



**KELLOGG**  
RURAL LEADERSHIP  
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**A New Fleece on Life: How the sheep farming sector in Aotearoa can halt terminal decline to secure a sustainable and more prosperous future.**

Kellogg Rural Leadership Programme

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I wish to thank the Kellogg Programme Investing Partners for their continued support.



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# Executive Summary

The New Zealand sheep sector stands at a critical juncture. After decades of declining flock numbers, stagnant productivity, and diminishing profitability, producers face a choice: to continue operating under a commodity-based model or to invest in transformational change that creates genuine differentiation, resilience, and profitability. Sheep meat producers will need to make conscious and deliberate decisions around the future as sheep farmers based on variable economic landscapes. A viable sheep sector underpins rural communities, national environmental goals, and New Zealand's international reputation for high-quality, ethical food production.

This report examines the causes and implications of decline across the sector, exploring how leadership, producer behaviour, and system design interact to shape the future of sheep farming in Aotearoa.

Interviews with industry leaders reveal a consensus that enduring change will require courage, collaboration, and a willingness to change established practices even when the outcomes are uncertain. Leadership must occur not only at industry and organisational levels, but within every farming business that wishes to remain viable.

An accompanying producer survey highlights a tendency for farmers to invest primarily within the farm gate, with limited willingness to engage in post-farm-gate opportunities - indicating a gap between control and value capture. This inward focus has come at the expense of investment in value creation beyond production, where much of the potential for higher returns lies. This mindset, while understandable, risks trapping the industry in what sector leaders described as the "valley of death"—a space between low-cost commodity production and genuine product differentiation, where costs rise but returns fail to follow.

Leadership, at both farm and sector levels, will be the decisive factor in determining whether the industry evolves or continues its decline. The capacity to make uncomfortable but necessary changes will define future success.

Key recommendations call for a sector-wide focus on genuine product differentiation, strategic investment in productivity systems, and technology adoption to close knowledge gaps at the ewe level. The sector must invest in innovation, leadership, and supply chain alignment to reverse decline. Without proactive change, the sheep industry risks following the trajectory of other commodity-based sectors that have ceded control and value beyond the farm gate. This report concludes that no one will save the sheep industry but sheep farmers themselves. The rest of the world does not need our products, and so if we would like to continue to produce them and offer them to the world, we will need to reposition our offering and evolve the perspectives we have on our sheep systems.

The future success of the industry will be determined by its willingness to lead, to invest boldly, and to evolve before the choice to do so is taken away.

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This report was developed with the assistance of artificial intelligence (AI) tools, used to support tasks such as document structuring, data interpretation, and synthesis of interview and survey insights.

# Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>4</b>
<b>TABLE OF CONTENTS .....</b>	<b>5</b>
<b>Introduction .....</b>	<b>6</b>
<b>Who I am and how it influences this report .....</b>	<b>7</b>
<b>Objectives.....</b>	<b>8</b>
<b>Context.....</b>	<b>9</b>
Value of the industry.....	9
<b>The decline .....</b>	<b>10</b>
<b>Causes of the decline .....</b>	<b>14</b>
Profitability of alternate land uses.....	15
Productivity.....	16
<b>Comparison with the US.....</b>	<b>18</b>
Reduction in investment.....	21
Environmental opportunities .....	21
<b>Why a lack of viability in sheep farming in an issue for New Zealand .....</b>	<b>22</b>
Summary .....	23
<b>Methodology .....</b>	<b>23</b>
<b>How transformational leadership turned slumps into long-term strategic repositioning .....</b>	<b>25</b>
<b>Survey of sheep producers .....</b>	<b>30</b>
Results of the survey .....	30
Discussion of survey results .....	31
<b>Recommendation 1.....</b>	<b>33</b>
<b>Recommendation 2.....</b>	<b>37</b>
<b>Recommendation 3.....</b>	<b>39</b>
<b>Conclusion .....</b>	<b>41</b>
<b>References.....</b>	<b>42</b>
<b>Appendices .....</b>	<b>45</b>
Appendix A.....	45

## Introduction

New Zealand has a long and distinguished history of sheep farming and exporting sheep-derived products to the world. Sheep first arrived with early European visitors in the late 1700s and were established in coastal North Island and South Island stations during the 1840's and 1850's. In these early years, sheep were farmed primarily for their wool - a product that was easy to store and transport without deterioration over the long journey from the farm gate to processors and manufacturers in Europe. For more than a century (c. 1856–1987), sheep farming underpinned the export economy. A major milestone occurred in 1882 with the first export of frozen sheep carcasses to the United Kingdom, marking the beginning of a transformation towards dual-purpose sheep capable of producing both wool and meat.

Throughout the 19th and 20th centuries, the sheep industry had a profound influence on New Zealand's economic development. The well-known phrase "New Zealand was built off a sheep's back"—often attributed to Prime Minister Sir Walter Nash (1957–1960)—captures the extent to which national prosperity was once tied to the farming sector's capacity to produce and export, as it still is somewhat today.

Sheep production in New Zealand is overwhelmingly pasture-based. The country's mild temperate climate allows for year-round outdoor grazing, with minimal reliance on supplementary feeding or housing—practices that are common in more variable climates. Most sheep farming systems operate with breeding ewes on less developed land, selling progeny either to other farmers or finishing them on more productive areas. Lambing is timed to coincide with peak spring pasture growth, ensuring optimal feed availability for ewes and lambs. The majority of lamb processing occurs through summer and autumn. Sheep are typically run within mixed livestock systems alongside cattle, enabling producers to maximise pasture utilisation and feed grown into saleable products.

Approximately 5% of sheep products are consumed domestically, with the remaining 95% exported to diverse markets worldwide (Apparao et al., 2025). Sheep meat is sold chilled or frozen in a variety of cuts across a wide range of price points and export markets, while wool is exported both greasy and scoured for further manufacturing offshore.

Sheep numbers in New Zealand peaked in 1982 at 70.3 million and have declined steadily since then (Te Ara, 2009). Over the past four decades the national flock has fallen at an average rate of 2% per annum, currently sitting at approximately 23.4 million head, which includes 14 million ewes (Fisher et al., 2025). Wool breeds such as Merino now represent less than 10% of the national flock, with the remainder comprising mainly dual-purpose breeds selected for both meat and wool production. Recently, there has been a noticeable increase in shedding and hair-type breeds, such as Wiltshire, which are valued for their reduced management and labour requirements.

In the four decades since the decline in numbers began, little has changed in the production of sheep products, or further along the supply chain. Productivity improvements have been made, and then plateaued, but the products themselves remain largely unchanged. Procurement, processing, marketing, distribution and sales of products have also had efficiencies created and improvements enjoyed, but the products themselves remain tightly held in the commodity cycle of bust and boom, influenced by the economic winds that blow from other parts of the world. Sheep producers remain price takers, not makers, with a great deal of trust and reliance on entities further along the supply chain to do their best when returning value to them.

Sheep farming's legacy remains deeply woven into New Zealand's national identity; yet its future stands at a crossroads. Declining profitability, combined with an expanding array of more lucrative alternative land uses, has driven sheep farming out of areas where it was once the cornerstone of rural communities. Much of the moderate to highly productive land that sustained sheep enterprises through the 20th century has since transitioned to dairy, horticulture, urban development, and plantation forestry (van Reenen et al., 2017). These shifts have fundamentally altered both the rural landscape and the economic structure of regional New Zealand.

If sheep farming is to remain a viable and valued component of New Zealand's food and fibre portfolio, system-level profitability and resilience must be significantly enhanced. The challenges facing the industry are complex and interconnected, requiring not only technical and economic solutions but also adaptive leadership and effective change management across the primary sector. Sheep systems need to transition to being dynamic and responsive to a variety of factors that will allow them to continue to exist.

## Who I am and how it influences this report

I am deeply embedded in livestock farming in Aotearoa New Zealand, having been actively involved in sheep and beef systems throughout my life. My professional work focuses on sheep genetics, where I collaborate closely with farmers across the country to support their ongoing journeys of continuous improvement.

While I am not a farm business owner myself—and therefore do not carry the financial weight and constraints that often accompany land ownership and farm debt—I have had enough exposure to business management to empathise with how such pressures influence decisions and the management of change. This understanding, combined with my practical experience, allows me to appreciate both the challenges and the opportunities that come with evolving farm systems.

I have approached this report and the critical issues it explores with an open mindset: that meaningful change is both possible and valuable. I view change as a necessary and positive part of progress rather than a threat to be resisted.

By nature, I am a practical thinker. Theories and frameworks for change interest me primarily in the context of how they can be applied and executed effectively in real-life settings. In preparing this report, I have drawn on established theories of change management while focusing on how these ideas play out within actual farming businesses and industry structures. I tend to evaluate the merit of an idea by the tangible outcomes it can deliver on the ground—where strategy meets reality.

## Objectives

The purpose of this report is to investigate and learn from within New Zealand's food and fibre sector—specifically, to identify what aspects of leadership and change management have proven most effective during periods of transformation. The aim is to understand how these lessons might be applied to help revitalise and strengthen the New Zealand sheep industry.

New Zealand's primary industries operate in a unique context, shaped by a distinctive combination of production systems, environmental pressures, regulatory settings, and financial structures. This report seeks to draw lessons from within that context—acknowledging that approaches effective elsewhere may not translate directly to the conditions faced by New Zealand producers.

The objectives of this report are therefore to:

- Understand the pressures and events which have contributed to the beginning and continuation of the decline in sheep numbers.
- Identify leadership attributes and change-management practices that have proven successful within New Zealand's food and fibre industries.
- Examine how agribusiness leaders have guided their organisations through strategic transformation, restructuring, or redefinition.
- Extract practical, transferable lessons that can inform change at both enterprise and sector levels within the sheep industry.
- Propose specific, actionable steps that could improve the competitiveness, profitability, and long-term resilience of sheep farming systems.

In pursuit of these objectives, this report also incorporates feedback from sheep farmers to test the relevance and feasibility of proposed actions, and what those key stakeholders would be willing to invest in, ensuring that recommendations are both grounded in practice and aligned with industry realities.

# Context

## Value of the industry

Aotearoa's sheep industry is pasture-based, export-led and seasonal. It is spread across approximately 8,200,000 hectares of sheep and beef farmland with some 22,000 farms running sheep and beef animals (B+LNZ Economic Service, 2023) . Sheep farming has been a cornerstone of the NZ economy for almost two centuries, providing not only export revenue but also employment opportunities. Approximately 45,000 people are employed directly with in the production of red meat and wool, and another 25,000 people are employed within processing and manufacturing of red meat and wool (Food and fibre workforce insights, 2023).

95% of sheep meat products are exported around the world, and in 2024 sheep products (lamb, mutton and wool) returned a combined export revenue of \$4.034 billion of the \$11.367 billion of total revenue from all meat and animal product exports (35%; Figure 1) (Apparao et al., 2025).

