Research Aims

Anthropogenic climate change poses critical challenges for New Zealand. Robust, up-to-date climate projections are needed to improve understanding of potential impacts and implications of climate change on New Zealand's environment, economy and society.

The CCII programme will undertake targeted research on climatic conditions, impacts and implications for New Zealand up to 2100, throught the following five inter-related Research Aims (RAs):

- RA1: Improving climate projections.
- RA2: Identifying pressure points, critical steps and potential responses.
- RA3: Identifying feedbacks, understanding cumulative impacts, and recognising limits.
- RA4: Enhancing capacity and increasing coordination to support decision-making.
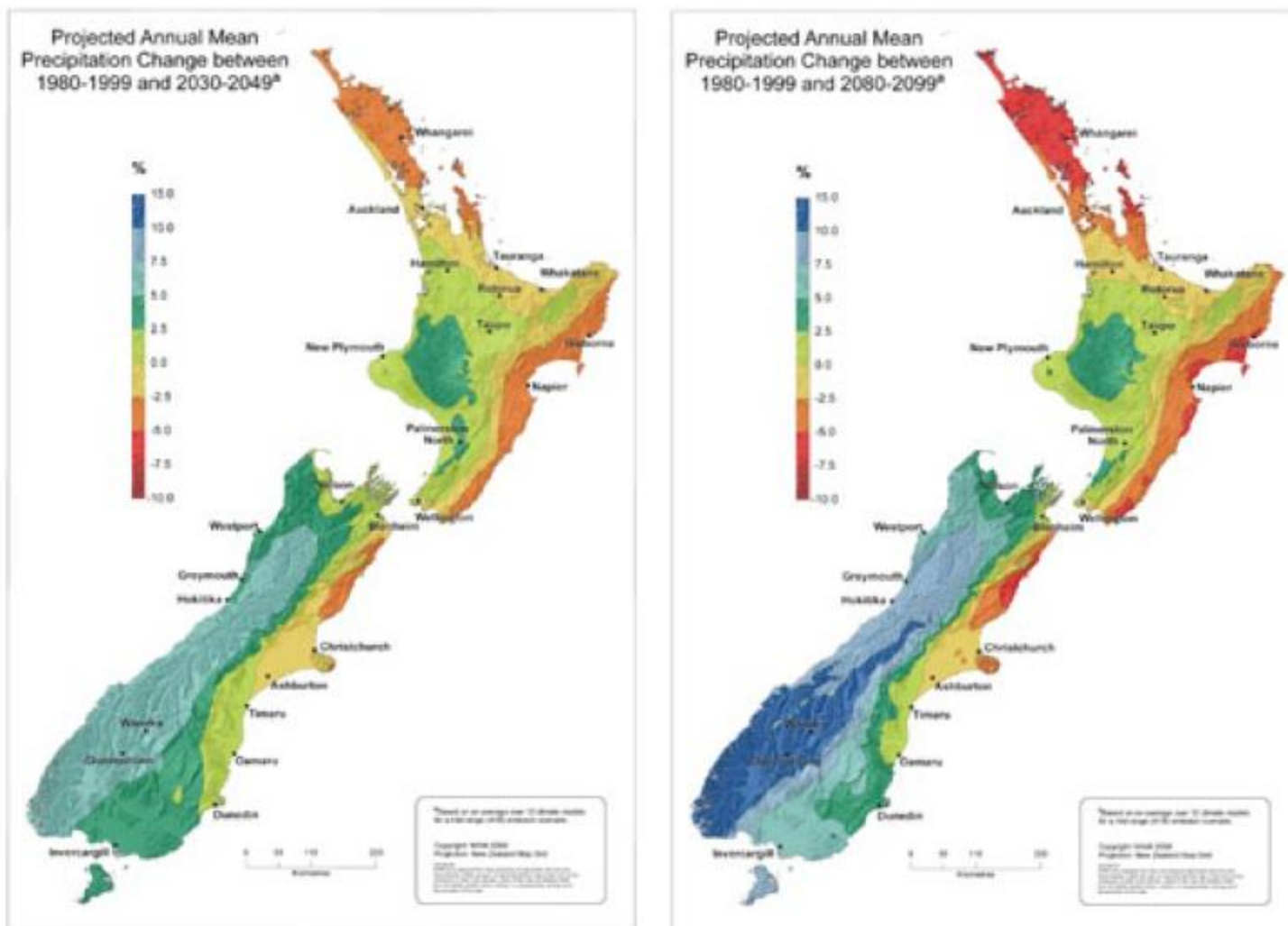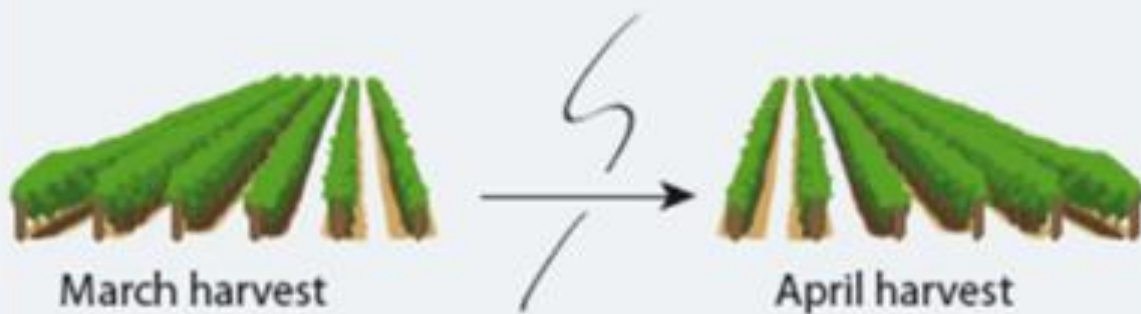- RA5: Exploring options for New Zealand under different global climates.
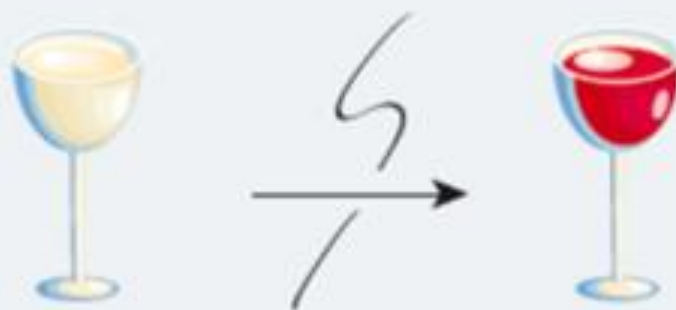
Figure 12. Projected mean annual precipitation change (per cent) for 1980–1999 and 2030–2049 (left); and 2080–2099 (right). A1B scenario is averaged from 12 downscaled AOGCMs.

