heavily on exporting to a wide range of markets.

| Product | Export share of Production (%) | Export value ($ million) |
|---|---|---|
| Wool | 91% | $447 |
| Lamb* | 95% | $3,353 |
| Mutton* | 98% | $840 |
| Beef and Veal* | 90% | $4,399 |
| Deer [$294m] + Other | 94% | $2,135 |
| **Total** | | **$11,174** |
| Dairy | 94% | $16,517 |
| **Total** | | **$27,691** |
| * Includes co-products | | |
| Source: B+LNZ Economic Service, Statistics New Zealand | | |

**Table 2: Share of New Zealand pastoral products exported 2020-21**

[11] https://beeflambnz.com/sites/default/files/news-docs/NZRM-Industry-summary.pdf

**Meat Processors**

106. This section gives a brief overview of the main processors in Otago and then discusses key export markets for lamb and beef. These export markets are particularly relevant for the sheep and beef industry's future.

107. The tariff-rate quota allocations for sheep and goat meat and high-quality beef ("HQB") exports to the EU, and for beef and veal exports to the US indicate New Zealand meat processors' production volumes. Three of the companies in New Zealand with the largest quota allocations for sheep and goat meat to the EU and beef and veal to the US have processing plants in Otago: Alliance Group Ltd, which has its registered office in Invercargill, ANZCO Foods Ltd, which has its registered office in Christchurch, and Silver Fern Farms Ltd, whose corporate office is in Dunedin. Other quota holders have plants in Otago, e.g. Binxi Foods. See Appendix 3 for a map of Meat Processing in New Zealand.

108. Together these companies account for 50-60 per cent of the quota allocations for the EU27 sheep and goat meat,[12] EU27 high-quality beef,[13] UK sheep and goat meat,[14] UK high-quality beef,[15] and US beef and veal meat.[16]

**Meat Sales**

109. There is no publicly available information about sales patterns because the information is commercially sensitive. However, it is reasonable to assume that the pattern of sheep and beef exports from Otago is similar to that for New Zealand as a whole, qualified by "Otago" production being weighted

[12] https://www.nzmeatboard.org/assets/Documents/EUSG-2022-GQA-2021-gs5283.pdf

[13] https://www.nzmeatboard.org/assets/Documents/2021-2022-EU-HQB-quota-allocations-notice-2021-gs1986.pdf

[14] https://www.nzmeatboard.org/assets/Documents/EUSG-2022-GQA-2021-gs5283.pdf

[15] https://www.nzmeatboard.org/assets/Documents/2021-2022-EU-HQB-quota-allocations-notice-2021-gs1986.pdf

[16] https://www.nzmeatboard.org/assets/Documents/USBV-2022-GQA-2021-gs5285.pdf

towards lamb and mutton because a high proportion of Otago's meat production is lamb and mutton production than the New Zealand average.

***Lamb Exports***

110. New Zealand exports lamb to nearly 100 countries but there are some key export markets. In 2021-22, China, the US, the UK, the Netherlands and Germany accounted for 72 per cent of total value and 75 per cent of total volume. The UK is a longstanding market for New Zealand lamb. In 2021-22, it was New Zealand's third-largest market by value, after China and the US. It was overtaken by China in 2016-17, exports to which grew rapidly following the entry into force of the New Zealand-China FTA (Free Trade Agreement).

111. China moved from eighth most important market by value in 2007-08 to largest in 2016-17. It has traditionally been a market for lower value cuts but more recently higher value cuts, such as shoulders and legs are beginning to feature, reflecting new growth opportunities. There was a sharp decline in share in 2021-22 in large part due to the impact of China's zero-COVID policy.

***Beef and Veal Exports***

112. China and the US are the key markets for beef exports. New Zealand has a long history of supplying lean beef to the US, primarily for blending with, and adding value to, fat that is trimmed when steers and heifers that are finished in feedlots are processed – in the US mostly, and Canada – to produce ground beef. Americans consume the majority of their beef in ground beef form. Frozen New Zealand beef provides a valuable ingredient because, among other things, it is consistent, its production is reliable, it has superior food safety credentials, there are well-established supply chain processes, including processing in New Zealand, shipping services, business practices, commercial and legal remedies if needed, and distribution through the US system. Market significance is reflected through export volumes, which are predominantly ingredient beef and have a lower average value than table cuts. Exports to China, which was New Zealand's largest market by value in 2021-22 and exceeded $2b, have increased from less than 500 tonnes in 2007-08, to over 100,000 tonnes in 2017-18, to 220,000 tonnes in 2021-22.

This reflects a large increase in demand and improving supply chains and business relationships and connections.

113. Meat processors and exporters produce and export a wide range of items including hides and skins, tallow and offal – edible and inedible. These make significant contributions to New Zealand's merchandise exports.

**Outlook for Sheep and Beef Farming in Otago**

114. Farmers, processors, exporters and others in the value chain have been adapting to new circumstances since meat exporting from New Zealand commenced in Otago in the early 1880s – so for nearly 150 years. Market signals and incentives have changed. Exporters, and through them farmers, have always sought to meet demands of customers – both in New Zealand and overseas, with farmers managing multiple projects, environments and constraints as they strive to achieve their goals over the long term.

115. A key factor in the future will be maintaining flexibility to be able to continue adapting as the world changes while achieving the goals of the community, of which farmers are a part.

116. Otago's livestock farmers produce the raw material for a wide range of products that are exported to customers around the world. Consequently, the sheep and beef farming sector's outlook depends substantially on export markets, some of which are in a period of transition. Demand continues to grow for well-produced items, the definition of which is wider than the physical product to include all the added value from processing to reliably delivering the product to customers, and in recent years the supply chain has faced considerable challenges due to the impacts of COVID-19. Well-produced items require ongoing investment in the value chain and in the relationships between the wide range of participants in it.

117. Farming systems in Otago have responded well over more than a century to changing circumstances, while managing many risks, some of which are fully under the control of the farmer and some of which can be managed but are not fully controlled by the farmer.