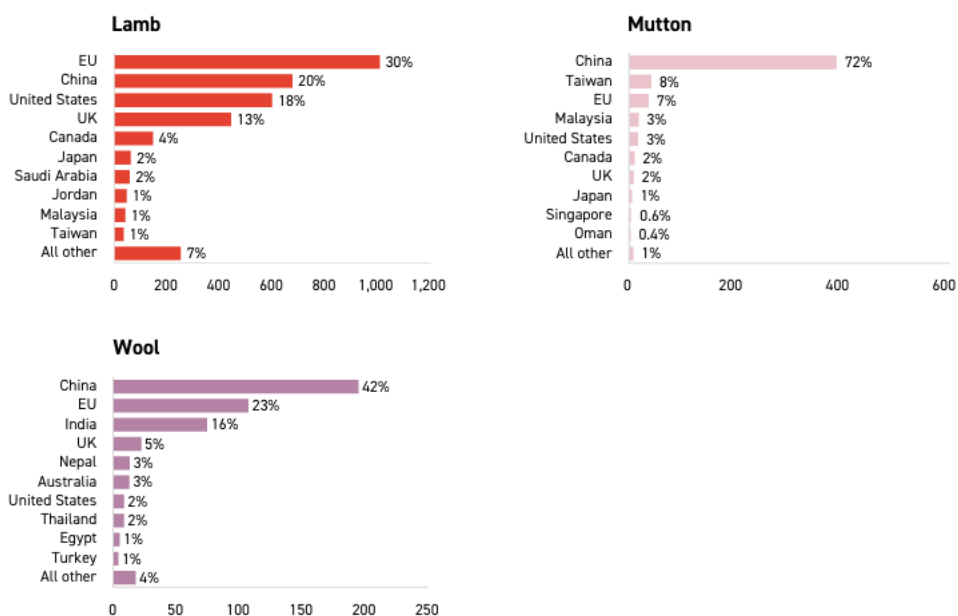


Figure 1: Top meat and wool export markets, year to 31 March 2025, NZ\$ million and percent. Sourced from: (Apparao et al., 2025)

Domestic consumption of sheep meat is low, primarily due to price competition with other proteins. Kiwis eat on average 1.95kg of lamb per capita per year (Rabobank, 2024). It is unclear if the low consumption of lamb is by design, due to the apparent need to export the majority, or if the high percentage of lamb being exported is in part due to New Zealanders having minimal desire to eat it. This low volume of domestic consumption has led to poor resilience to the global lamb market, with very little domestic retail trade balancing out the export demand dynamics and associated price volatility. Chicken can be considered the benchmark of protein production, processing, price and marketing – consumers will consistently compare other protein options in a retail setting against the chicken offering (Figure 2).

In this export-oriented context, domestic lamb marketing exists but is comparatively modest: Beef + Lamb New Zealand runs recurring initiatives such as World Iron Awareness Week and 'National Lamb Day' to keep red meat salient with local audiences, yet the sector's flagship brand investment has targeted overseas consumers through the Taste Pure Nature origin-brand programme, including government-supported extensions in key markets (Beef + Lamb New Zealand, 2024).

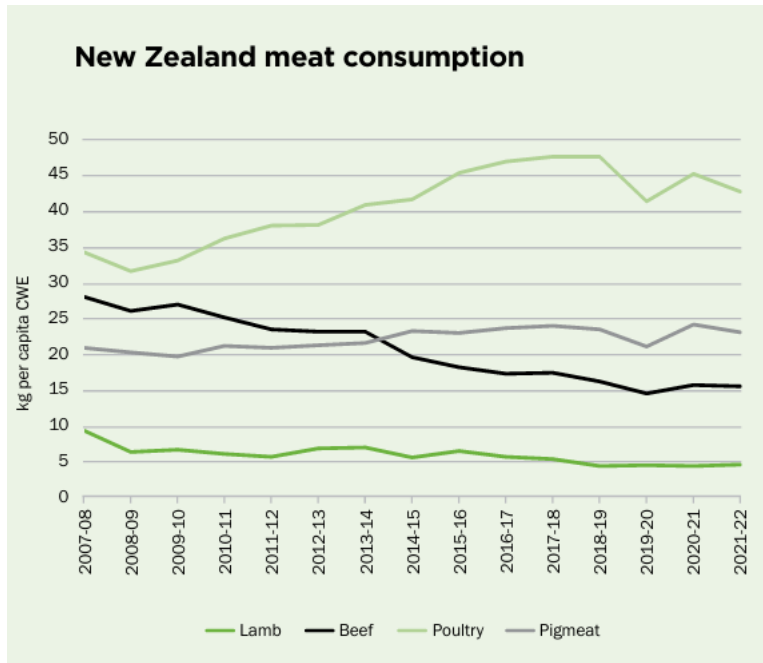


Figure 2: Consumption of different proteins in New Zealand. (B+LNZ Economic Service, 2023)

New Zealand currently produces around 90,000 tonnes of clean wool per annum at a value of \$400-450 million. In 1990 production sat at ~305,000 tonnes with an export value of \$1.5 billion (Figure 3).

	Actual			
	2021	2022	2023	2024
Average sale price (cents/kg clean)	347	464	440	460
Production (000 tonnes clean basis)	100	95	91	89
Export volume (000 tonnes clean basis)	96	86	77	92
Export volume (000 tonnes PW)*	105	94	84	101
Export price (NZ\$/kg PW)	3.77	4.67	4.77	4.43
Export revenue (NZ\$ million)	395	437	400	448

Figure 3: Wool prices, volumes and revenues 2021-24 (Apparao et al., 2025.)

### The decline

Sheep numbers in New Zealand have been in steady decline since 1982, when the national flock peaked at more than 70 million head. In 2025, total sheep numbers sit at approximately

23 million, representing a 67 percent reduction over four decades. Since 2015 alone, ewe numbers have fallen by around 25 percent, equating to an average annual decline of 2.8 percent (Figure 4) (Fisher et al., 2025).

New Zealand sheep farmers were subsidised for productivity, through varied subsidy structures, from the late 1800's. A specific 'Livestock Incentive Scheme' was initiated by the government of the time in 1977, designed to encourage farmers to increase their stock numbers. This incentive saw a sharp incline in sheep number from 1976 until the subsidy was removed in 1984 (56.4 million in 1976 to 69.7 million in 1984) (Stats NZ, 2025). The subsidy essentially promoted over stocking of farmland, to a degree that the carrying capacity of that land could not sustain itself. Further intervention that promoted this overstocking was the 'Supplementary Minimum Price' which saw Cabinet dictate and underwrite the floor price of sheep meat, wool, dairy and beef. If market prices fell below the floor, the state (via Producer Boards) made deficiency payments or purchased product to hold the price. When these profitability buffers were removed in 1984 and onwards, the actuality of poor sheep farming revenue was quickly realised and triggered the beginning of the decline in sheep numbers (Laing & Zwart, 1983).



Figure 4: Sheep numbers (millions) in NZ. Year ended June 1936-2024. Sourced from (Stats NZ, 2025).

As shown in Figure 5, the annual rate of decline has fluctuated in response to changing market conditions and biological production cycles. Periods of reduced commodity prices have typically prompted sharper reductions in ewe numbers, while higher global demand and improved returns for sheep meat have tended to stabilise or modestly lift flock sizes (**Beef + Lamb New Zealand**). The cyclical nature of sheep breeding and the influence of other more profitable farming systems, combined with environmental factors such as droughts and regional feed shortages, has also contributed to short-term variations in flock numbers. These fluctuations reflect the strong interconnectivity between market volatility, seasonal feed availability, and the biological constraints of pasture-based livestock systems.

June	Breeding ewes (million)	% change	Total sheep (million)	% change
2014	19.78	-2.2	29.80	-3.2
2015	19.07	-3.6	29.12	-2.3
2016	18.14	-4.9	27.58	-5.3
2017	17.76	-2.1	27.53	-0.2
2018	17.16	-3.3	27.30	-0.8
2019	16.85	-1.8	26.82	-1.7
2020	16.57	-1.6	26.03	-3.0
2021	16.33	-1.5	25.73	-1.1
2022	15.37	-5.9	25.13	-2.3
2023	14.80	-3.7	24.36	-3.1
2024e	14.37	-2.9	23.31	-4.3

e estimate | Source: Beef + Lamb New Zealand Insights Team, Statistics New Zealand

Figure 5: Sheep numbers 2014-2024 (Beef + Lamb New Zealand, 2025)

Figure 5 summaries ewe numbers as 60-65% of total sheep numbers. The portion of total sheep that are classed as breeding ewes fluctuates due to seasonal variation and pricing, as timing of slaughtering young stock and the number of young sheep being taken through to older ages rises and falls as a reaction to potential prime stock returns.

The amount of land dedicated specifically to sheep farming in New Zealand has also been steadily declining. In 2007, approximately 46 percent of the total farmed area was used for sheep production, with an additional 8 percent classified as mixed sheep and cattle enterprises. Mixed arable/livestock system make up only a very small percentage of area that farm sheep, as shown in Figure 7 (Environmental Health Intelligence NZ, 2021). A decade later, this had shifted markedly: land used for specialised sheep farming had fallen to just 18 percent, while mixed livestock systems expanded to cover 31 percent of the farmed area.

This shift reflects both land-use diversification and the economic rebalancing that has occurred across the agricultural sector. Many farms that once focused exclusively on sheep have moved toward integrated systems or transitioned entirely to alternative land uses such as dairying, forestry, or horticulture—driven by relative profitability and market opportunities, as shown in Figure 6.

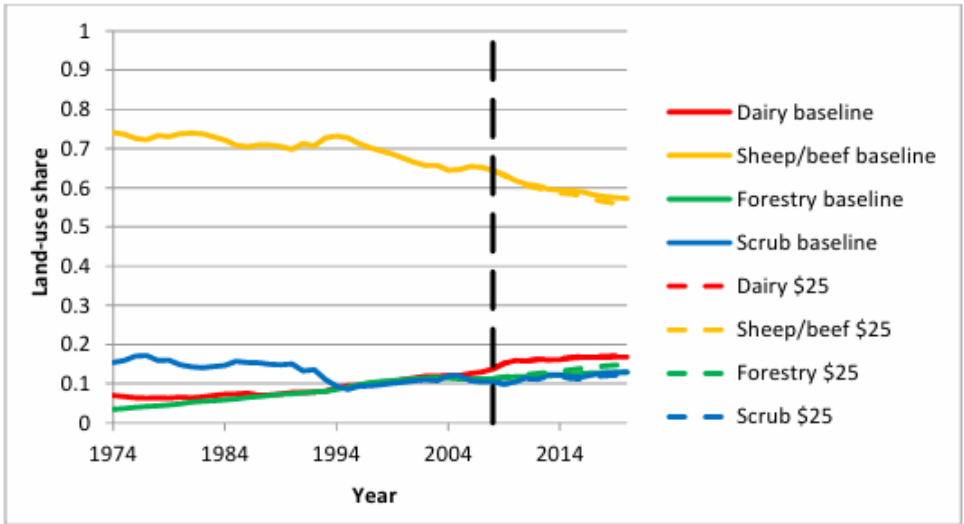


Figure 6: Rural land use shares actual until 2014, projection out to 2020 (Anastasiadis et al., 2013)

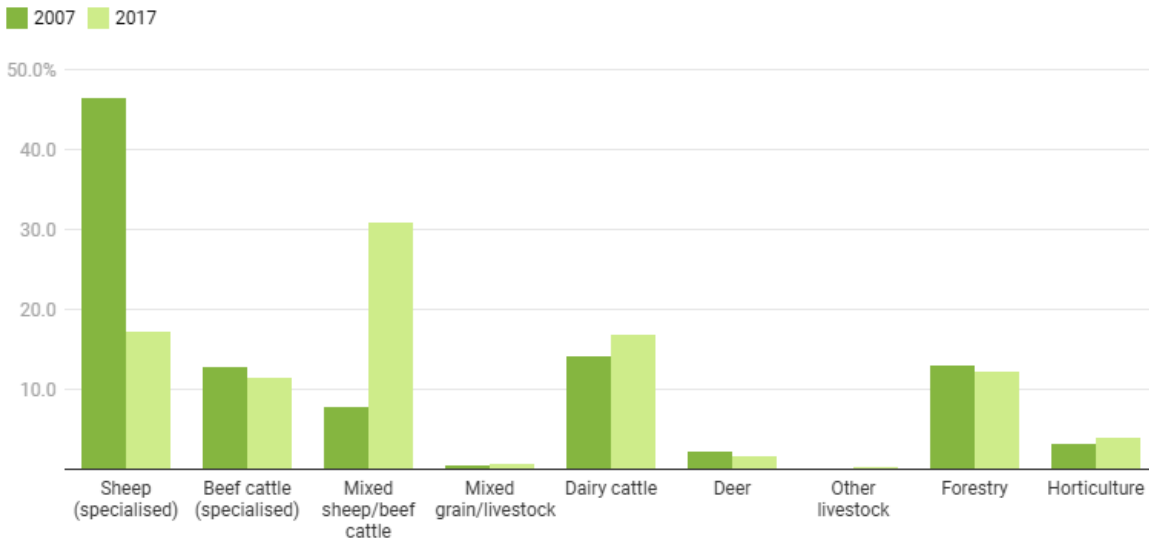


Figure 7: Allocation of farmed area, by farm type, 2007-2017. Sourced from (Environmental Health Intelligence NZ, 2021)

If the current rate of decline continues (2.8% per annum), then sheep number decline can be projected to continue to decline as seen in Figure 8.

