Alternative Protein Scenarios

Scenarios were created to outline the potential outcomes around the future for alternative protein in New Zealand based on expert interview, a literature review, and quantitative data from BCG "Food for Thought" research.

Scenario 1

- Reflects the current situation of increased demand in alternative proteins.
- Assumes that new alternative proteins contribute towards increased demand but do not significantly affect traditional protein supply chains.
- Slow growth caused by technical barriers

Scenario 2

- Precision fermentation takes off
- Demand for plant protein continues but technical issues stall the development of cultivated products
- Sustainability is a key factor driving consumer acceptance

Scenario 3

- Plant based protein products take off, whilst some barriers facing precision fermentation and cultivated products are removed
- Sustainability is a key driver of consumer acceptance
- Other emerging proteins shift to support the development of enhanced plant-based products

Scenario 4

- All current barriers to the success of alternative markets have been removed or are in the process of being overcome
- Sustainability is a significant factor, price parity is achieved for all alternative proteins
- Taste and texture has improved
- Scale of production has increased whilst regulation and market access barriers/tariffs for food are based on GHG emissions and other environmental outcomes.

These scenarios were used to inform the below proposed land use changes displayed.

Proposed Land Use Changes

Scenario 1

- Base Case – Business as usual

Scenario 2

- 35% reduction in the dairy area
- Arable area increases 50% in Canterbury, Southland, Wairarapa and Horizons

Scenario 3

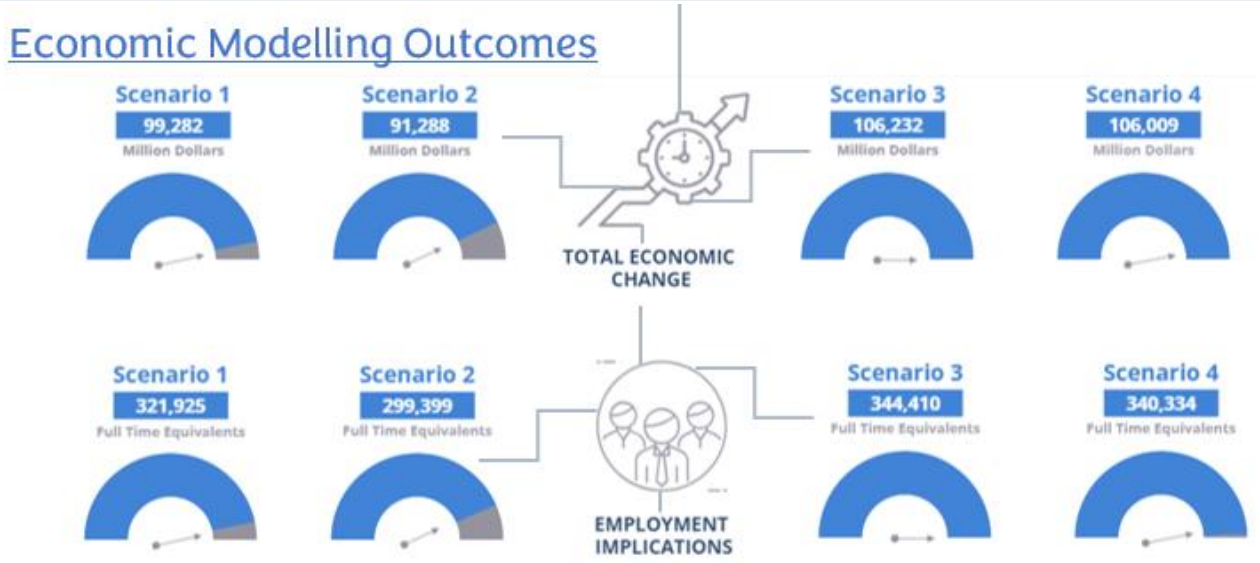
- 15% reduction in the dairy area
- Arable area doubles across all flat land (25% from dairy, 75% from sheep and beef) - mainly south island
- 15% reduction in sheep and beef sector goes to forestry