**CONCLUSION**

118. Agriculture is a major economic activity in Otago and is becoming increasingly important to the region over time. The sheep and beef sector is

significant in the region and a major employer. The red meat processing sector is also a significant actor in the region. These factors combined mean that the sheep and beef sector is inextricably linked to the region's viability and economic success.

119. The sheep and beef sector is adaptable and resilient, which is why it is still so substantial in the region. It is continually improving. Through continued innovation and adoption of technology, which should not be understood to be limited to digital technologies but includes a wide range of on-farm technologies that reduce resource use and maintain or improve output, which is the definition of improving productivity. Sheep and beef farmers have increased meat production, while decreasing total animal numbers, and while losing their most productive land to other land uses. To remain resilient in future, sheep and beef farmers need flexibility to adjust their individual business operations to respond to changing conditions.

120. Farming is not always profitable. Implementation of new on-ground actions must be spread over a number of years to manage the volatility that occurs from fluctuating physical and financial performance.

121. The sector exports over 90 per cent of its production, it is New Zealand's second largest goods exporter and New Zealand's largest manufacturing industry. The health and wellbeing of the red meat industry in New Zealand is important to the economy and regional New Zealand, accounting for over three per cent of gross domestic product at national level but considerably more for Otago region.

Andrew Neil Burtt

23 November 2022

## REFERENCES


Case, B. a. (2020). *An analysis of carbon stocks and net carbon position for New Zealand sheep and beef farmland.* Auckland University of Technology (AUT), Department of Applied Ecology, School of Science. Retrieved 11 14, 2022, from https://beeflambnz.com/sites/default/files/news-docs/BL_Carbon_report_for_review_final_submit.pdf

Ledgard, S., Falconer, S., & Mazzetto, A. (2021). *Carbon footprint of New Zealand beef and sheep exported to different markets.* Wellington. Retrieved 11 22, 2022, from https://beeflambnz.com/sites/default/files/levies/files/BLNZ_review_report.pdf

MBIE. (2019, 01 25). *Statistics New Zealand Regional GDP and MBIE Modelled Territorial Authority Gross Domestic Product (MTAGDP)*. Retrieved from Regional Economic Activity Web Tool: https://webrear.mbie.govt.nz/theme/agricultural-share-of-regional-gdp/map/timeseries/2019/new-zealand?accessedvia=otago&right-transform=absolute

Moran, E. (. (2022). *Farmers and Growers in Otago. Otago Regional Council Economic Work Programme.* Dunedin.

SG Heilbron Economic & Policy Consulting. (2020). *Economic Contribution of the New Zealand red meat industry.* Retrieved 11 07, 2020, from https://beeflambnz.com/sites/default/files/news-docs/Economic-Contribution-of-the-NZ-Red-Meat-Industry.pdf

## Appendix 1: Description of B+LNZ Sheep and Beef Farm Survey

### Background

124. The B+LNZ Sheep and Beef Farm Survey (the Survey) is conducted using a random sample of over 500 farms ("farm businesses") each year. Data for the whole farm business are collected and analysed, and recorded in a computer database, characterising each farm on over 2000 metrics, including:

    (a) Reconciliations of livestock, wool production and sales, feed, and cash crops;

    (b) Production, such as meat weights, wool grades, calving and lambing percentages;

    (c) Inputs, such as fertiliser (Nitrogen, Phosphorus, Potassium, and Sulphur), animal health, labour, repairs and maintenance, interest, and rates; and

    (d) Full financial analysis of revenue and expenditure, the balance sheet and flow of funds to identify the cash flows in and out of the business.

125. The Survey is about actual data, not intentions.

126. To qualify for the Survey, a farm has to winter at least 750 sheep (or equivalent sheep plus beef cattle Stock Units (SU)), must be privately operated (i.e. not run by the State), and must not be run in conjunction with another property. In addition, three other conditions must be satisfied:

    (a) At least 70 per cent of the farm revenue must be derived from sheep, or sheep plus beef cattle (except in the case of mixed finishing farms of Canterbury);

    (b) At least 80 per cent of the Stock Units (SU) on the property must be sheep and/or beef cattle SU; and

    (c) The farm must be run as an ordinary commercial sheep and beef farm (i.e. not as a stud or dealer-type farm).

127. The sampling unit and analysis in the Sheep and Beef Farm Survey is of the farm and farm business.

**How are the data collected?**

128. A small team of Economic Service Managers (presently eight) is employed to collect and analyse data for the Survey. Their role is to:

(a) visit each farm annually for a production and financial interview;

(b) conduct two other surveys – of livestock numbers and lambing – using the same Survey sample/framework;

(c) obtain, standardise and balance financial accounts;

(d) create accurate and realistic livestock reconciliations;

(e) calculate a property valuation using data available from Quotable Value Ltd;

(f) canvas and solicit new farms, which have been randomly selected by Statistics New Zealand and whose principals have authorised SNZ to provide B+LNZ with the PII (personally identifiable information) required to contact the farmer;

(g) manage the relationship with each farmer's accountant;

(h) forecast returns to an animal species and age level;

(i) biannually forecast Income and Production by Farm Class and production region;

(j) clarify/improve existing data definitions and promote new metrics (e.g. environmental); and

(k) address industry stakeholders at key times during the season.

**How is the sample managed to ensure it is statistically representative?**

129. To ensure the survey sample is statistically representative, the following methods are used:

(a) Survey farms are randomly selected;

(b) The population is stratified by farm size, location; and type (Farm Class);

(c) Variable sampling fractions; and

(d) At least 25 farms are included in each stratum to avoid outliers skewing the results.

**Random selection**

130. The sample is drawn by Statistics New Zealand from Agricultural Production Census records using the above criteria. During the first farm visit, B+LNZ staff will make a final determination on whether the farm qualifies for the Survey.

**Stratification**

131. The population is divided into groups (strata) that are more or less homogeneous. Each stratum is sampled at random which ensures that groups within the population are adequately represented.