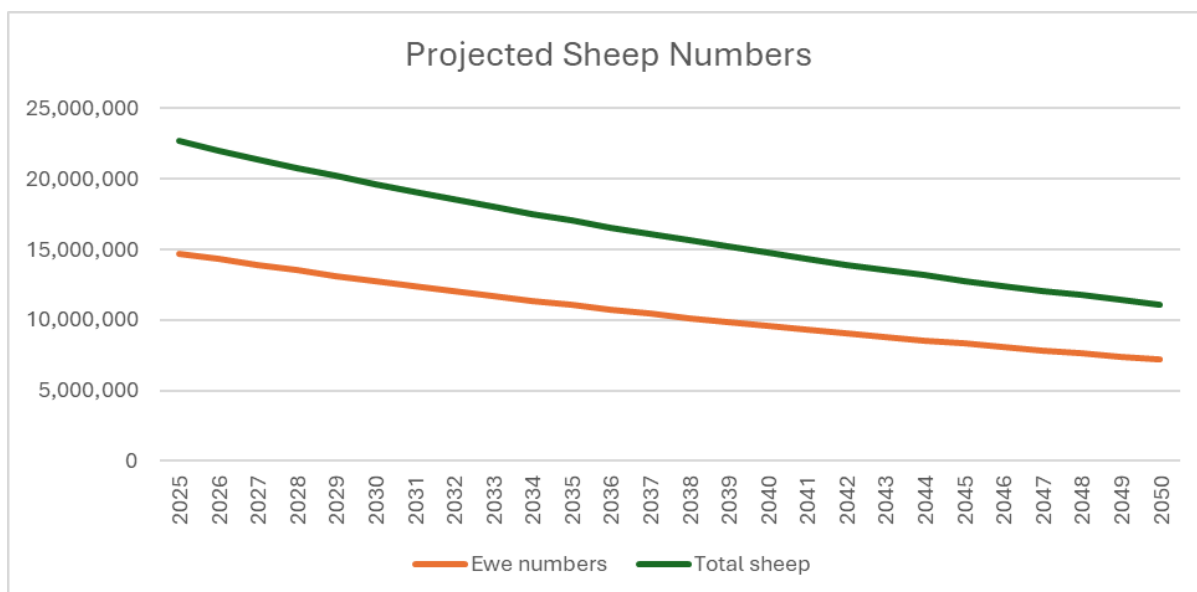


Figure 8: Estimate of sheep numbers through to 2050

### Causes of the decline

The causes and factors contributing to the ongoing decline in sheep numbers can be summarised under one overarching outcome: sheep farming has become an uncompetitive land use when compared with other options. While this report does not aim to dwell on the past, a concise discussion of the main drivers provides valuable context for understanding the sector’s current position.

It is important to acknowledge that a range of alternative land uses have outperformed sheep farming in profitability and investment return. The expansion of these enterprises has displaced sheep from landscapes that were once the backbone of rural New Zealand. In recent years, public debate has tended to focus on the rapid rise of exotic plantation forestry—particularly since 2017 (Ministry for Primary Industries, 2024). However, as seen in the earlier Stats NZ figures (Figure 4) the decline in sheep numbers has been underway for many decades and reflects long-term structural and market trends rather than a single recent event.

Key factors include:

- Volatility in the wool industry:** Wool sales experienced repeated cycles of boom and collapse throughout the 19<sup>th</sup> and 20<sup>th</sup> centuries. When pastoralists were building their sheep flocks in the 1860’s to 1880’s they were buoyed by high demand for New Zealand wool in the UK, with factors including the Crimean and American Civil Wars (demand for wool for manufacturing into uniforms and disruption of the cotton industry), and the wealth growth of NZ and Australia through the Gold Rush era’s. During the American Civil War from 1861 to 1865 the average wool price was 14.28 pence per pound which would equate to \$48.72NZD/kg in today’s money (Peden, 2011). Prices then surged again during wartime stockpiling in the First and Second World Wars, but post-war surpluses led to market flooding and price crashes. The Korean War (1950–51) brought another short-lived boom as the United States stockpiled wool, but the subsequent auction market crash of 1966 saw wool values plummet by more than 40 percent overnight (Easton, 2023). This coincided with the rise of synthetic fibres, which could be produced cheaply and consistently,

undermining wool's market dominance (International Cotton Advisory Committee, 2015). An additional nail in the coffin of the wool market was the Tiananmen Square crackdown of 1989. By this point China was New Zealand's biggest buyer of wool, so when the Chinese government of the day instigated diplomatic and economic sanctions, buying of NZ wool by China came to an almost complete halt. This led to prices weakening and stock building up (Bolt, 1989).

- **The dairy expansion of the 1980s and 1990s:** The rapid growth of dairying pushed sheep off much of the country's most productive land. The availability of capital investment, irrigation development, and higher, more stable returns made dairy an attractive option. As a result, large tracts of easy-contour land that once supported sheep have been converted to dairy systems (Edwards, 1995).
- **Plantation forestry and carbon farming:** While forestry has been part of the rural landscape for decades, large-scale conversion of sheep and beef land to forestry has accelerated since 2015. Driven by strong returns under the New Zealand Emissions Trading Scheme (ETS). Since 2017, an estimated 175,000 hectares of farmland have been converted to forestry, with momentum continuing (Beef + Lamb New Zealand, 2024).
- **Expansion of horticulture and viticulture:** From the early 2000s, high-value horticultural enterprises such as kiwifruit, apples, and grapes have expanded across warm, fertile regions—often on land formerly used for sheep finishing. The area planted in grapes alone grew from just over 10,000 hectares in 2000 to 42,500 hectares in 2025 (NZ Wine Growers Inc, 2025).
- **Urban development and land fragmentation:** Urban expansion and lifestyle subdivision have steadily reduced the availability of high-quality agricultural land near towns and cities. Between 2002 and 2019, the area of highly productive land unavailable for agriculture due to housing increased by 54 percent, from 69,920 hectares to 107,444 hectares (Ministry for the Environment, 2021).

Collectively, these developments reveal the relative inadaptability of New Zealand's sheep farming systems. The biological and land-based nature of sheep production limits producers' ability to rapidly adapt to market or policy shifts. As more flexible and higher-return land uses have emerged, sheep farming has struggled to compete, resulting in its gradual retreat from many of the landscapes where it once thrived.

#### Profitability of alternate land uses

Using the best information available, this report attempts to summarise the profitability of several land uses from the 2024 financial year, to give the reader an understanding of the extent of the profitability gap. As different production sectors utilise differing methods of profitability measurement it was difficult to condense them into one direct comparison. Attempts have been made to identify the measurement which sits as close as possible to net return after all costs of production accounted for. The economic return is expressed as a unit per hectare of utilised land. This information is shown in Table 1.

Table 1: Returns of different food production systems in New Zealand

Land use	Economic return (\$/ha)
Sheep and beef livestock	\$135/ha Economic Farm Surplus (Beef + Lamb New Zealand, 2024c)
Viticulture	\$4,755/ha Economic Vineyard Surplus (New Zealand Wine, 2024)
Green Kiwifruit	\$65,717/ha profit before tax (Zespri, 2025)
Dairy	\$1,271 profit before tax (Dairy NZ, 2024)

## Productivity

Productivity within New Zealand's sheep systems has remained relatively stagnant over the past two decades. Productivity can be assessed through a range of indicators, many of which are interrelated i.e. improvement in one often contributes to gains in others.

Collectively, these metrics provide a picture of both biological efficiency and production output across a given breeding or financial year.

The most used measures of productivity include:

- Number of lambs weaned per ewe mated
- Kilograms of lamb weaned per ewe mated
- Kilograms of lamb carcass slaughtered per ewe mated
- Kilograms of wool clipped per ewe and/or per lamb
- Kilograms of meat and fibre produced per hectare of farmed area

While these metrics offer valuable biological benchmarks, profitability and productivity on a per-hectare basis can be difficult to quantify - particularly within mixed livestock systems, where sheep and cattle costs are typically pooled in farm accounts. Although it is generally possible to identify the gross income derived from each enterprise, allocating net returns accurately between species remains challenging. This complexity limits the precision of comparative analysis and highlights the need for more refined on-farm financial and production data if the sector is to effectively benchmark and drive net productivity and profitability improvements.

Table 2: Ewe productivity improvement, adapted from Fennessy et al (2016) and (Beef + Lamb New Zealand, Economic Survey (2023)).

Metric	1984/85	1990/91	2013/14	2016/17	2021/22	2024/25
Lambs tailed per adult ewe	1.0	1.02	1.32	1.26	1.27	1.29
KG of lamb/ewe weaned		9.8		20	20.9	
Kg of lamb carcass weight/ewe/annum	12.4	13.9	22.9	18.6	19.0	24.5

The figures highlighted in green are drawn from Fennessy et al. (2016), which examined methods to improve hill-country sheep farming through innovation. Based on this data, the annual rate of improvement in the base productivity metric—lambs produced per mated ewe—was calculated at 1.06% per year between 1984 and 2014.

The blue columns represent more recent data sourced from Beef + Lamb New Zealand's Farm Facts and Lamb Crop reports (2023–2025). Using these figures, the annual improvement in ewe productivity between 1991 and 2024 is estimated at 0.94%, effectively indicating a

very modest improvement of reproduction (as a proxy for productivity) per breeding ewe over the past two and a half decades.

While ewe productivity has stagnated in reproductive terms, kilograms of carcass produced per mated ewe have increased by approximately 44% over the same period. This gain reflects progress in growth rates, feed conversion efficiency, and carcass yield traits, making the modern breeding ewe a more efficient producer of saleable product. However, this improvement has been accompanied by increases in ewe mature size and consequently feed demand per annum, somewhat offsetting the overall efficiency gains at the system level (Young, 2015). An alternative, or perhaps corresponding, cause of the increase in ewe liveweight could be the reduction in stocking rate that has occurred over the years post subsidy removal (1984) that ewes have become larger due to the greater allowance of foraging opportunity.

From a biological standpoint, these results suggest that while the efficiency of individual animals has improved, the total productivity of the national flock has plateaued. In practical terms, fewer sheep now produce a greater quantity of meat, but the lack of progress in reproductive performance—particularly lambs weaned per ewe mated—has constrained broader productivity growth. This stagnation presents a significant challenge to maintaining competitiveness against alternative land uses that continue to deliver higher and faster-growing returns. If sheep systems are unable to improve reproductive returns, then more value from what lambs are produced, and their wool or other biproducts, will need to be found to augment the industries value opportunity.

Wool productivity has followed a similar trajectory of stability rather than growth, as seen in Figure 9. Nationally, average wool yield per animal has remained largely unchanged since 1990, neither significantly increasing nor declining (MPI Economic Intelligence Unit, 2019). While it is positive that gains in meat production have not come at the expense of fibre output, there has been a structural shift within the flock: a growing proportion of traditional wool-producing breeds has been replaced by shedding and hair-type sheep, reflecting both market pressures and a move toward lower-input management systems. If volume of wool produced declines, then this removes an export product opportunity that yet has not been replaced with any other significant ovine biproduct. This trend has been buoyed by increasing input costs (driven further by inflation) within sheep production and an ageing farmer population who seek to reduce the need for physical labour associated with their sheep.



Figure 91: Wool productivity per sheep (MPI Economic Intelligence Unit, 2019)

By comparison, productivity within New Zealand's dairy systems has continued to improve steadily over the same period. Key indicators such as milk solids produced per cow and per hectare have shown consistent upward trends, reflecting sustained gains in both animal performance and system efficiency.

Because dairy cows are uniparous (producing only one calf per gestation) the equivalent comparison of progeny output per mated female used in sheep systems is not applicable. Instead, the dairy sector uses reproductive efficiency metrics such as the six-week in-calf rate, which represents the proportion of cows successfully mated and confirmed pregnant within the first six weeks of the mating period. As seen in Figure 10, the productive improvement has improved gradually over time (at a rate of 5.6% per annum), driven by ongoing genetic selection, enhanced reproductive management, and more precise feeding and nutrition strategies.

