

CLIMATE CHANGE IMPACTS & HOW YOU CAN RESPOND

Auckland & Waikato

Over the coming decades, climate change and its effects will have economic and physical implications on how we grow and operate the kiwifruit industry in New Zealand. This factsheet gives an overview of the

changes in climate we expect to see in Auckland and Waikato and the actions growers can consider taking to adapt to a changing climate. It also describes the collective actions the kiwifruit industry will take to adapt as the climate continues to change.

EXPECTED CHANGES TO CLIMATE



Drought

Frequency and length of dry spells may increase, affecting:

- Water evaporation from soil
- Water availability
- Irrigation efficiency
- Plant health.



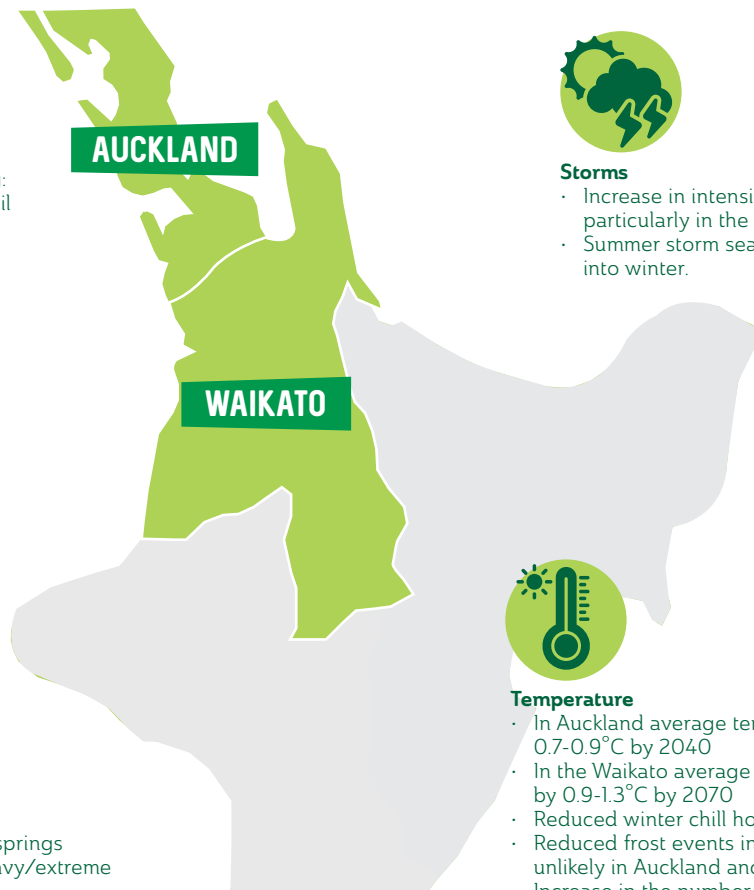
Pests and disease

Mild changes to temperature and seasonal rainfall could result in higher pest and disease risk.



Rainfall

- Wetter autumns and drier springs
- Increased frequency of heavy/extreme rainfall events.



Storms

- Increase in intensity of storm events, particularly in the Coromandel
- Summer storm season may lengthen into winter.



Wind

- Decrease in annual mean wind speed across Auckland
- Increased wind speed in the Coromandel.



Temperature

- In Auckland average temperatures will increase by 0.7-0.9°C by 2040
- In the Waikato average temperatures will increase by 0.9-1.3°C by 2070
- Reduced winter chill hours
- Reduced frost events in Waikato while frost events unlikely in Auckland and Coromandel
- Increase in the number of hot days above 25°C by 10-20 days in Auckland (2040) and 10-60 across the Waikato (2090).

Why ADAPT?

Planning for climate change and implementing adaptation measures will mean you're better prepared to respond, whatever the outcome. Predictions on the impacts of climate change and their severity are not



an exact science. The climate forecasts can be a useful prompt for discussion with your orchard manager or grower services representative when making decisions about your orchard.

Adapting TO THE IMPACTS

For adaptation to be successful, it will require early consideration and action by growers, investors, and industry.

Climate change impacts, industry commitments and actions for growers to consider, specific to Auckland and Waikato, are outlined below.

INCREASING *temperatures*

	HOT DAYS >25°C 	AVERAGE TEMPERATURE	FROSTS 
Auckland	+10 - 20 (2040)	+ 0.7 to 0.9°C (2040)	0 (occasional frosts still expected at highest elevations)
Waikato	5 - 20 (2070)	+ 0.9 to 1.3°C (2070)	+0.7 - 3.1C

IMPACTS



Reduction in winter chill hours

A reduction in winter chill hours, may:

- Change the timing of natural plant processes
- Result in less uniform maturity
- Reduce flower numbers (per winter bud).



Pests and diseases

- New pests or diseases that can't currently tolerate cooler conditions may establish as temperatures rise.



Orchard management

- Orchard management priorities and timing may change, e.g. in relation to pest and disease control, thinning, pruning and harvest.



Post-harvest

- Increased cooling requirements from warmer ambient temperatures.



Growing locations

- In the long term, by 2090 some Auckland and Coromandel growing areas may become less suitable for current cultivars and orchard practices, requiring adaptation. Alternative cultivars and growing locations may become more viable within Waikato and Auckland, presenting new opportunities.

HOW CAN WE ADAPT?