132. Three main kinds of stratification are used.

***Geographical Stratification***

133. The aim is to spread the total sample of farms over the vast majority of sheep and beef farming districts in New Zealand, by a process of random selection proportionate to the sheep and beef farm populations.

***Size Stratification***

134. Initially, all farms with fewer than 750 stock units and Crown properties are excluded. This reduces the population to those defined as “commercial sheep and beef farms”. Farms are then randomly selected in proportion to the distribution of sizes within the geographical stratification.

***Farm Class Stratification***

135. The Survey results are classified into eight Farm Classes. It must be stressed that this classification is about the nature of the farm business, which includes, but is not limited to, topography, and the way in which the farm is managed, not solely Land Use Capability (LUC) class, with which it is sometimes confused.

136. In Otago, the relevant Farm Classes are 1, 2, 6 and 7.

| Farm Class Name | Description |
|---|---|
| **Class 1 - South Island high country** | **Extensive run country at high altitude carrying fine wool sheep, with wool as the main source of revenue. Located mainly in Marlborough, Canterbury and Otago.** |
| **Class 2 - South Island hill country** | **Mainly mid-micron wool sheep mostly carrying between two and seven stock units per hectare. Three quarters of the stock units wintered are sheep and one quarter beef cattle.** |
| **Class 3 - North Island hard hill country** | **Steep hill country or low fertility soils with most farms carrying six to 10 stock units per hectare. While some stock are finished a significant proportion are sold in store condition.** |
| **Class 4 - North Island hill country** | **Easier hill country or higher fertility soils than Class 3. Mostly carrying between seven and 13 stock units per hectare. A high proportion of sale stock sold is in forward store or prime condition.** |
| **Class 5 - North Island finishing** | **Easy contour farmland with the potential for high production. Mostly carrying between eight and 15 stock units per hectare. A high proportion of stock is sent to slaughter and replacements are often bought in.** |

| Farm Class Name | Description |
|---|---|
| **Class 6 - South Island finishing-breeding** | **A more extensive type of finishing farm, also encompassing some irrigation units and frequently with some cash cropping. Carrying capacity ranges from six to 11 stock units per hectare on dryland farms and over 12 stock units per hectare on irrigated units. Mainly in Canterbury and Otago. This is the dominant farm class in the South Island.** |
| **Class 7 - South Island finishing** | **High producing grassland farms carrying about 10 to 14 stock units per hectare, with some cash crop. Located mainly in Southland, South and West Otago.** |
| **Class 8 - South Island mixed cropping and finishing** | **Located mainly on the Canterbury Plains. A high proportion of their revenue is derived from grain and small seed production as well as stock finishing.** |

**Table 3: Farm Class Descriptions**

### How do sample data relate to population data?

137. Farms included in the Survey represent about 4.5 per cent of commercial Sheep and Beef Farms in New Zealand by number.[17] The sample is drawn to represent the productive base of the industry, as measured by Stock Units (SU).[18]

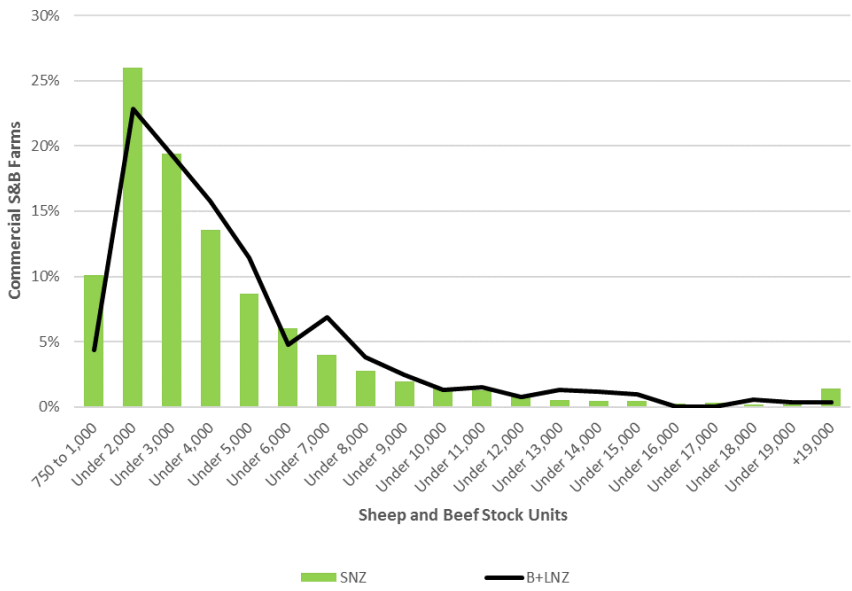



**Figure 14: Commercial Sheep and Beef Farm Population vs. Sheep and Beef Farm Survey Sample**

### "Weighted Average All Classes" figures are used to present regional and national pictures

[17] A commercial sheep and beef farm is defined by a number of criteria, the most significant of which are that the farm winters at least 750 sheep and beef Stock Units and earns at least 70 per cent of its revenue from sheep, beef cattle, long-term dairy grazing and crops.

[18] One Stock Unit (SU) is the equivalent of one breeding ewe that weighs 55 kg and bears one lamb. The amount of feed consumed by this ewe over a year is approximately 550 kg dry matter (including the feed consumed by her lamb up to weaning, at about 3.5 months). (Trafford and Trafford, 2011).

138. Weighted averages are calculated by weighting the average of each metric of the eight Farm Classes by their proportion of farms to total farms in the population. The weighting process allows each Farm Class to be represented in proportion to its relative importance in the sheep and beef farm industry.

139. For example, consider the South Island high country farms (Farm Class 1) that make up around 1.5 per cent by number of the total sheep and beef farm population covered by the Survey. This percentage is the weight that Farm Class 1 data have in the “Weighted Average All Classes” data. In contrast, North Island Hill Country farms make up around 30 per cent of the sheep and beef farm population, so their weight in the New Zealand “Weighted Average All Classes” data is more significant. The simple average of the individual Farm Class averages cannot be used because this would assume that each Farm Class is of equal importance within the industry, which it is not. The weights used to calculate the “Weighted Average All Classes” data are reviewed regularly using the population frame discussed earlier.