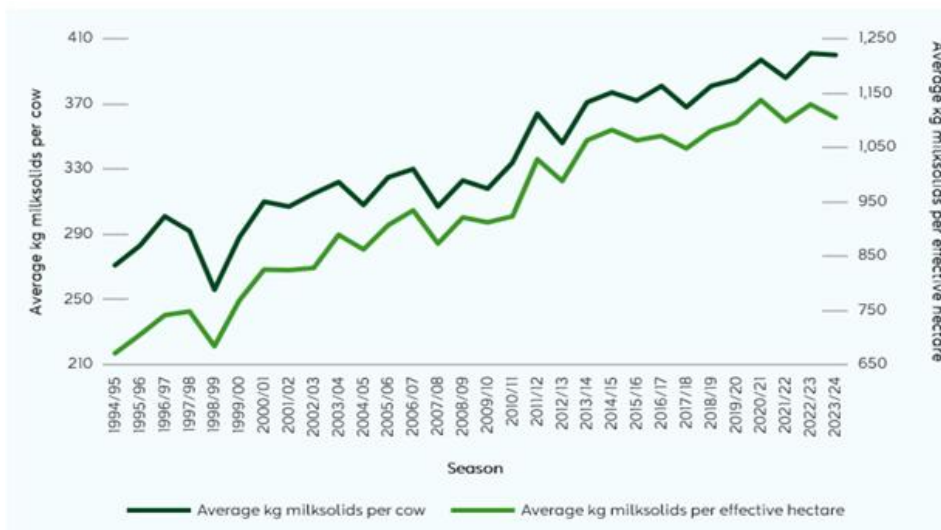


Figure 102: Dairy production improvement (Dairy NZ & LIC, 2024)

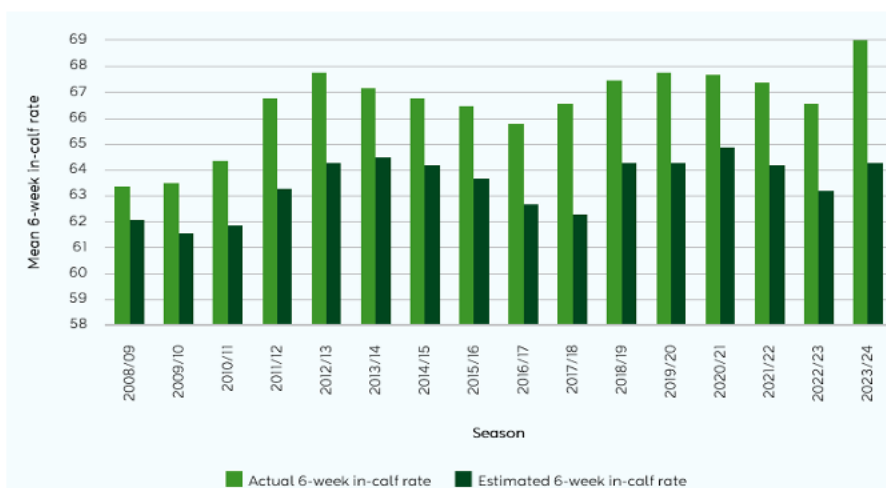
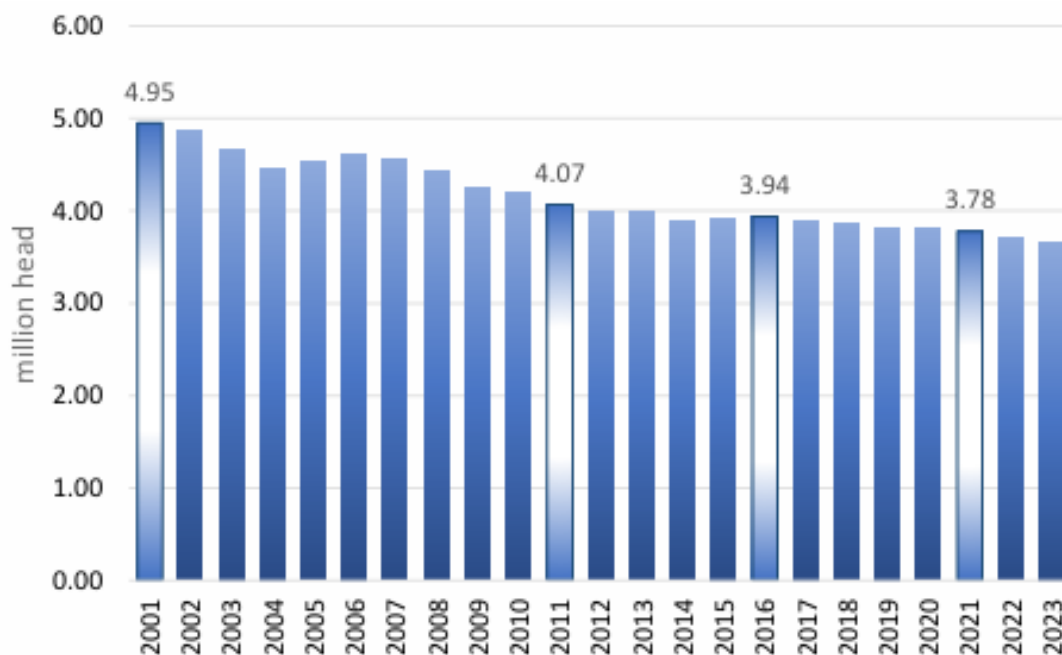


Figure 113: 6-week in calf rate performance (Dairy NZ & LIC, 2024)

### Comparison with the US

A cautionary glimpse of where New Zealand sheep farming could be in several decades if ewe numbers continue to decline can be found in North America. The United States and Canada have experienced a slow, persistent contraction in their sheep industries since the

1930's and 1940's. By 2025, the combined breeding ewe flock of both countries sits at just over 4 million head (NASS et al., 2025)



Source: USDA/NASS; Data compiled by the Livestock Marketing Information Center

Figure 124: USA breeding ewe numbers 2001 – 2023 (Marsh, 2023)

As seen in Figure 12, sheep numbers in the United States have reduced markedly since their peak in the 1940's, when inventory reached about 56 million head (Animal Agricultural Alliance, 2023). A major factor driving this decline was the falling value and demand for wool. After WWII, military demand for wool uniforms dropped, and the global textile industry increasingly shifted to synthetic and alternative fibres, which by the mid-1960's was consistently cheaper than wool (Lupton, 1991). At the same time, per-capita consumption of sheep meat (lamb/mutton) in North America fell sharply: from around 4.5 pounds per person to closer to 1.1 pounds per person, per year (American Sheep Industry Association, 2024). Genetic improvement and diversification efforts aimed at shifting production from wool toward meat have been fragmented and, in aggregate, have not offset the broader decline. While some individual flocks recorded productivity gains, the rate of shrinking domestic supply outpaced those improvements (National Research Council, 2008).

The history and current situation of the United States sheep farming sector can be viewed with the same lens as the New Zealand industry, and lessons or insight taken to potentially aid in avoiding decline to the same level.

As in New Zealand, the fall in value of ovine products triggered a vicious cycle: fewer returns meant fewer new entrants and less investment, which further weakened competitiveness. The US sheep sector is in effect caught in a “death spiral,” as the ongoing contraction of supply compounds itself. This chain reaction is visualised in Figure 13.

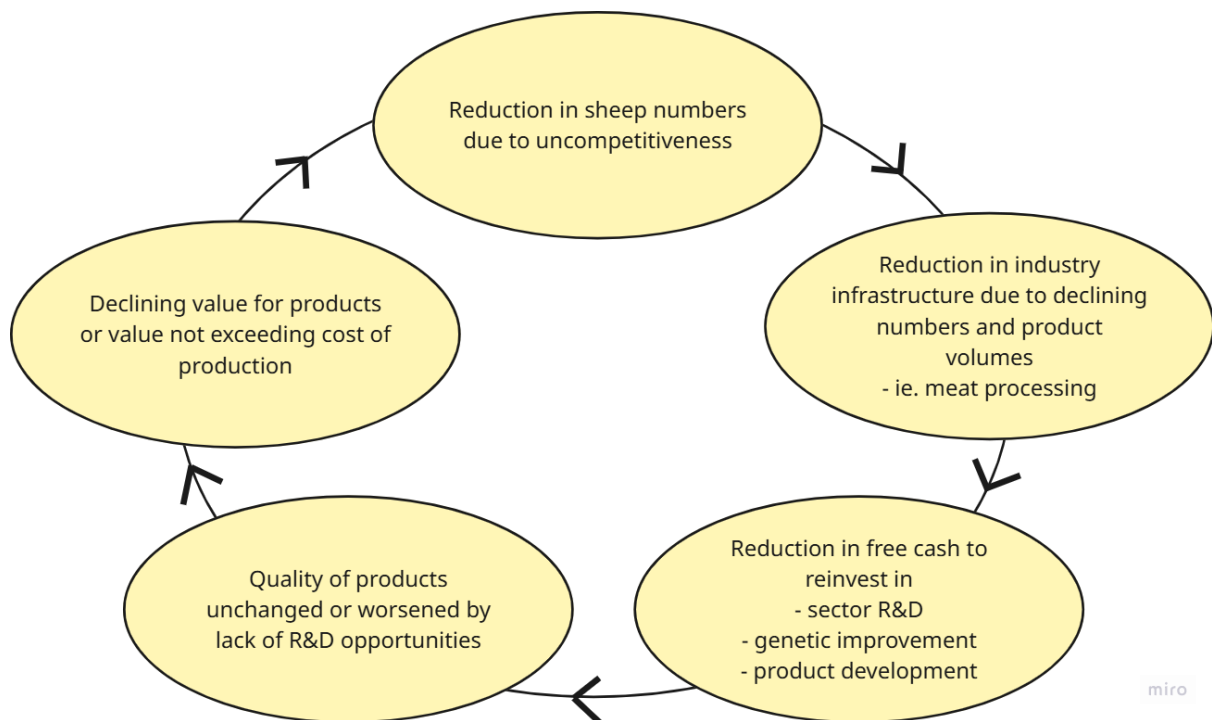


Figure 135: The perpetuating cycle of decline.

Unlike New Zealand, where lamb is overwhelmingly export-oriented, US lamb prices are not tightly linked to domestic flock size. In NZ, when seasonal or structural supply dips, overseas demand persists and bids up domestic prices. In the US prices are driven far more by import volumes from Australia and New Zealand and by seasonal consumer demand (Easter/Passover, December holidays), with domestic supply playing a smaller immediate role.

The US also industry bears costs that NZ producers largely avoid:

- Diseases such as scrapie remains endemic in North America. Legislative controls preventing ruminant protein from being fed back to ruminants were instituted in 1997 (Smit et al., 2002). Although New Zealand has a replica regulatory control over the feeding of animal proteins to ruminants, New Zealand has a scrapie free status and spends very little each year on disease control. The US government has reserved \$19 million for the National Scrapie Eradication Program, which they estimate costs the industry a further \$10-\$20 million annually in lost opportunity (American Sheep Industry Association, 2025)
- Predators such as coyotes, foxes and eagles cause significant livestock losses each year; in 2023 an estimated 24,500 sheep and lambs were killed by predators, valued at \$5.28 million. The need to closely shepherd flocks in this environment adds more cost to systems which are operating on narrow returns (NASS et al., 2025).

A major consequence of the US flock's decline—one that further entrenches the problem—is the contraction of slaughter capacity and available kill space (American Sheep Industry Association, 2020). When lamb numbers are low and arrivals are irregular, packer productivity drops, unit costs rise, and efficiency erodes. Over time this drives plant closures or scale-backs, making it harder for producers to secure timely, geographically proximate kill slots. Maintaining operationally efficient, safe, and independently audited facilities is essential to

preserving consumer confidence in American lamb (Scott, 2016). However, variable supply and low throughput undermine those standards by pushing up per-head costs and disrupting schedules. New Zealand has already felt similar pressure as lamb numbers have fallen. Between 2005 and 2025, ten ovine plants or ovine chains within multipurpose plants were closed, cutting weekly ovine capacity by at least 100,000 head (Wallace, 2025).