Networking

Growers can:

- Actively participate in grower workshops and field days, to share knowledge with each other
- Establish and share orchard weather station data to contribute to science and understanding of climate impacts.



Management

Growers can:

- Implement changes to spray programmes to manage emerging risks
- Review and adjust management techniques; girdling, alternative row cropping, pollination methods etc.

Industry will:

- Continue research into bud break enhancer alternatives.



New cultivars

Industry will:

- Invest in cultivar research – to source more climate tolerant and pest resistant rootstocks and scions.



Pest and disease management

Growers can:

- Actively watch for and report unusual sightings to enable in rapid detection.

Industry will:

- Develop new systems and technologies to help growers manage risks from pests and diseases
- Ensure information is up-to-date with any new emergent pests or pathogens
- Continue to partner with key research entities
- Continue to advocate for strong biosecurity at New Zealand's borders.

Rainfall & DRY DAYS

Across both Auckland and the Waikato, it is predicted that there will be minimum change in average rainfall by 2040 (Auckland) /2070 (Waikato). Dry days and drought risk is predicted to increase across much of the Waikato, particularly in areas which are already drought prone.



Spring decrease in rainfall by 1–4% (Auckland) / 1.1% (Waikato).



Autumn increase rainfall of 0–1% (Auckland) / 4.3% (Waikato).



Summer increase in rainfall 0–1% (Auckland) / 2.7% (Waikato).



Winter increase rainfall of 2–3% (Auckland) / 1.5% (Waikato).

IMPACTS



Prolonged dry spells and drought

More dry days are predicted across Auckland, and central and south Waikato. Fewer dry days are predicted for the Coromandel.

- Extended dry periods over summer may negatively affect production.



Soil

- Prolonged dry periods can harden the soil, this may prevent water from soaking in, increasing the risk of run-off, flash flood events and land instability on sites near hill country.



Water availability

- Decreased rainfall may affect groundwater and surface water availability during high demand periods
- Sea level rise may increase saltwater intrusion in coastal aquifers
- Some areas of the Waikato already have surface waters which are under medium to high stress during summer months, much of the ground water resources are identified as being under low stress.



Irrigation

- Increased dry periods may affect the soil's ability to retain moisture
- Extended dry spells may affect the efficacy of irrigation systems.

HOW CAN WE ADAPT?



Early planning

Growers can:

- Start water take consenting or re-consenting early, by contacting the Auckland Council or Waikato Regional Council and seeking advice from a planner early in the process.



Efficient irrigation

Growers can:

- Seek advice from technical specialists and organisations such as Irrigation New Zealand and the Auckland Council or Waikato Regional Council on new irrigation technologies.



Alternative water sources

Growers can:

- Investigate alternative water sources, such as groundwater, surface water and where possible on-site storage. Check availability of water resources in your area by talking to Auckland Council or Waikato Regional Council.



Soil health

Growers can:

- Maintain or improve soil health, such as by adding organic matter, to aide moisture retention. The Zespri Canopy website has information and technical resources on maintaining soil health.



New cultivars

Industry will:

- Invest in cultivar research, including plants which are more tolerant in drier conditions.



Advocacy

Industry will:

- Continue advocacy with regional and national government to ensure that water regulations are fair and equitable.

Weather EVENTS

Thames Coromandel is likely to experience increased frequency of extreme storm and wind events.



IMPACTS



Wind damage

- Higher wind intensity may damage young growth on vines
- Increased potential for wind rub damage to fruit.



Flooding

- May impact land stability and erosion
- May cause waterlogged soil, affecting plant health, machinery and staff accessibility and safety
- Sedimentation may affect soil health
- May affect transport accessibility, particularly in the Coromandel.

HOW CAN WE ADAPT?



Orchard protection

Growers can:

- Consider whether crop covers are appropriate
- Ensure orchard shelter is well-maintained
- Where relevant consider investing in drainage, and/or a pump and generator.

Industry will:

- Regularly consult with growers on whether hail cover should be extended to include other natural disasters.



Plan Ahead

Growers can:

- Monitor weather watches and warnings
- Where possible identify alternative transport options and routes.



Actions WE'LL TAKE

The kiwifruit industry is already experiencing and responding to the physical, market, and regulatory impacts of climate change. To help prepare the industry to respond, we have prepared a Climate Change Adaptation Plan. This plan brings together the

experience and input of kiwifruit industry stakeholders into a coordinated approach, and proposes areas for future work to allow us to thrive, as the climate continues to change. This plan will focus on the following key areas and will be reviewed in 2025.



WANT TO KNOW *more?*

Zespri resources:

- [The Kiwifruit Industry Climate Change Adaptation Plan](#)
- [Zespri Climate Change Strategy](#)
- [Zespri Climate Change Risks and Opportunities Report](#)
- [Zespri Grower Portal - Canopy Website](#)

Regional / District Council Information:

- <https://knowledgeauckland.org.nz/media/1171/tr2017-031-2-auckland-region-climate-change-projections-and-impacts-summary-revised-jan-2018.pdf>
- www.waikatoregion.govt.nz/environment/climate-change/

Reference Material:

Ministry for the Environment, Climate Change Projections per Region (2018). NIWA, Auckland Region climate change projections and impacts (2020). Waikato Regional Council Report 2015/26 (2015). Waikato Regional Council, Water (2022).