140. The “Weighted Average All Classes” figures are used to describe trends for the whole industry at the regional and national level. These averages provide a guide to the physical and financial characteristics of the sheep and beef farm sector and are useful to evaluate trends, policy changes and shifts in economic conditions.

141. The “Weighted Average All Classes” data provide a concise statement of the “average” situation in the sheep and beef industry at a point in time. The “Weighted Average All Classes” data should be used with discretion and only after a full understanding of its derivation is gained.

142. Further, it is important to record that farms are distributed around the average.

## Appendix 2: Background to the Sheep and Beef Sector


**Figure 15: Distribution of Farms by Total Area**

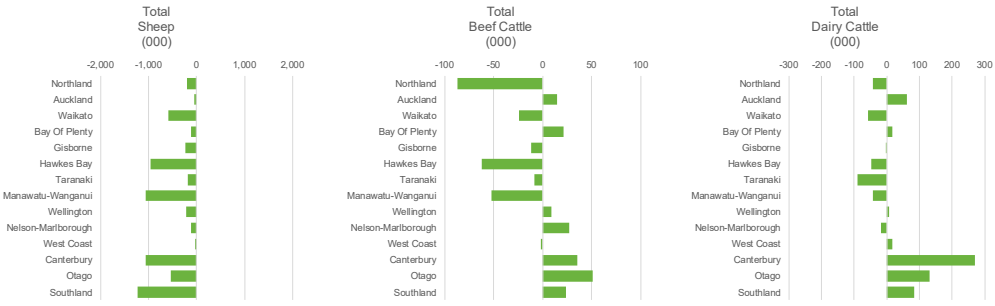



**Figure 16: Change in Livestock Numbers between 2020-11 and 2020-21 (000 head)**

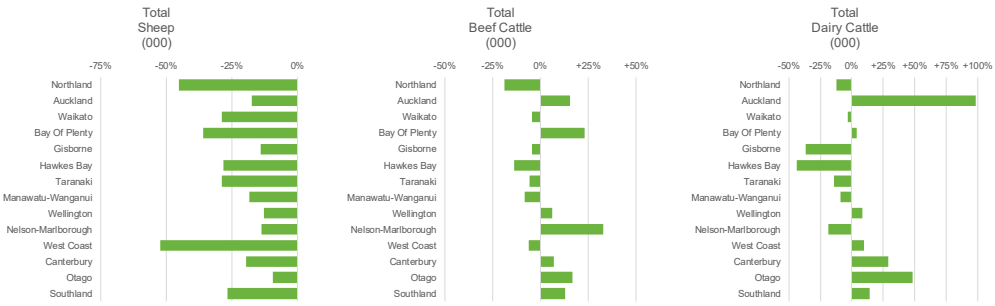



**Figure 17: Change in Livestock Numbers between 2020-11 and 2020-21 (%)**

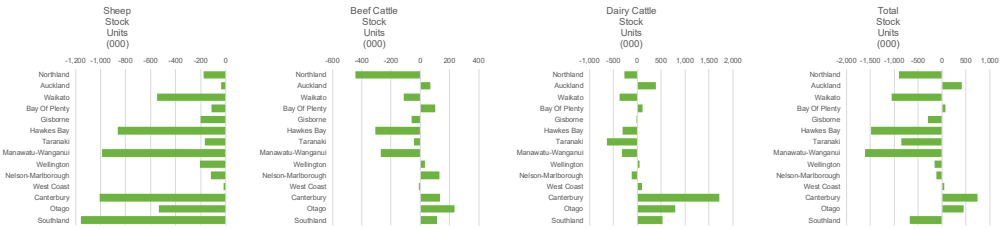