## Reduction in investment

Another issue that arises as industries shrink is the reduction in money being invested into research, product development and market growth. A shrinking national sheep flock reduces the industry's overall revenue base and therefore constrains the pool of levy funds (if the sector in question retains levies from producers) and private capital available for reinvestment. Because producer levies are typically collected per head at slaughter, fewer animals mean lower total levy income even if per-head rates remain steady. This contraction ripples through processing, service, and input sectors, reducing margins and the appetite for long-term or higher-risk research and development projects. Over time, less free capital in the production system limits the industry's ability to co-fund government programmes, support innovation partnerships, or maintain the critical mass of scientists and infrastructure needed to sustain productivity growth. This can lead to less 'for industry good' research and an increase in more private research and development, with such projects often having a smaller impact across any singular issue.

Public or industry-retained funds being reinvested directly into the sheep sector are difficult to quantify based on information publicly available. Much of the reported research and development expenditure by entities such as Beef + Lamb New Zealand (B+LNZ) is spread across both sheep and cattle enterprises, rather than disaggregated by species. In 2024, levies collected from sheep processing totalled a little over NZ\$16 million, derived from a NZ\$0.75 charge per ovine carcass. A decade earlier, in 2013, the levy stood at NZ\$0.60 per head, generating just over NZ\$15 million (Beef + Lamb New Zealand, 2024). In 2024, B+LNZ allocated approximately NZ\$2.9 million to research and innovation, with a further NZ\$4.5 million invested through Beef and Lamb Genetics.

## Environmental opportunities

Some studies have shown that sheep can be more environmentally friendly than other livestock classes, depending on soil type, climatic conditions and grazing management. Cournane et al (2011) found sheep to be lighter on the land than cattle or deer, having less deterioration of soil physical quality and less phosphorous lost in sediment runoff. A similar trial by Monaghan et al (2007) found intensive grazing by sheep caused leaching loss of nitrogen from 600mm below the soil surface averaged 29 kg of mineral N/ha/year, and 40 kg for intensively grazed cattle.

With NZ sheep and beef farms containing ~25% of the remaining native vegetation nationally, the importance of the livestock systems which are operated on this land is paramount (Pannell et al., 2021). If sheep, which are a light grazer compared to larger livestock options, are substituted for cattle or deer, this area of native vegetation may be grazed differently to the detriment of those native species.

Sheep products also have a lower emissions intensity than beef and dairy derived beef products. Data used in a report compiled for Beef + Lamb New Zealand by Ledgard et al. (2021) summarised sheep products for the production season 2017/18 as having a carbon footprint of 6.01 kg CO<sub>2</sub>e/kg LW sold, compared with 10.09 and 6.88 kg CO<sub>2</sub>e/kg LW sold for beef and

dairy beef respectively, for the same season (Ledgard et al., 2021). Many landscapes are seeing sheep disappear because of a land use change into carbon farming. This has negative long term connotations including erosion of the viability of rural communities, wildfire risks, exotic pest and weeds incursions and the removal of native biodiversity (Fellowes, 2022).

## Why a lack of viability in sheep farming is an issue for New Zealand

Sheep farming's declining viability is not only a farm-level profitability issue; it has system-wide economic, environmental, and social consequences. If viability continues to erode, New Zealand risks losing capabilities and options that are costly, or impossible, to rebuild later.

Issues that are already present or will evolve:

### **Regional economies and jobs will change or reduce**

Sheep enterprises participate in rural employment opportunities: shepherding and livestock management, shearing crews, and contractors providing animal health, transport, fencing, stock sales all provide to rural economies. As flocks shrink, these services become uneconomic at local scale, accelerating service withdrawal and hollowing out small towns (schools, health services, clubs). Processing plants (meat works, wool scour) require minimum throughput, sustained decline risks plant closures, higher freight costs, and reduced effectiveness to process remaining livestock.

### **Export earnings and macro-resilience**

Sheep meat and wool contribute diversified export revenue with different demand cycles to dairy, horticulture, and forestry. Losing sheep production reduces portfolio diversity, increasing national exposure to single-sector shocks (e.g. dairy price drops, biosecurity incursions, weather events hitting a specific sector/region).

### **Landscape stewardship and land-use balance**

On much hill and hard country, sheep are a fit-for-land option that maintains open landscapes, controls certain woody weeds, and supports ground cover that limits erosion (Wedderburn et al., 2020). Rapid conversion to alternatives can shift environmental risk profiles (e.g., higher nutrient loads from some land uses on easier country, or social impacts from widespread carbon forestry on pastoral hill country). Mixed sheep–cattle systems optimise pasture utilisation across seasons, improving feed conversion and reducing waste; the system synergy is lost when one component collapses.

### **Environmental outcomes and targets**

Viable sheep systems provide pathways to incremental emissions intensity gains (kg CO<sub>2</sub>-e per kg product), soil conservation on erosion-prone land, and biodiversity integration (native plantings, riparian protection) when farms are prosperous enough to invest. If profitability fails, the capacity to fund environmental improvements (fencing, planting, water reticulation, genetics) drops—stalling progress on national environmental goals.

### **Capability, know-how, and option value**

New Zealand holds globally valuable sheep genetics and management expertise. Once dispersed, skills and breeding platforms (recording flocks, nucleus herds, specialized tech providers) are slow and costly to reassemble, reducing our future strategic options.

### **Industry infrastructure and path dependence**

Viability sustains the infrastructure spine: extension services, R&D pipelines, levies and industry bodies, processing capacity, market relationships. As throughput falls, unit costs rise, creating a negative feedback loop (higher kill charges, fewer selling options, weaker price discovery)—further undermining on-farm returns.

### **Community identity and social licence**

Sheep farming is woven into regional culture and identity, and intergenerational skills transfer. Viable, well-run farms maintain public trust and social licence by funding best-practice animal welfare and environmental stewardship—both become harder under financial stress. Land uses changes away from sheep farming have already seen losses of rural population numbers and erosion of rural community viability (Kaye-Blake et al., 2024).

## Summary

New Zealand's sheep industry is a pasture-based, export-led sector that once underpinned the rural economy but is now in long-term decline, with the national flock falling from over 70 million in 1982 to about 23 million in 2025 as more profitable land uses such as dairy, forestry/carbon farming, horticulture and urban development displace sheep from traditional landscapes. While per-ewe meat output has improved through genetics and management, reproductive performance and wool productivity have largely flatlined, leaving system-level productivity and per-hectare returns lagging well behind competitor sectors. This mirrors a “death spiral” seen in the United States sheep industry, where shrinking numbers undermined processing capacity, investment, and competitiveness. For New Zealand, ongoing decline threatens not only farm-level profitability but also regional employment and services, export diversification, environmental outcomes, industry R&D, national sheep genetics and know-how, and the social fabric and identity of many rural communities.

## Methodology

To achieve the objectives, the report employed a mixed-methods approach, combining qualitative and quantitative data collection and analysis. Themes were first identified through interviews, then further explored and validated through farmer feedback.

### **Qualitative Interviews**

Semi-structured interviews were conducted with agribusiness leaders who have guided their organisations through significant change—whether by developing new strategies, restructuring operations, or redefining business direction. Participants included individuals in both governance and executive leadership roles across the food and fibre sector.

Each interview was designed to elicit reflections on the *practical execution* of change management, focusing on real-world leadership behaviour rather than abstract theory. Open-ended, probing questions encouraged detailed responses tailored to each leader's experiences. All participants provided consent for their interviews to be recorded and

transcribed, and every effort was made to protect their anonymity through aggregation and removal of identifying details.

This qualitative component is grounded in transformational leadership theory, as first articulated by James MacGregor Burns in *Leadership* (1978). Burns' work emphasises leadership as a mutually beneficial process that inspires followers and elevates collective outcomes. The interviews sought to test how these ideas translate within New Zealand's primary industries, where leadership occurs under distinctive economic and environmental pressures.

The questions posed to the leaders interviewed are referenced in Appendix A.

### **Quantitative Farmer Survey**

To complement the leadership insights, a survey was undertaken of sheep farmers to gauge their reaction to a selection of macro-opportunities that could be part of a future-proofing focus for the sector. The survey consisted of 7 options which the respondents were asked to rank in order of likelihood, from 1 to 7, what opportunities they as the key stakeholder would be willing to invest in and participate in changing. This provides a quantitative perspective on which initiatives could deliver the most meaningful impact at farm and sector levels, based on producers' willingness to participate. These options are areas of the sheep product supply chain (producer to consumer) that may need to evolve for the sector to have a sustainable future.

### **Data Integration and Analysis**

Findings from the interviews and survey were analysed thematically, with patterns and lessons drawn from leadership experiences cross-referenced against farmer feedback. This integration provided a balanced view and ensured that proposed recommendations are both aspirational and grounded in on-farm realities.

### **Scope and Limitations**

This research is focused on leadership and change management within the New Zealand food and fibre sector, with specific application to the sheep industry. While the findings offer insights relevant to a range of primary industries, they are grounded in the New Zealand context and may not be directly transferable to overseas systems or other agricultural sectors.

The qualitative interviews capture the perspectives of a select group of agribusiness leaders. As such, findings represent depth rather than breadth—they illustrate common themes and principles rather than statistically representative trends. Similarly, the farmer survey provides indicative, rather than exhaustive, feedback from producers.

Data availability also presented some constraints, particularly regarding long-term financial and performance metrics across the sector. However, these limitations do not diminish the value of the findings; rather, they underscore the importance of qualitative insight in understanding the human and organisational dimensions of transformation.

# How transformational leadership turned slumps into long-term strategic repositioning

**A real-life lens on change management through the eyes of sector leaders.**

## **If you want the future to be different, you must be different**

Several leaders highlighted the need for enduring change, acknowledging that such transformation can be uncomfortable. If businesses desire the outcomes of change but are unwilling to alter the fundamentals of their practices, that change will not be sustained.

One leader, deeply familiar with the realities of sheep and beef enterprises, observed that for sheep production to remain viable, producers must decide where they position themselves within the value proposition. The leader outlined two distinct pathways forward, each defined by a clear management approach: either pursuing low-cost production of an undifferentiated product or investing in greater differentiation through higher-value attributes and potentially more intensive management. The space between these two approaches was described as “the valley of death”—where creeping costs and inconsistent product quality erode profitability.

This dynamic is already evident within the sector, as sheep farmers—consciously or otherwise—begin to steer their systems toward one of these two directions. For some, cost-cutting is a natural response to shrinking margins, and there is value in identifying ways to reduce expenditure by addressing root causes of animal health and labour costs (such as shearing, dagging, and drenching). Others are instead seeking to add value through product differentiation—developing branded products, emphasizing eating quality, or adopting distinctive production methods such as regenerative practices.

Leaders agreed that the future of sheep farming may look very different from today. Further shifts are likely in the types of land suited to sheep, in production systems, and in the emergence of new, niche, or currently unconsidered products. Parts of the supply chain or product attributes traditionally controlled by only one participant may require greater collaboration or even a shift in ownership, while producers themselves may need to assume more responsibility for areas of the value chain.

## **Vision and execution**

All leaders spoke extensively about the need for an enduring vision for the future when creating and actioning change. One leader identified the need to ‘make hard decisions early’ where possible, keeping in mind the bigger picture of where you want to get to. All the leaders spoken to had varying perspectives on what having a vision entailed, as they had worked or were tied to different parts of the product supply chain. One leader had experience in processing and so was tiered towards a domestic vision which saw producers and New Zealand businesses as being the primary stakeholder. Another leader had experience offshore and saw the customer or consumer as the most important stakeholder in the supply chain. That leader identified a way forward for ovine products as needing to sit within the premium tier. They identified the commodity space that most red meat products currently sit within as having returns to producers that are inadequate to justify continuing to produce them. They suggested a pathway on which our meat marketers or farmer groups (or a collaboration) identify the end customer or market, what their desires and pains are that

can be addressed through a differentiated product, and design a value chain based on consumer demand rather than producer supply.

Another leader offered the viewpoint of approaching transformational management as being brave enough to accept that the outcomes are uncertain, and that the destination being sought isn't one that currently exists – “don't worry about what the answer is, become the answer”. They were referring to having the foresight to envisage the future desired without having previous outcomes or experience to hinge it to.