Scenario 4

- 35% reduction in the dairy area
- Arable area doubles across all flat land (25% from dairy, 75% from sheep and beef) - mainly south island
- 25% reduction in sheep and beef sector goes to forestry

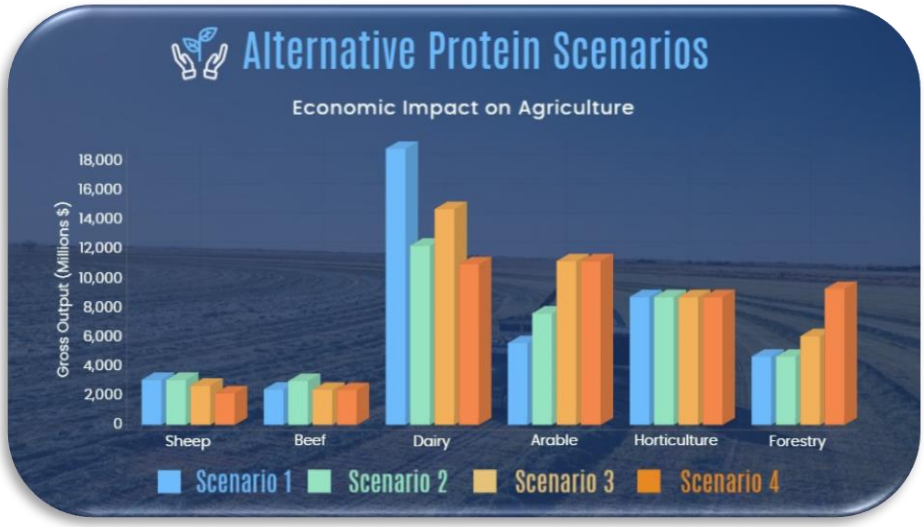
Modelling Results

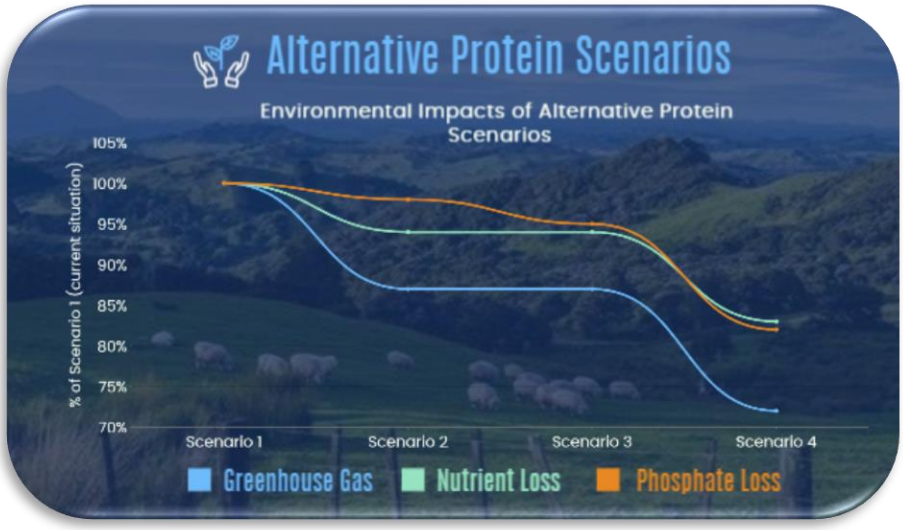
Using the scenarios and the proposed land use changes economic and environmental outcomes were modelled for each scenario.



Economic Outcomes

The economic modelling indicates that scenarios 3 and 4 would significantly boost employment and total economic output. It however shows a less favourable picture for agriculture with sheep & beef and dairy output declining from the baseline (scenario 1). Arable and forestry sectors exhibit growth in total output due to a rise in alternative protein demand and a focus on sustainability.





Environmental Outcomes

Environmental outcomes were derived from the economic modelling to assess the impact on the environment of various changes in output from the agricultural sectors. As depicted in the graph to the left, the decline in dairy and sheep and beef production coupled with increased forestry and arable production, yields several positive environmental outcomes. These include notable reductions emissions, nutrient loss and phosphate.