Tactical adaptation

March harvest → April harvest

Strategic adaptation

Transformational adaptation

FOCUS ON SUSTAINABILITY
A Hawke's Bay hill country farm

THE FARM

- Trelinnoe, Te Pohue, Hawke's Bay.
- 1134 hectares in total with 800 hectares effective. The balance is mostly in trees including 110 hectares in QEII Trust, and the 13 hectare Trelinnoe Park and café.
- Sheep and beef operation currently carrying 7500 stock units.
- Stock numbers vary from winter to summer.
- In February 2009, towards the end of another extended dry period, they were down to 3500 ewes, 4000 lambs, 900 hoggets, 220 breeding cows, and 400 other cattle.

THE FARMERS

- Brothers Bruce and Scott Wills are partners of Trelinnoe, which was developed by their father and uncle.
- Bruce is Chairman of the Meat & Fibre industry group of Federated Farmers.

Trelinnoe farm is run with a focus on long-term sustainability. The owners have experienced extreme weather events in recent years and are adapting to these signals, in addition to economic, market and consumer influences.

INVESTMENT IN LONG-TERM SUSTAINABILITY

Four years ago, Bruce Wills left a 20-year career in rural banking and investment to return to the family farm, Trelinnoe, where his brother Scott had been farming for 23 years.

The brothers have actively responded to signals they received from weather events, economic conditions and workloads.

It was the 2007 drought and its financial effect that triggered a dramatic change in how the brothers farmed. Contrary to the adage that "you can't be green when you're in the red", they've borrowed money in the last four years to invest in the long-term sustainability of the farm.

Their focus is now on a low cost/low input system. They concentrate on being more sustainable and give away a bit of profitability to be that way.

They've significantly reduced stock numbers, changed their pasture management regime, fenced off steep gorges, increased the number of dams, put in new access tracks, implemented a pole planting programme, and replaced culverts to deal with future flood events.

ADAPTING TO THE CLIMATE SIGNALS

Average annual rainfall at Trelinnoe is 1300mm, with wet winters, dry summers and significant variation within the year. Wind is a big factor, with westerly winds contributing significantly to dry spells and drought. Rainfall is becoming more variable. Dry periods are getting drier and wet periods more severe.

Adaptation is fundamental to Trelinnoe. Bruce says: "I think all we're doing is adapting to the signals that we're getting from the weather, as we do to price signals."

He believes there is plenty of expertise and support in Hawke's Bay to learn to adapt, such as from farm forestry, field days and the regional council.

"We've got to change the way we farm. Our customers, who we sell products to, are demanding that we farm more sustainably. I'm responding to that message, too.

"I just hope that the intelligence of farmers, along with information that has been shared, will encourage others to change. I have a real preference for education over