### **Speed of change**

One leader described the different speeds of change depending on how dire the circumstances are – that when ‘things are on fire’ change happens much more rapidly, decisions are made faster and outcomes evolve quicker, when compared to trying to initiate change during periods of relative stability. This discernment is relevant to the sheep sector now. The reduction in sheep numbers has been gradual since the last century (B+LNZ Economic Service, 2023), so whilst the total reduction in sheep numbers since 1990 has been 56%, the annual reduction has averaged 2%, making the change almost unnoticeable to most people. With product prices being high within the 2024/25 financial year, many producers are likely satisfied with their systems and feel they are financially sustainable. As shown earlier in this report, even when product prices are above the cost of production, the economic return from sheep systems is still significantly lower than alternative land uses.

Within the speed of change there can be multiple paces occurring at once. Some activities may experience change at high speed; others may evolve much more slowly. One leader used examples of things that may need to move fast if the sheep sector is to outpace its own rate of decline, such as market facing activities. These might include ideas around adding value to existing products, utilising branding and storytelling in marketing, and relationship building with consumers. These activities can often have very tangible outcomes in the short term. The flip side is that there are slow aspects to change, which in the context of sheep farming likely include aspects relating to genetic change, biological systems and people capability.

### **Change is the sum of many parts**

One leader identified a crucial aspect of change management: the people involved in driving transformation. They referred not only to key personnel within their business—those with influence among team members and responsibility for delivering new goals—but also to external stakeholders, such as sheep and beef farmers, whose engagement and participation are essential for success. The leader emphasised that the outcomes of any strategic change pathway are heavily shaped by the capabilities and commitment of the people responsible for execution.

This way of viewing the importance of people during change is reinforced by a model developed in 2006 by Jeffrey Hiatt, known as ADKAR: Awareness, Desire, Knowledge, Ability and Reinforcement. Hiatt proposes in Figure 12-14 that these 5 aspects of change need to occur within and for an individual for the change to be realised.

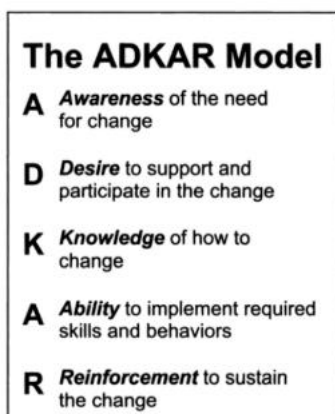


Figure 146: ADKAR Model structure (Hiatt, 2006)

Hiatt (2006) proposes that these elements occur sequentially in how individuals experience change. For instance, Desire cannot precede Awareness—it is an individual's awareness of the need for change that triggers either a desire to engage or resistance to the process. Applying this logic to the sheep farming industry, the first barrier to progress is achieving collective recognition of the need for change. Stakeholders, including producers, levy bodies, industry representatives, processors, and marketers, must first accept that transformation is necessary if the sector's future is to be stronger than its past.

At each stage of the ADKAR model, there are potential constraints to progress, such as limited resources, investment capacity, and human capability.

- At the Awareness and Desire stages, stakeholders must reach agreement on the problem being addressed and genuinely want to be part of its improvement.
- At the Knowledge and Ability stages, they must either already possess the skills to implement change or be willing to develop those capabilities.
- At the Reinforcement stage, they must sustain the changes achieved—resisting the pull of old habits that could erode the value of progress.

The sector risks experiencing bottlenecks in adoption, where the pace of transformation is limited by individuals' readiness or willingness to engage. However, if change strategies within sheep farming and its supply chain are designed using frameworks such as ADKAR—or other structured approaches that prioritise adoption—the likelihood of long-term success increases significantly.

Leaders also reflected that the transformations within their own businesses succeeded not because of a single initiative, but through the coordination of many interdependent activities and workflows. This observation mirrors the situation facing the sheep industry: no single factor will drive the scale of change required for sustainability. Instead, multiple complementary pathways—ranging from production systems to market development—will need to evolve in parallel, each contributing in its own way to a resilient and enduring future for sheep farming.

### **Investment is key**

Most of the leaders identified the need to 'spend money to make money'. Investing in strategy or business change is essential for achieving outcomes that surpass previous performance and deliver greater long-term returns. Without deliberate investment,

businesses risk stagnation—repeating the same practices while expecting different results. Strategic change allows producers to adapt to evolving market demands, technological advances, and consumer expectations, positioning their products and operations for future success rather than relying on historical strengths.

Investing in change also creates opportunities to capture new forms of value—through efficiency gains, product differentiation, or improved supply chain integration—that are inaccessible under existing models. Although change often involves short-term costs or uncertainty, these are outweighed by the potential for sustained profitability, resilience, and competitive advantage. For the sheep sector, where margins are tightening and global competition is increasing, doing “more of the same” is no longer viable.

By investing strategically—in innovation, new market approaches, or value creation beyond the farm gate—producers can influence how value is generated and retained across the supply chain. This proactive mindset offered by the leaders ensures that improvements in returns are not left to external forces but are driven by those closest to production. Ultimately, strategic investment is not a cost but a pathway to future-proofing business performance and long-term sector viability.

### **Leadership behaviour**

All the leaders spoken to were very clear and unanimous about the behaviours essential for a leader to successfully and sustainably drive change. They consistently emphasised that effective leadership during transformation relies on a strong set of personal and professional attributes. The most frequently cited behavioural traits included:

- Honesty
- Transparency
- Reputation
- Communicative
- Open and visible
- Credibility

One leader offered a compelling example: although not a subject matter expert in sheep and beef farming, they were often required to engage directly with farmers and explain the organisation’s evolving strategy. Acknowledging their own limitations, they surrounded themselves with senior leaders and governance members who were genuine sheep and beef farmers, capable of speaking credibly to technical questions and connecting authentically with the audience. This collaborative approach to communication and stakeholder engagement, they believed, was vital in building credibility for the proposed changes. Any attempt to “pull the wool over stakeholders’ eyes,” they warned, would be short-lived and ultimately erode reputation and trust.

Another recurring theme among the leaders was the importance of openness, transparency, and visibility in decision-making—particularly when those decisions affected external stakeholders. However, they stressed that the same principles applied internally, within teams and across organisations. Effective change leadership, they agreed, requires people to believe in you, the purpose, and the promise that life will be better on the other side of change. Stakeholders must have confidence in the leader’s capability and integrity to see the process through successfully.

A further consistent message was the need to set aside ego for the greater good of the organisation and its stakeholders. Leaders noted that allowing personal bias or self-interest to influence decision-making undermines trust and leads to outcomes misaligned with collective goals. This idea aligns closely with the concept of 'Level 5 Leadership' developed by Jim Collins in his influential book 'Good to Great' (2001).

Collins described five levels of leadership capability, with Level 5 representing the pinnacle. These leaders, he wrote, "build enduring greatness through a paradoxical blend of personal humility and professional will." They are ambitious for the organisation rather than themselves and are driven by a quiet yet unwavering determination to achieve results. Collins observed that Level 5 leaders often defy the stereotype of the charismatic, larger-than-life figure who drives transformation; instead, they are modest, understated, and focused on outcomes rather than personal recognition. Importantly, Collins proposed that Level 5 leaders can be developed under the right circumstances—they need not possess every quality from the outset, but they must demonstrate the capacity for humility and selflessness.

As seen in Figure 15, key characteristics of Level 5 leaders include:

- They look out the window to credit others when things go well; but look in the mirror and accept responsibility when things go poorly.
- They channel their ego away from themselves, toward the larger endeavour. They avoid the leader-as-celebrity trap.
- They display a combination of both humility and ferocious resolve: quiet, calm on the outside, but internally relentless about delivering results.
- They build the right team, discipline, and culture

## THE LEVEL 5 HIERARCHY

The Level 5 leader sits on top of a hierarchy of capabilities and is, according to our research, a necessary requirement for transforming an organization from good to great. But what lies beneath? Four other layers, each one appropriate in its own right but none with the power of Level 5. Individuals do not need to proceed sequentially through each level of the hierarchy to reach the top, but to be a full-fledged Level 5 requires the capabilities of all the lower levels, plus the special characteristics of Level 5.



Figure 157: The 5-level leadership hierarchy (Collins, 2001).

## Survey of sheep producers

Table 3: Action ideas for surveyed farmers to rank in order of the importance and the likelihood of them investing in this strategy.

#	Strategy
1	Create greater value for products, inside the farm gate
2	Create greater value for products, post the farm gate
3	Improve ewe productivity to produce more (meat and wool)
4	Reduce costs associated with production of sheep products (inside the farm gate)
5	Diversify the types of products that are made and marketed from sheep
6	Review of the supply chain to address domestic procurement competition and method of sale
7	Change the type or breed of sheep you farm to address risks or changing systems/landscapes where you farm sheep

The 7 options that were offered to the surveyed farmers were formulated from multiple sources:

- conversations with the leadership interviewees about activities that they believed had already begun, had merit or were worthy of further exploration
- recent sheep sector talk (rural news, NGO research)
- this authors personal experience and relevance to their occupation

The 7 options are interconnected and not mutually exclusive, it is realistic that a sheep farmer would see value in participating in more than one activity. This author saw benefit in a ranking method for this very reason, rather than asking the surveyed farmers to pick only one option.

## Results of the survey

The options scores were tallied and then averaged and are displayed in Table 4. The lowest scoring strategies were of greatest value to those surveyed. Strategies which had the highest averages were more frequently scored higher and of less importance, whilst strategies with lower averages were scored as being more important, by more respondents.

Table 4: Survey scores

Strategy #	Average position from 1 to 7	Percentage of top score for importance (1)
1	2.65	19.2%
2	4.33	13.2%
3	3.2	17.2%
4	3.30	16.8%
5	4.65	12.0%
6	3.85	14.9%
7	6.13	6.7%

The scores were then inverted to account for the lowest score being of greatest importance, and the highest score of least importance and least likely to be invested in by the producers surveyed. These scores have been collated in Figure 16.

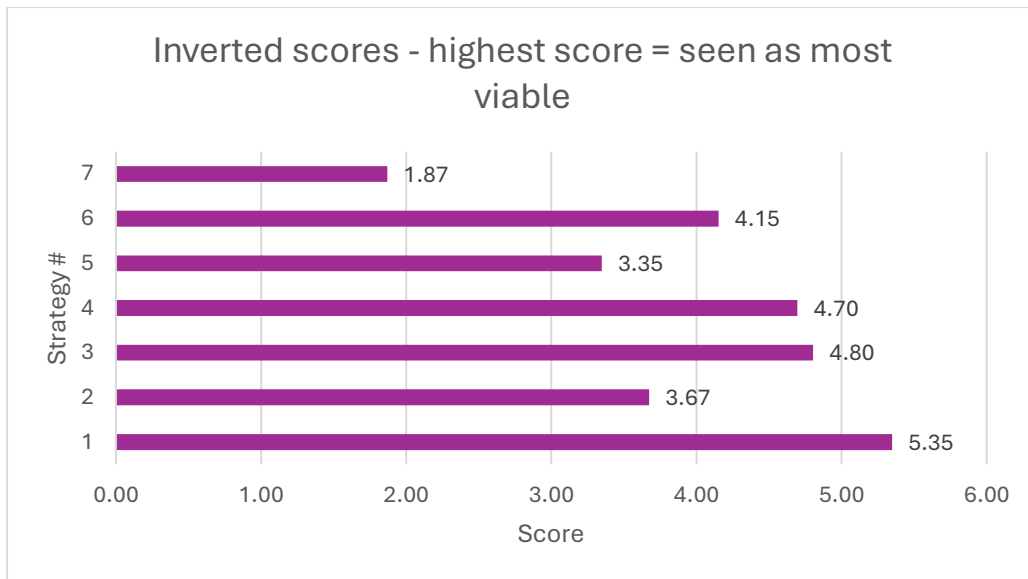


Figure 168: Score position of survey answers

## Discussion of survey results

As shown in Figure 16, Strategy 1 was ranked as the highest priority by the sheep farmers surveyed. Nearly one in five respondents (19.2%) placed it first on their list, and 26% ranked it second. Strategy 3 was the next most rated number 1, followed closely by Strategy 5 (cost reduction). This suggests that producers see a pathway forward both through improving prices and markets that provide greater returns, as well as by reducing and managing production costs more strategically.

