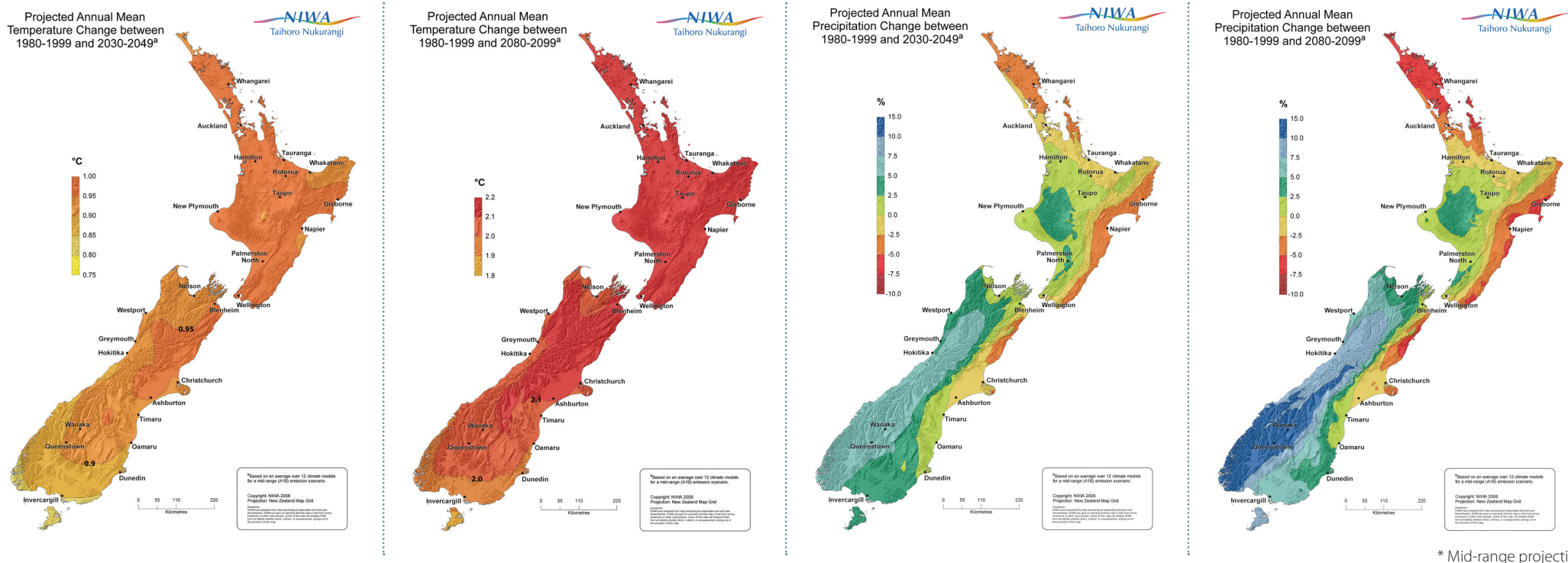


# Climate variability will affect dairy farming in New Zealand

## 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.




## 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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