**Figure 18: Change in Livestock Units between 2010-11 and 2020-21 (000 SU)**

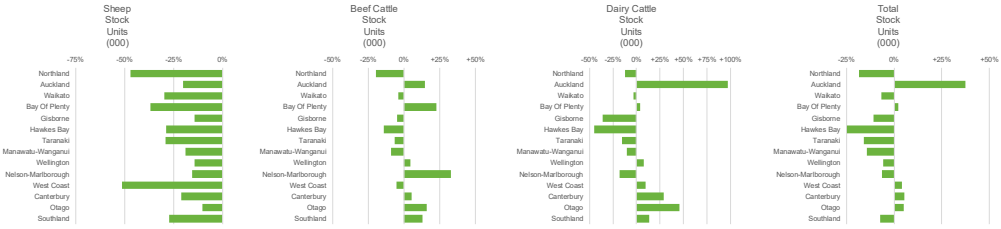



**Figure 19: Change in Livestock Units between 2010-11 and 2020-21 (%)**

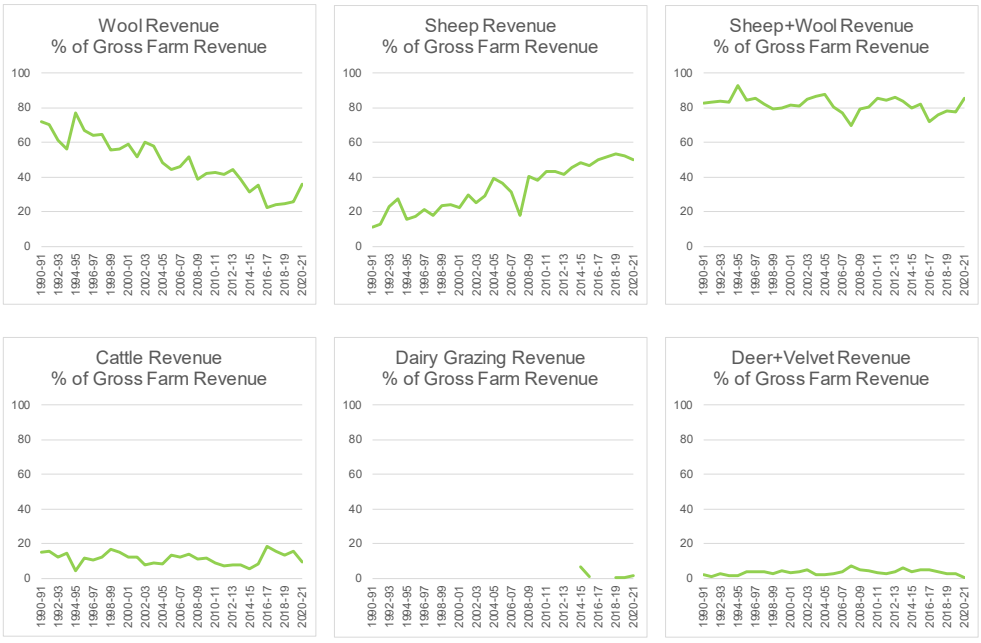



**Figure 20: Farm Class 1 South Island High Country**

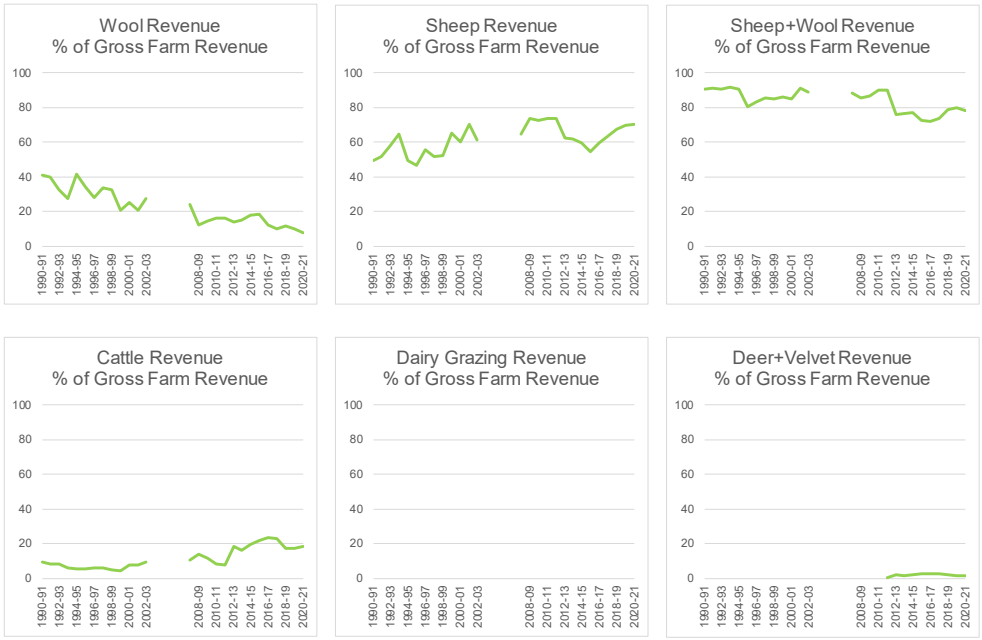



**Figure 21: Farm Class 2 South Island Hill Country**

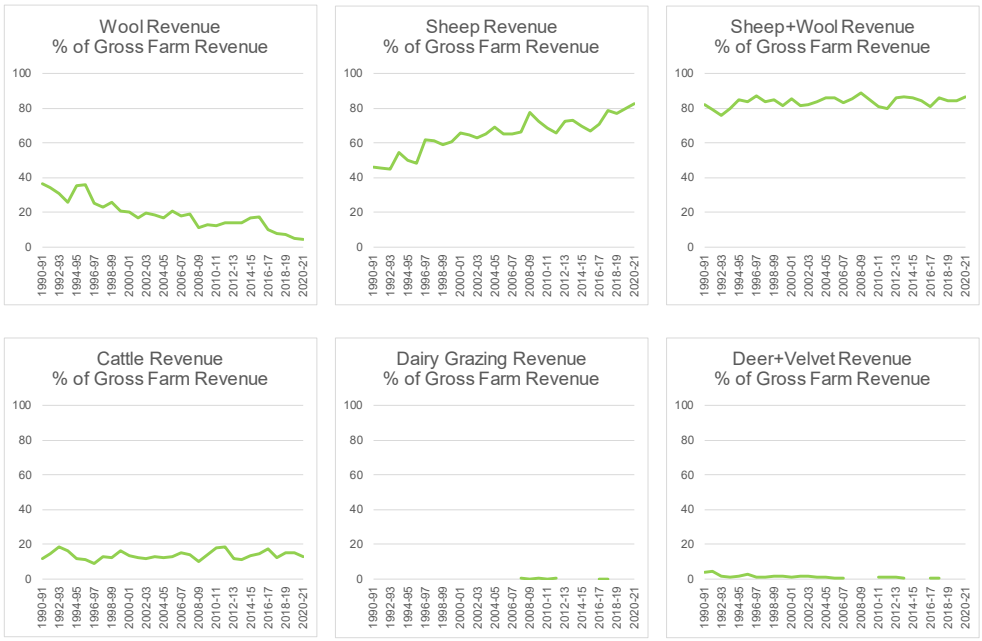



**Figure 22: Farm Class 6 South Island Finishing Breeding**

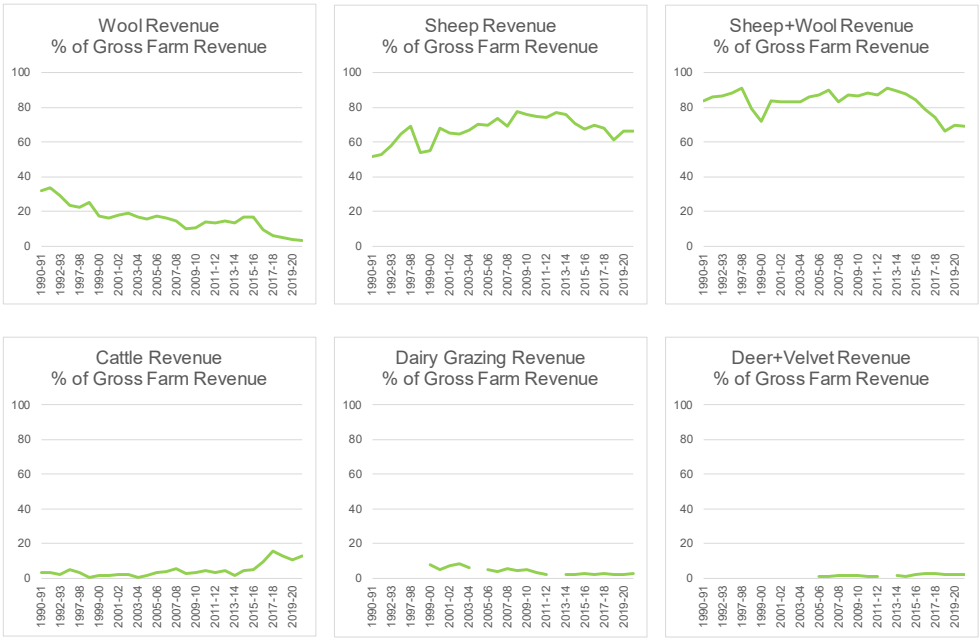



**Figure 23: Farm Class 7 South Island Finishing**

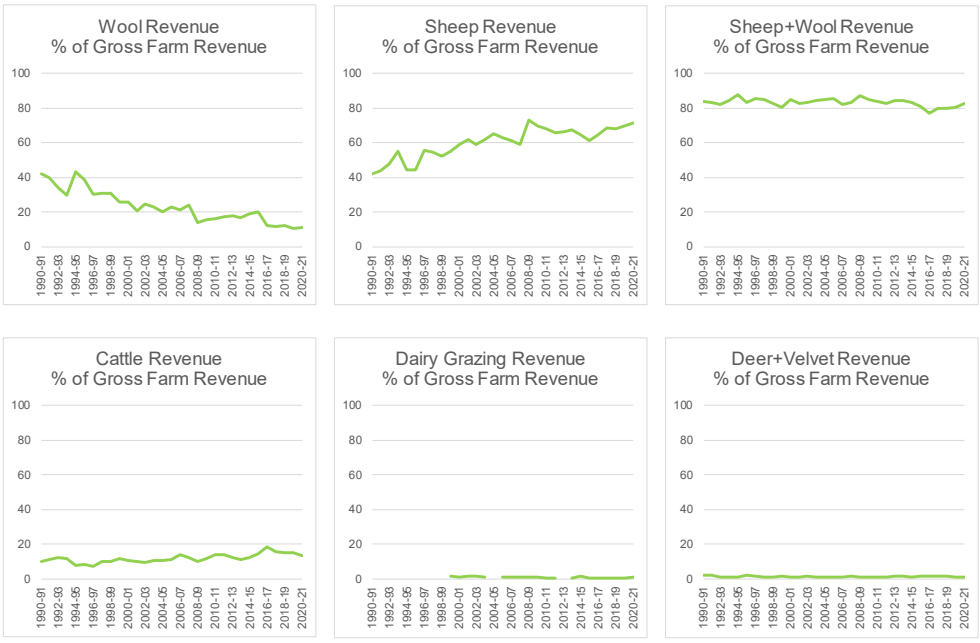



**Figure 24: Farm Class 9 Weighted Average All Classes – Otago**

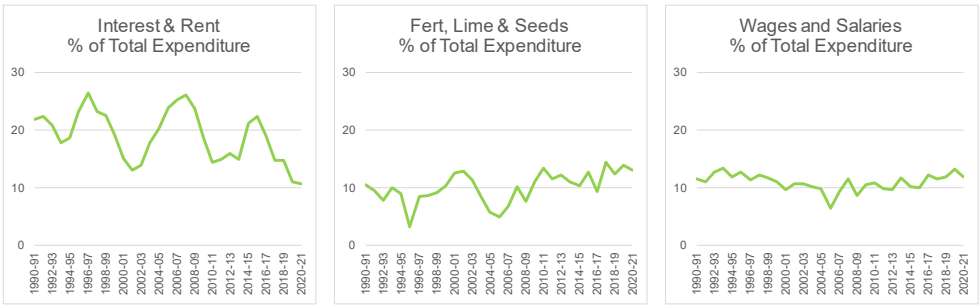



**Figure 25: Farm Class 1 South Island High Country**

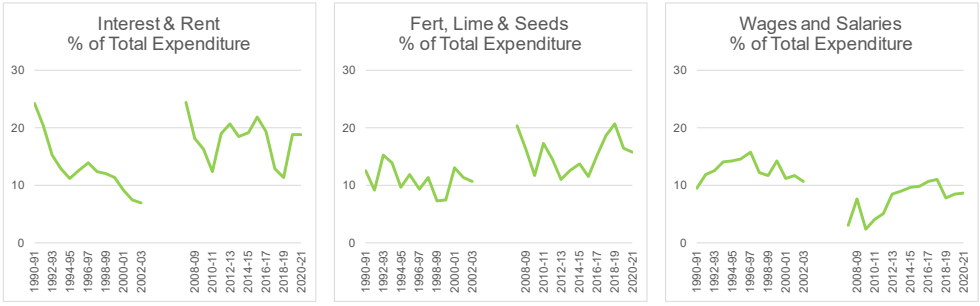



**Figure 26: Farm Class 2 South Island Hill Country**

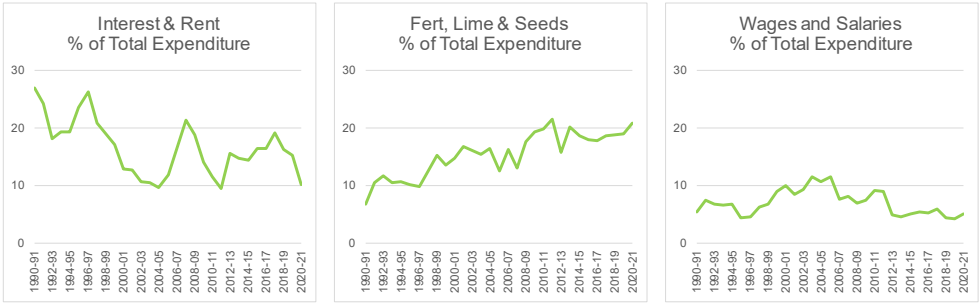



**Figure 27: Farm Class 6 South Island Finishing Breeding**

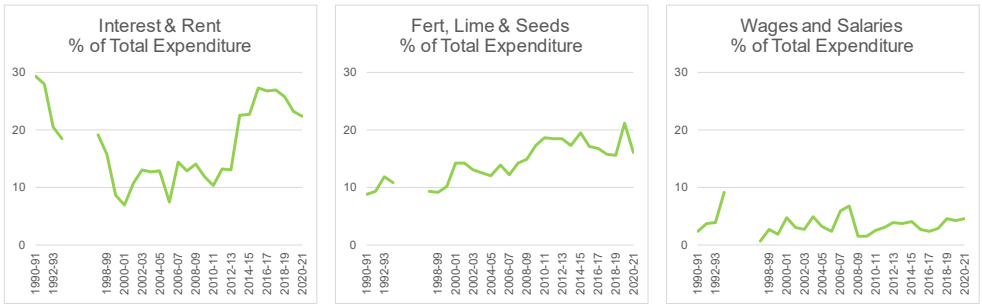



**Figure 28: Farm Class 7 Finishing**

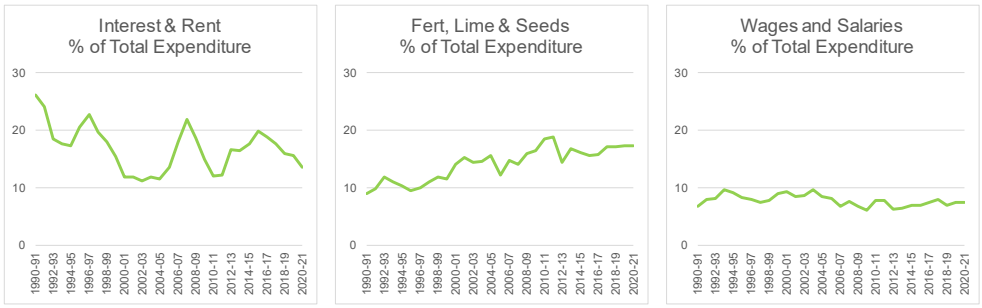



**Figure 29: Farm Class 9 Weighted Average All Classes**


**Figure 30: Farm Profit Before Tax Per Farm**

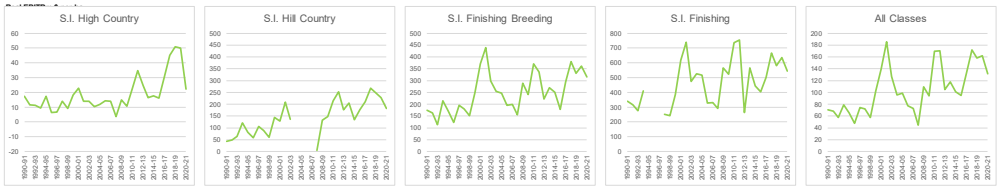



