

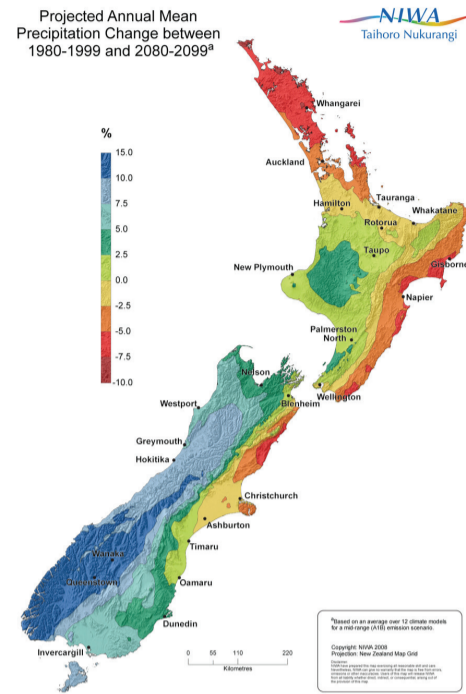
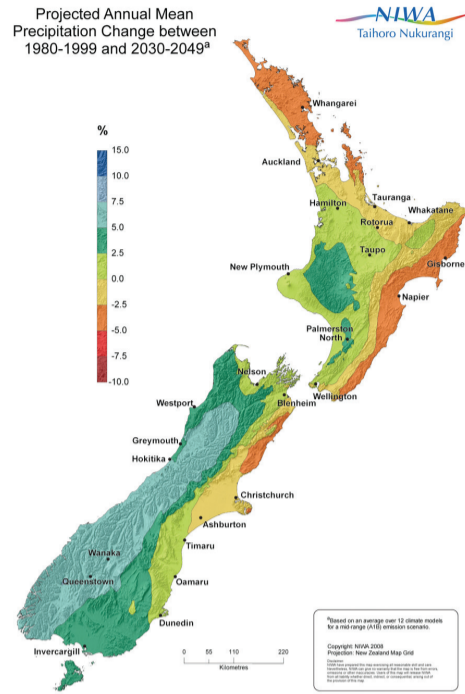
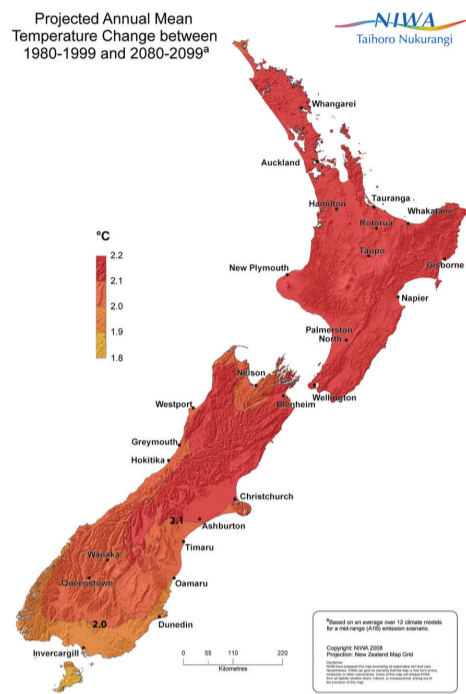
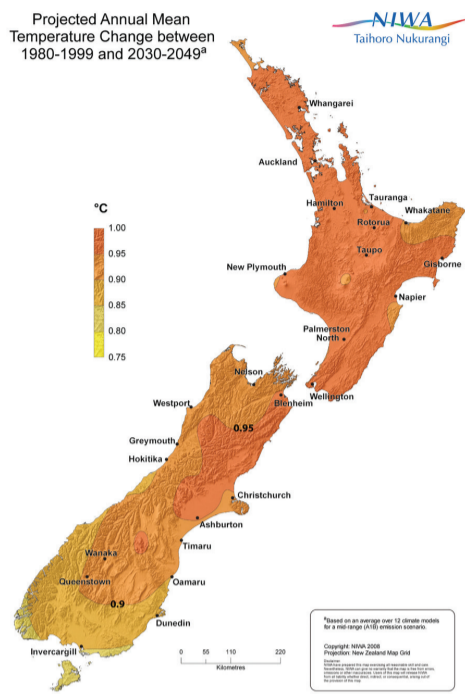


Climate variability will affect dairy farming in New Zealand

Projections of how climate will change:

Through the century, NIWA projects the following likely trends in New Zealand's future climate:
Warmer by about 2.0°C* - **Wetter in the west and drier in the east** - **More extreme weather events.**

-  Some of these changes will create opportunities.
-  Others will require higher levels of risk management.



* Mid-range projection

Extreme weather events – higher variability and uncertainty

The effects of extreme weather events are already being felt. Intense storms are difficult to predict and their impact on farmland and livestock can be huge.

More intense and frequent rain

Higher temperatures may result in more intense rainfall events.






- For farmers, this means:**
-  Potential to divert high river flow to storage for irrigation
 -  Increased risk of sediment and nutrient runoff
 -  More pugging and soil damage
 -  Stock and production losses
 -  Risks associated with effluent storage and management

More wind

Frequency of westerly winds and strength of strong winds may increase by up to 10%.







- For farmers, this means:**
-  Increased risk to power supply and services
 -  Wind chill increasing feed demand
 -  Increased risk of damage to buildings and shelter
 -  Risk of soil loss from cultivation

Warmer temperatures, less frost

Fewer frost days in lower North and South Islands.






- For farmers, this means:**
-  Changes in seasonal timing of pasture production
 -  Heat stress impacts on animal and pasture performance
 -  Pasture quality declines
 -  Increased evapotranspiration

Increased frequency of drought

Severe droughts may occur more frequently.









- For farmers, this means:**
-  Increased risk of drought-induced feed deficits
 -  Change in farm management to cope with more dry seasons
 -  Increased need for water harvesting, storage and irrigation

Impacts on farm performance

Pasture Productivity

More variable pasture production between seasons, years and regions.




-  Changed seasonality in pasture growth – earlier spring
-  More rainfall and higher temperatures mean higher pasture growth rates
-  Higher CO2 concentrations increase plant growth
-  Increased variability in feed supply
-  Risk of decreased palatability and decreased intake
-  More nitrogen is required for plant growth

Pests and Diseases

Rising temperatures may change pest and disease incidence.







-  Some diseases may become less prevalent
-  Opportunity to use alternative forages for improved persistence and performance
-  Risk of expansion in area subject to insect pest attack (e.g. black beetle)
-  Pest populations may build to critical levels more quickly & frequently
-  Expansion of zones at risk of facial eczema

Animal Performance

Extremes in heat and cold can affect animal production and welfare.






-  Potential reduction in cold stress on stock
-  Temperatures greater than 25°C may contribute to heat stress
-  Increased wind chill and rain impact on animals
-  Higher temperatures reduce pasture palatability and digestibility

Water Use

Pressure on water resources will continue, and efficient use will become important.



-  Increasing use of deeper rooting species to improve available water use e.g. lucerne and chicory
-  Increased consideration of water harvesting, storage and irrigation
-  Investment required in irrigation and technology to improve efficiency of water use

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Summary

Planning reduces the impact of climate change on farms. Actions farmers can take include:

- adapting their farm system and lifting profitability in anticipation of these changes
- increasing shelter and shade
- using more appropriate pasture species
- using available water efficiently

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