Strategies 1, 3, and 4 shared a common objective: to improve returns to the producer, and all were rated highly. This indicates that producers believe their products should be worth more and are eager to pursue value-creation opportunities where possible.

Following Strategy 1 in order of importance were Strategies 3, 4, and 6. These all involve factors that producers can control directly—costs incurred, ewe productivity (which influences cost of production), and creating value within the farm gate. This cluster of priorities points to a balanced focus on efficiency and value creation within the farm business. It is unsurprising that producers would choose to invest first in areas where they have control and can see immediate outcomes. However, these results also highlight a reluctance to invest in change further up the supply chain, suggesting that producers may be ceding responsibility for innovation and value capture to post-farm-gate entities.

The mid-ranked strategies (2 and 6) relate to issues further down the supply chain, where producers may feel they have limited influence. Although these were still valued, they were considered less important than on-farm initiatives.

The lowest-ranked strategies (5 and 7) reflect an aversion to major system change. Producers may perceive diversification into new products or changing sheep breeds as risky, particularly if the expected value opportunity is uncertain. System changes can also demand significant capital investment (e.g., in genetics or infrastructure) and time, with a potential lag before returns are realised.

Overall, the survey results indicate a strong producer focus on maintaining the status quo—preferring to invest within their businesses rather than beyond them. While farmers aspire to

higher returns and are open to innovation within the farm gate, they appear less willing to engage with or invest in post-farm-gate opportunities.

This pattern raises concerns about the sector's long-term value capture. By relinquishing control beyond the farm gate, producers may be perpetuating the transfer of value further down the supply chain. In an environment where processing capacity is consolidating and farmers face potential processing bottlenecks; this dependence increases the power of processors. If market dynamics change unfavourably, farmers could find themselves with limited leverage and diminished ability to share in any improvement in returns.

The moderate ranking of Strategy 6 (with 14.9% scoring it as their top priority) also reflects a perception among farmers that they have little power over procurement practices in New Zealand. While some farmers may believe reduced supply will automatically drive higher prices, this assumption may not hold if customers look elsewhere.

Ultimately, the survey responses mirror attitudes seen in the US sheep sector, where producers have largely ceded control to entities beyond the farm gate, leaving them exposed to commodity market fluctuations. Unless New Zealand producers adopt a more integrated approach to value creation across the supply chain, they risk following a similar trajectory.

# Recommendation 1

To achieve sustainable profitability, the sheep sector must offer genuinely differentiated products that deserve - and can command - greater value than current commodity outputs.

## Sheep meat:

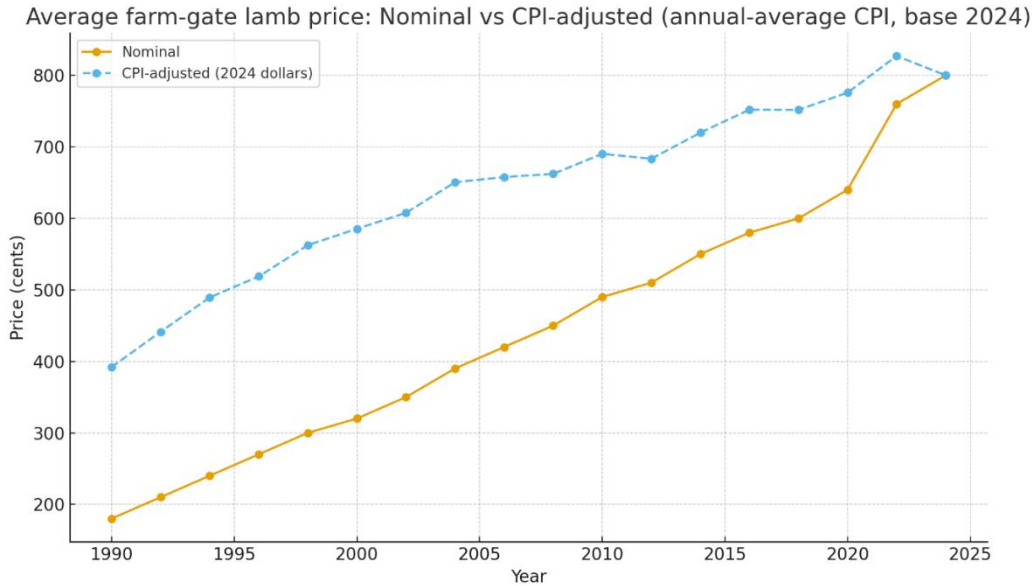


Figure 179: Returns of lamb production 1990-2025

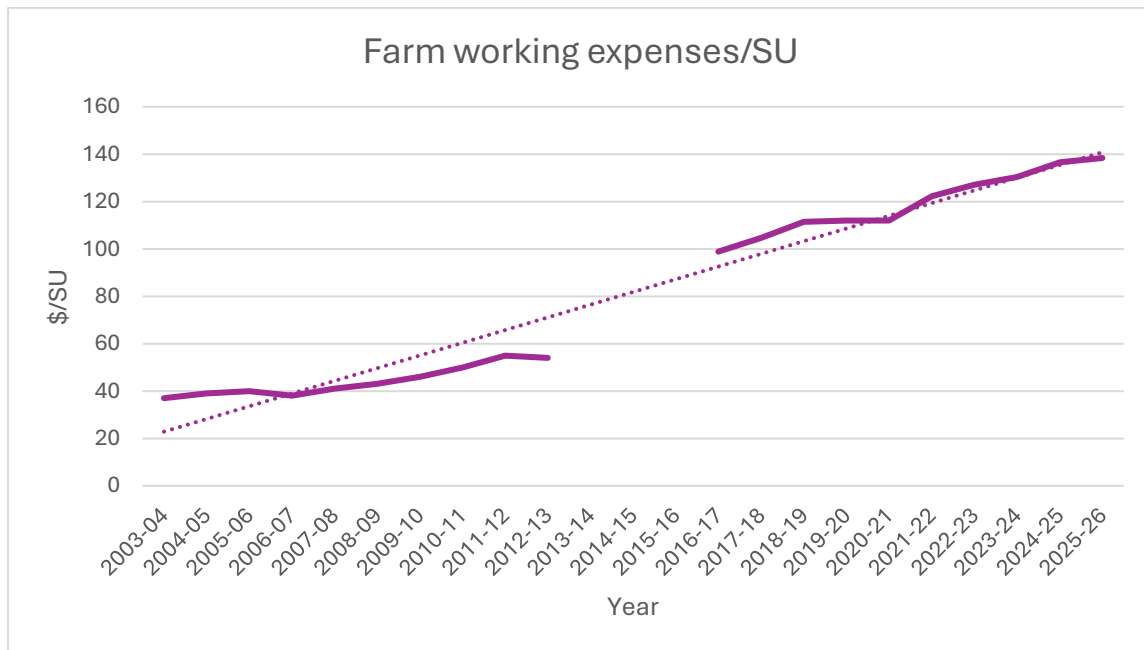


Figure 1810: Costs of red meat production inside the farm gate (farm working expenses) 2003-2025

Public data on lamb prices (\$/kg) and production costs (\$/SU farm working expenses) is fragmented, but combining insights from Beef + Lamb New Zealand Economic Reports and MPI Farm Surveys provides a long-term view of profitability. Between 2004 and 2024, farm working expenses per stock unit increased by around 110%, while income from lamb rose

only 28%. Although data sources differ, the trend is unmistakable: production costs have outpaced returns. This demonstrates that current “value-add” efforts have failed to materially increase product value.

The underlying problem is that the core lamb and mutton products have remained largely unchanged for decades, yet the sector continues to expect higher prices for the same offering.

The US Department of Agriculture defines value add as fitting into one or more of three categories (USDA, 2020):

- A change in the physical state or form of the product
- The production of a product in a manner that enhances its value, as demonstrated through a business plan (such as organically produced products).
- The physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product

Most of New Zealand's “value-add” efforts in lamb have focused on the third category—rebranding or repackaging commodity lamb for new markets or retail spaces. As shown in Figure 17, these efforts have increased the value of New Zealand sheep meat by only about \$2/kg over 20 years (2004–2024). Clearly, more transformative change—through altering the product itself or through more sophisticated steps along the supply chain—is needed to generate value not currently realised.

A major challenge is that much of the value created further down the supply chain is absorbed by processing, distribution, and marketing costs, rather than returning to producers. This is particularly relevant for New Zealand, given the distance to major markets.

Examples of differentiated New Zealand sheep meat products which are already generating and returning greater value to producers are Lumina™ and Atkins Ranch™:

- Lumina™ has created a differentiated lamb product through tight production specifications encompassing genetics, forage, and processing protocols that alter the final product. The brand targets chefs, offering a consistent, premium product that commodity suppliers cannot replicate. Lumina's approach—direct engagement with end-users, tailored cuts, bespoke packaging, and clear storytelling—creates tangible value that chefs are willing to pay a premium for.
- Atkins Ranch™ has achieved value differentiation through ethical branding and direct retail partnerships. Its relationship with Whole Foods in the US allows it to cater to consumers who prioritise animal welfare, free-range systems, and antibiotic-free production. The company leverages globally recognised accreditations such as GAP and Land to Market™ to build trust, while further processing and branding enhance the retail appeal. Although the raw product itself is not radically different, the consumer experience and transparency create a compelling point of difference.

These examples demonstrate that value addition must begin with the consumer—identifying their needs and designing differentiated products to meet them. Producers and marketers cannot simply demand higher prices without providing a valid reason that resonates with buyers.

Currently, such premium initiatives are small in scale relative to the wider industry. However, as total production declines, these models may become more viable pathways for New

Zealand producers. Competing on volume with large, low-cost producers like China or India is no longer feasible. The future lies in high-value, niche markets, defined by consumer expectations and unmet needs. Ovine products which continue to be positioned in commodity supply chains are unlikely to see any significant improvement in the future, making them an unfit position for a reducing product pool. Producers have no control over the outcome of their products or any potential value generated along the supply chain.

Insights from industry leaders reinforce that producers and marketers must be bold enough to move beyond incremental value-add approaches. Producers play a crucial role in enabling genuine product differentiation, ensuring that the product offered is meaningfully distinct from traditional commodity lamb and mutton.

The commodity nature of our sheep meat product shows that New Zealand does not have a robust track record of being good marketers. This has possibly made farmers gun shy about investing in marketing opportunities, as they may be unsure if the value expected will become reality. However, these historical hangups need to be put aside and marketing investment reimaged. We cannot market sheep meat products to consumers in a way that suits the producer, as by this stage in the supply chain the producers are largely irrelevant. Marketing investment must be driven by an attitude of understanding and seeking to address the demands that are communicated by the consumer instead.

**This report proposes that value add for sheep meat products needs to evolve beyond only attempting to create it through physical segregation alone, as the improved results of this have proven to be short lived. Sheep products will need to be genuinely differentiated through being physically changed or produced in a different manner to what commodity lamb and mutton currently is. Farmers who wish to continue farming sheep need to take greater accountability for the supply chains they service, as no one else within it is going to fight to ensure New Zealand sheep meat is the preferred red meat purchase of the global consumer.**

### **Wool:**

The same principle applies to wool. Efforts to add value through simple segregation by type or origin have been inconsistent and, in many cases, ineffective. Wool differentiation can occur inside the farm gate—through production methods that align with consumer expectations—or further along the supply chain, through innovative processing that meets manufacturer requirements.

New Zealand produces only about 9% of the world's clean wool, with over 80% classed as strong wool (24+ microns)—best suited for textiles rather than apparel (The Beehive, 2025). Wool processing is complex and costly, further eroding producer returns. Most marketing

attempts that have added limited value have relied on production credentials, such as verified animal welfare or environmental standards.