**Figure 31: Inflation-adjusted Earnings Before Interest, Tax and Rent and Management Remuneration per hectare**

## Appendix 3- Meat Processing in New Zealand

# MEAT PROCESSING IN NEW ZEALAND

## North Island processors

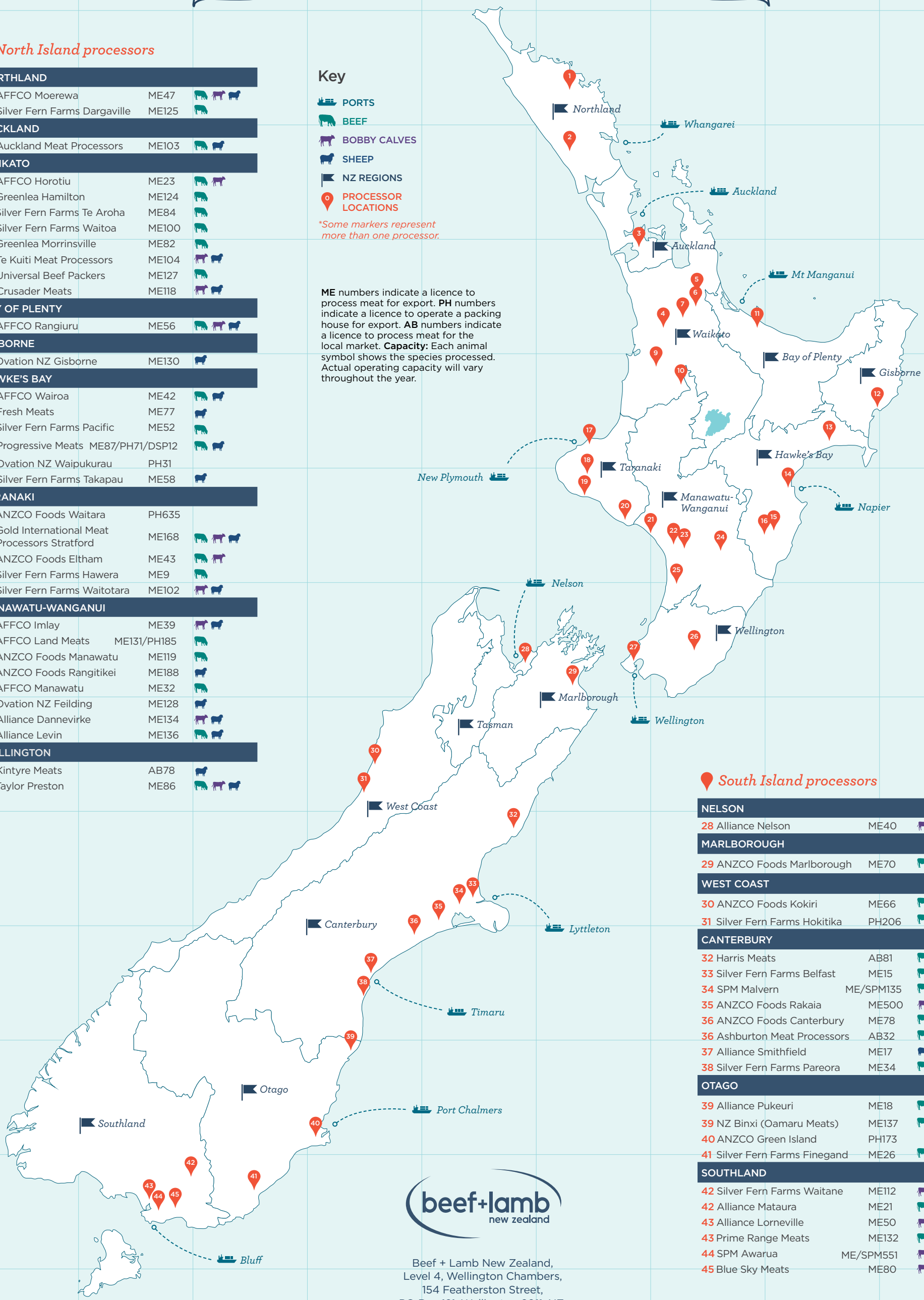
| | | | |
|---|---|---|---|
| **NORTHLAND** | | | |
| 1 | AFFCO Moerewa | ME47 | |
| 2 | Silver Fern Farms Dargaville | ME125 | |
| **AUCKLAND** | | | |
| 3 | Auckland Meat Processors | ME103 | |
| **WAIKATO** | | | |
| 4 | AFFCO Horotiu | ME23 | |
| 4 | Greenlea Hamilton | ME124 | |
| 5 | Silver Fern Farms Te Aroha | ME84 | |
| 6 | Silver Fern Farms Waitoa | ME100 | |
| 7 | Greenlea Morrinsville | ME82 | |
| 9 | Te Kuiti Meat Processors | ME104 | |
| 9 | Universal Beef Packers | ME127 | |
| 10 | Crusader Meats | ME118 | |
| **BAY OF PLENTY** | | | |
| 11 | AFFCO Rangiuru | ME56 | |
| **GISBORNE** | | | |
| 12 | Ovation NZ Gisborne | ME130 | |
| **HAWKE'S BAY** | | | |
| 13 | AFFCO Wairoa | ME42 | |
| 14 | Fresh Meats | ME77 | |
| 14 | Silver Fern Farms Pacific | ME52 | |
| 14 | Progressive Meats | ME87/PH71/DSP12 | |
