

Lower North Island – climate risk, vulnerabilities and impacts 2025

2050 climate outlook

- **Drought:** Additional doubling in frequency of significant droughts by 2050.
- **Rainfall/flooding:** Flood risks on this farm depend almost entirely on the reliability of the Manawatū flood protection scheme. Uncertainty spans no change through to a two-fold increase in the frequency of extreme rainfall events by 2050. Expectation of an extra >10% of rain to fall during intense events by 2050.
- **Heat stress:** Modest risks from extreme heat today, these will rise over time to become low-to-moderate by 2050.



Vulnerability to climate change

- Shelterbelts provide stock shade.
- Farms appear to survive droughts well with access to abundant water. Productivity in drought year of 2018 was sustained at Moutoa.
- Deep, water-retentive soils.
- Impacts of 2004 flood made risks clear even with Moutoa scheme in place. Flood risk will increase with rainfall event intensities rising.
- Emerging sea level rise risk may show signs by 2050, as storm surge event could eventually affect Moutoa Floodway and bring saline water intrusion.



Improving climate resilience

- Animals and technology**
 - Utilise livestock with heat tolerance, feed efficiency and low-methane genetics.
 - Use wearable technologies (e.g. e-collars).
- Infrastructure**
 - Install roofing over yards.
 - Improve energy resilience through localised generation.
 - Increase stand-off pad capacity.
 - Maintain and progressively upgrade drainage capacity.
 - Expand water storage and reticulation infrastructure.
- Trees, shade and shelter**
 - Increase tree cover for shade, shelter and erosion control.
 - Proactively trim or remove ageing/damaged trees.



Climate change risk



Extreme cold



Extreme wind



Fire



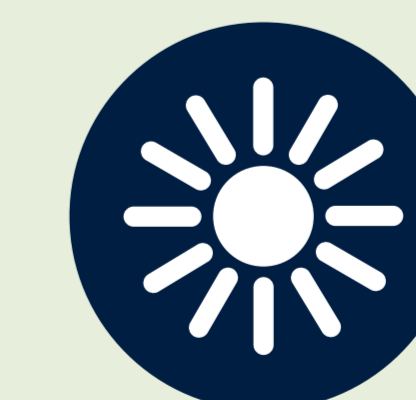
Pests and disease



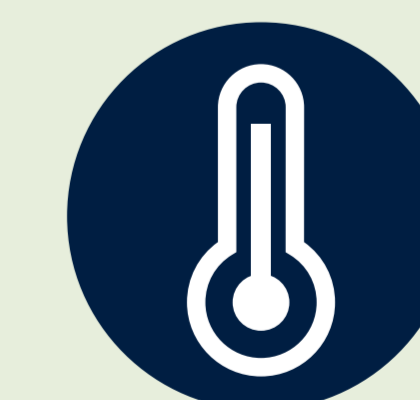
Heavy rainfall / flood



Erosion



Extreme heat



Drought



Pasture production