However, wool's intrinsic attributes—which cannot be replicated by synthetic alternatives—offer powerful opportunities for differentiation:

- Thermal regulation
- Hydrophobic exterior / hydrophilic interior
- Fire resistance
- Antimicrobial and odour resistance
- Biodegradability
- Sound absorption
- Versatility in processing

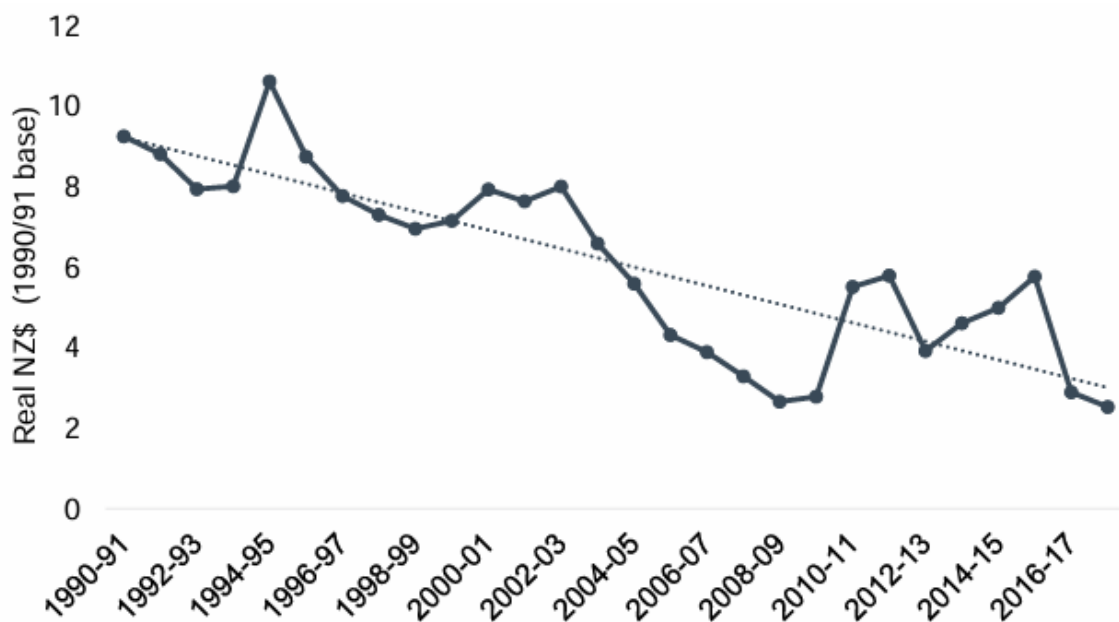


Figure 11: Real wool revenue less shearing costs per stock unit (MPI Economic Intelligence Unit, 2019)

**This report suggests that the existing markets, avenues to market and ultimate products are not fit for a future in which sheep's wool is a product worth producing. Investment needs to be made into developing products which use wool in a way which highlights its attributes that cannot be replicated in a synthetic, man-made alternative. Again, this investment will need to come from those who care most about the outcome – the producer. Sheep farmers can not expect other entities to solve the problem of production of wool being a net loss. There are very few free lunches in life, it is reasonable to expect investment will need to be made in order to reap greater rewards in time.**

## Recommendation 2

### **Set sheep system productivity on an upwards trajectory again by focusing on ewe productivity.**

As with all food systems, the key metric of productivity is the amount of output produced relative to the inputs required to create it. In sheep farming, this is typically expressed as the kilograms of lamb weaned per breeding season, per mated ewe. The measure can be further refined to include the kilograms of saleable product per mated ewe, or even the kilograms of product produced per kilogram of ewe liveweight. In this system, the ewe is the engine room of productivity—the level of investment and quality of inputs provided to her directly determine the overall output and profitability of the enterprise.

As noted earlier in this report, the productivity of New Zealand sheep systems has been largely stagnant over the past three decades when measured by lambs weaned per ewe per breeding season. It is possible that the sector has reached a biological and system ceiling—a point at which, without significant change or innovation, further improvements are unlikely. The sector must therefore make a critical decision:

1. Accept current productivity levels as the practical limit of our systems and instead seek greater sector value through product development and differentiation; or
2. Invest in transformative system change that raises the productivity ceiling itself.

Meaningful improvements in productivity will not occur without investment in new technologies, data systems, and infrastructure. Continuing to repeat existing practices while expecting different results will only lead to disappointment.

A major constraint to progress is the knowledge gap at the individual ewe level. In extensive pastoral systems, it is difficult to accurately measure the reproductive performance of each individual ewe. As a result, farmers often lack insight into which animals are consistently high-performing, and which are not. This limitation increases the risk of suboptimal selection decisions, where productive ewes are culled and less productive ones are retained, undermining long-term flock performance.

Tools such as parentage matching and genomic testing offer promising solutions to this issue. Parentage technologies allow farmers to identify the exact number of lambs each ewe produces and successfully rears each year. Genotyping enables the assessment of genetic merit for key reproductive traits such as twinning rate, fecundity, and survival.

Historically, genomics has been primarily used by stud breeders, with only minor uptake among commercial farmers due to high costs. However, as the price of genotyping continues to decrease and data collection becomes more achievable, commercial application of these technologies is becoming a practical reality.

One particularly valuable use of genomics is identifying and selecting for ewes that consistently rear twins rather than triplets. In extensive systems, ewes rearing triplets experience higher lamb losses, as they are often unable to successfully raise three lambs to weaning. Selecting against excessive fecundity can therefore improve both animal welfare and production efficiency.

Reproductive traits in sheep have a heritability of around 10%, meaning genetic progress is not seen immediately. However, genetic gain is cumulative and compounding—each

generation builds on the improvements of the last. With consistent selection pressure and the aid of technology, farmers can achieve substantial long-term productivity gains. While the benefits may not be visible in a single season, diligent investment and patience yield significant cumulative results over time.

A further area of opportunity lies in reducing reproductive losses between mating and weaning. Losses occur both in utero and post-partum, particularly during spring lambing when weather conditions can be harsh and unpredictable. These losses are exacerbated in ewes carrying two or more lambs.

Beyond genetics, key determinants of lamb survival include adequate feed supply and shelter. As land use in New Zealand continues to change, the suitability of traditional lambing environments is changing. Farmers may need to reassess whether their landscapes provide sufficient protection for newborn lambs.

In some countries, such as the UK, farmers have responded to similar challenges by investing in lambing barns and indoor lambing systems. While large-scale infrastructure of this kind may be impractical in New Zealand's extensive systems, there are intermediate and innovative options available. These include:

- Silvopastoral systems, which integrate trees into grazing land to provide natural shelter.
- Using existing infrastructure as temporary lambing shelters.
- Riparian or shelterbelt planting to create microclimates that protect vulnerable stock.

These measures not only support animal welfare and productivity but also contribute to broader environmental and biodiversity outcomes.

This recommendation will not come without cost. As was highlighted by the sector leaders earlier in this report, if change is to occur and the benefit of that change awarded to stakeholders, investment into the sector must be made.

**This report recommends that the sector should prioritise closing the on-farm knowledge gap, particularly around individual ewe performance, through the adoption of tools such as parentage matching, genotyping, and data-driven flock management. These technologies enable farmers to make informed selection and management decisions that enhance reproductive efficiency and overall system output.**

## Recommendation 3

### **Develop a sector wide strategy before it's too late**

To become profitable and sustainable, the industry must develop a sector-wide strategy that unites all participants—farmers, processors, researchers, marketers, and policymakers—around shared objectives. Without such alignment, progress remains fragmented, innovation diluted, and valuable opportunities lost to inefficiency and duplication. Bringing all parties of the supply chain in to a strategy also creates accountability and the opportunity for each participant to have a voice; for example, if processors need certainty of sheep supply, but farmers need flexibility due to seasonal changes, participants need to work together to alleviate issues for all.

A unified strategy provides the foundation for collective strength. It can clearly define what success looks like for the sheep sector—whether that's premium positioning for high-quality, sought after meat and wool, reduced greenhouse gas emissions, improved productivity, or stronger community resilience. Once a vision is established, practical pathways can be developed, including measurable targets for genetics, animal welfare, product specifications, and market development. This ensures that every initiative, from the farm gate to the export market, contributes to a coordinated direction rather than isolated, short-term efforts.

Another major barrier to progress is internal competition within the domestic market. When farmers, processors, and brands compete against each other at home, the only real winner is the customer, while the sector loses value. Competing on tiny price margins drives a race to the bottom, eroding profitability and undermining investment in quality, innovation, and sustainability. The sheep sector is now too small to sustain this kind of internal fragmentation. Collaboration on branding, marketing, and supply coordination already exists. However, the competition that exists for procurement erodes the good that that collaboration further down the supply chain creates. For each entity that has a stake in the supply chain to prosper, those entities need all others to prosper also, via sustainable returns.

In addition, the sector should consider ring-fencing a portion of the existing sheep levies so that they are invested exclusively into sheep-specific initiatives, rather than being diluted across broader agricultural programs. Dedicated funding would better ensure that research, innovation, and extension services directly benefit sheep farmers and their unique challenges. Moreover, New Zealand should seek to align with and leverage large-scale Australian investments wherever possible—particularly in areas like genetics, genomic testing, and data-driven productivity tools. Australia's scale and investment capacity provide opportunities for shared learning and technology transfer, reducing costs and accelerating progress without duplicating effort. The New Zealand sector is already too small to justify large scale investment into areas that Australian farmers are already investing in – we would be better off identifying the innovations developed in Australia and seeking to implement them in our own way.

Removing silos also requires a mindset shift. The sector must move away from viewing success as individual gain and towards viewing it as collective advancement. This can be achieved through co-investment models that reward collaboration. For example, joint ventures between farmers and processors to develop branded, traceable products can return higher value to everyone involved. Similarly, shared investments in digital infrastructure, building

leadership capabilities, and market research can lift the performance of the whole sector, not just a few participants.

Investment, once a strategy has been designed is key. The sheep sector has limited resources, so funds must be used where they will deliver the greatest impact. Investment should prioritise high-return areas both within and beyond the farm gate. Investment into production systems that are going to turn the dial on productivity or product quality are important, as is investment in market and product development which appreciates feedback from customers. Importantly, investment should also flow into capability - training, leadership, and communication - to ensure that people across the value chain can make the most of the opportunities ahead. Farmers cannot expect this investment to come from anyone else as it is them who most wishes for the continuation and prosperity of their sheep systems.

**This report recommends that the New Zealand sheep sector must unite behind a shared national strategy that aligns all participants and focuses investment where it delivers the greatest collective impact. By replacing internal competition with collaboration and co-investment, the industry can lift productivity, capture greater value, and build a more profitable, resilient future.**

## Conclusion

The New Zealand sheep sector cannot rely on tradition or efficiency alone to ensure its future. The evidence presented in this report—through data, interviews, and farmer feedback—shows that current systems have reached a productivity and profitability ceiling. To overcome this, producers, processors, and marketers must invest collectively in strategies that deliver long-term, compounding gains.

Genuine differentiation of products, underpinned by innovation and strong leadership, offers the most viable path to sustained profitability. Producers must recognise their central role not just as suppliers, but as co-creators of value within an integrated supply chain. Investment in technology, data, and infrastructure will be essential to lift productivity, close information gaps, and strengthen resilience against global market pressures.

The future that sheep farmers desire will not occur without dedicated investment, by all stakeholders. Investment and good leadership during a potential period of transformation are what will drive the sector forward and change the narrative from one of terminal decline to one which is future-proofed. Sector-wide investment is not just about aiding survival—it's about building pride and confidence in the future of sheep farming. By combining science, innovation, and collaboration, the sector can position itself as a global leader in ethical, sustainable, high-value food and fibre. The rewards will be more resilient businesses, stronger rural communities, and a credible, profitable future for the next generation of sheep farmers. Together, the sector can achieve far more than any individual could alone.

Change will require courage and collaboration—between farmers, processors, marketers, and policymakers. Yet, without it, the sector will continue to lose both economic and social capital. The future prosperity of the New Zealand sheep industry depends on its ability to evolve: to embrace innovation, prioritise value over volume, and build a system that rewards excellence from farm to consumer.

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# Appendices

## Appendix A

### **Leader interview themes underpinning the questions:**

- Identifying and implementing strategic direction
- Recognising missteps and lessons relevant to the sheep sector's future
- Leadership strategies that proved successful in practice
- Securing stakeholder buy-in from producers, employees, and partners
- The role of communication in sustaining transformation
- Aligning short-term actions with long-term objectives
- Managing personal uncertainty and doubt while leading through change