| 15 | Ovation NZ Waipukurau | PH31 | |
| 16 | Silver Fern Farms Takapau | ME58 | |
| **TARANAKI** | | | |
| 17 | ANZCO Foods Waitara | PH635 | |
| 18 | Gold International Meat Processors Stratford | ME168 | |
| 18 | ANZCO Foods Eltham | ME43 | |
| 19 | Silver Fern Farms Hawera | ME9 | |
| 20 | Silver Fern Farms Waitotara | ME102 | |
| **MANAWATU-WANGANUI** | | | |
| 21 | AFFCO Imlay | ME39 | |
| 21 | AFFCO Land Meats | ME131/PH185 | |
| 22 | ANZCO Foods Manawatu | ME119 | |
| 22 | ANZCO Foods Rangitikei | ME188 | |
| 23 | AFFCO Manawatu | ME32 | |
| 23 | Ovation NZ Feilding | ME128 | |
| 24 | Alliance Dannevirke | ME134 | |
| 25 | Alliance Levin | ME136 | |
| **WELLINGTON** | | | |
| 26 | Kintyre Meats | AB78 | |
| 27 | Taylor Preston | ME86 | |

**Key**

- PORTS
- BEEF
- BOBBY CALVES
- SHEEP
- NZ REGIONS
- PROCESSOR LOCATIONS

**Some markers represent more than one processor.*

**ME** numbers indicate a licence to process meat for export. **PH** numbers indicate a licence to operate a packing house for export. **AB** numbers indicate a licence to process meat for the local market. **Capacity:** Each animal symbol shows the species processed. Actual operating capacity will vary throughout the year.




## South Island processors

| | | | |
|---|---|---|---|
| **NELSON** | | | |
| 28 | Alliance Nelson | ME40 | |
| **MARLBOROUGH** | | | |
| 29 | ANZCO Foods Marlborough | ME70 | |
| **WEST COAST** | | | |
| 30 | ANZCO Foods Kokiri | ME66 | |
| 31 | Silver Fern Farms Hokitika | PH206 | |
| **CANTERBURY** | | | |
| 32 | Harris Meats | AB81 | |
| 33 | Silver Fern Farms Belfast | ME15 | |
| 34 | SPM Malvern | ME/SPM135 | |
| 35 | ANZCO Foods Rakaia | ME500 | |
| 36 | ANZCO Foods Canterbury | ME78 | |
| 36 | Ashburton Meat Processors | AB32 | |
| 37 | Alliance Smithfield | ME17 | |
| 38 | Silver Fern Farms Pareora | ME34 | |
| **OTAGO** | | | |
| 39 | Alliance Pukeuri | ME18 | |
| 39 | NZ Binxi (Oamaru Meats) | ME137 | |
| 40 | ANZCO Green Island | PH173 | |
| 41 | Silver Fern Farms Finegand | ME26 | |
| **SOUTHLAND** | | | |
| 42 | Silver Fern Farms Waitane | ME112 | |
| 42 | Alliance Mataura | ME21 | |
| 43 | Alliance Lorneville | ME50 | |
| 43 | Prime Range Meats | ME132 | |
| 44 | SPM Awarua | ME/SPM551 | |
| 45 | Blue Sky Meats | ME80 | |

beef+lamb new zealand

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