# SUBMISSION ON

## Inquiry into climate adaptation

01 November 2023

**To:** Environment Committee
**Name of Submitter:** Horticulture New Zealand
**Supported by:** NZ Asparagus Council, NZ Kiwifruit Growers Inc., TomatoesNZ, Potatoes NZ, Process Vegetables NZ, Vegetables NZ Inc.


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Horticulture™ New Zealand
Ahumāra Kai Aotearoa

# OVERVIEW

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## Our submission

Horticulture New Zealand (HortNZ) thanks the Environment Committee for the opportunity to submit on the Inquiry into climate adaptation and welcomes any opportunity to continue to work with the Environment Committee and to discuss our submission.

The details of HortNZ's submission and decisions we are seeking are set out in our submission below.

PART 1

# HortNZ's Role

## Background to HortNZ

HortNZ represents the interests of approximately 4,200 commercial fruit and vegetable growers in New Zealand who grow around 100 different fruit, and vegetables. The horticultural sector provides over 40,000 jobs.

There is approximately, 80,000 hectares of land in New Zealand producing fruit and vegetables for domestic consumers and supplying our global trading partners with high quality food.

It is not just the direct economic benefits associated with horticultural production that are important. Horticulture production provides a platform for long term prosperity for communities, supports the growth of knowledge-intensive agri-tech and suppliers along the supply chain; and plays a key role in helping to achieve New Zealand's climate change objectives.

The horticulture sector plays an important role in food security for New Zealanders. Over 80% of vegetables grown are for the domestic market and many varieties of fruits are grown to serve the domestic market.

HortNZ's purpose is to create an enduring environment where growers prosper. This is done through enabling, promoting and advocating for growers in New Zealand.

**Export**

Fruit $4.04bn

Vegetables $0.64bn

**Domestic**

Fruit $0.93bn

Vegetables $1.34bn

**Industry value $6.95bn**

**Total exports $4.68bn**

**Total domestic $2.27bn**

PART 2

# Executive Summary

Horticulture New Zealand (HortNZ) supports national direction for community-led retreat and climate adaptation. This submission outlines the particular care that should be given to ensure our supply of fresh fruits and vegetables is enabled and is not adversely affected under a new natural hazard planning regime. Horticulture should not be expected to retreat from highly productive flood plains given its lower risk profile, but significant adaptation funding should go toward protecting our fruit and vegetable crops for New Zealand's domestic food supply and for our country's transition to a low emissions economy.

## Outcomes Sought

**Resilient local food systems**

- Ensure a resilient supply of fruits and vegetables through permissive planning that allows geographic variation in growing areas and intra-regional redundancy of supply; and
- Provide policy and planning support for climate adaptative growing, including covered cropping.

**Risk accounting**

- Avoid relocating housing onto highly productive land during managed retreat;
- Maintain road connectivity in horticultural areas to facilitate the distribution of fresh produce, even if managed retreat for residential uses has taken place;
- Consider the entire catchment in retreat and land-use adaptation planning;
- Facilitate centralised project management of risk accounting consultants to reduce costs, improve efficiency and ensure consistent methodology across the country; and
- Collaborate with local councils and local communities on risk accounting.

**National framework for climate adaptation and managed retreat**

- Maintain effective flood protection systems in food producing areas;
- Continuously strengthen flood-protection infrastructure and remove silt and shingle debris from flood channels;
- Require councils to develop 50-year regional strategies to build long-term resilience beyond electoral cycles;

- Allow ancillary activities to remain in or adjacent to high-risk horticultural areas but protect them with stronger adaptation measures; and
- Proactively plan for how to issue consents and Orders in Council promptly after a disaster.

**Compensation**

- Set expectations around post-disaster funding with national direction before the next disaster; and
- Ensure that timeframes are realistic for spending government disaster recovery funding.

**Community-led action**

- Establish community resilience grants to help community hubs prepare for their connecting role before a disaster.

*Table 1: Risks from adaptation and retreat policy to horticulture*

| Risks associated with this policy to horticulture | Mitigations for risks from this policy to horticulture |
|---|---|
| Horticulture will be forced to retreat from highly productive land, reducing fresh fruit and vegetable supply and not optimising our use of soil resources. | Exclude horticulture from managed retreat requirements. |
| Risk assessment methodology designed for urban areas or pastoral farming will be used for horticulture, resulting in an inappropriate risk determination. | Risk assessment methodology should consider the different design-life of horticultural structures and the varied human risk involved in different activities on flood-prone land. |
| Horticulture, an efficient and low-emissions land use, will have to bear the adaptation costs for higher-emissions/more environmentally detrimental uses when horticultural land is flooded. | Adopt a catchment-scale risk approach that considers the impacts of upstream land uses (erosion, woody debris) on downstream activities, especially on highly productive land. |
| Activities necessary to enable horticulture will be relocated, leaving remaining horticultural businesses without key infrastructure to operate. | Allow ancillary activities to remain in or adjacent to high-risk horticultural areas with stronger adaptation measures. |

*Table 2: Proposed text for a national adaptation and retreat framework*

| National framework section | Suggested text |
|---|---|
| Principles and outcomes for managed retreat | • In order to promote the well-being of both present and future generations, highly productive land is protected–<br>  ○ for use in land-based primary production; and<br>  ○ from inappropriate subdivision, use, and development.<br>• Infrastructure is provided in a timely and ongoing manner to promote the well-being of both present and future generations.<br>• In relation to climate change,–<br>  ○ greenhouse gas emissions are reduced to assist New Zealand to meet the target set under section 5Q of the Climate Change Response Act 2002; and<br>  ○ low-emissions activities are enabled to support an equitable transition.<br>• The supply of fresh fruit and vegetables is enabled.[1] |
| Hierarchy for adaptation planning | 1. Risk to human life<br>2. Risk to human life-supporting activities such as food production and human drinking water supplies<br>3. Risk to property and other commercial activities |

[1] Adapted from the Natural and Built Environment Act 2023

PART 3

# Submission

## 1. Food security and enabling the supply of fresh fruit and vegetables

Climate adaptation planning must consider the risk climate change poses to New Zealand's food security. Extreme weather may cause global shocks to supply chains that leave imported food unavailable or unaffordable. Our country can prepare with a resilient local food system robust enough to sustain our people. That starts with ensuring policies and rules enable the supply of fresh fruits and vegetables, which contribute to healthy diets. The Natural and Built Environment Act 2023 (NBEA) takes up this call to action with clause 129, which requires the National Planning Framework to provide direction on enabling the supply of fresh fruits and vegetables.[2]

In New Zealand, over 80% of vegetables are grown for domestic consumption, and many fruits as well, particularly summerfruit and citrus. The vast majority of the ten key vegetable staples of New Zealand diets are grown or processed in New Zealand.[3] Our country cannot import all the fresh produce we need to feed our population due to our geographic isolation and the short shelf life of fresh fruit and vegetables.

When major growing regions are battered by severe weather and forced to halt production, like Gisborne and Hawke's Bay during Cyclone Gabrielle, the country's food supply suffers. In the aftermath of that disaster, we saw the price of fresh produce skyrocket, which increased the cost of living across the country.

Food insecurity is already pervasive in New Zealand, linked with poor physiological health outcomes and psychological distress.[4] A 2019 Ministry of Health study estimated that 19% of all children in New Zealand (174,000) live in food-insecure households.[5] There are complex social and economic reasons why people struggle to meet their nutritional needs. Addressing the issue of food insecurity will be even more difficult, however, if supply is reduced because growers are forced out of the business through unworkable planning rules.

The following sections of this submission will cover what national direction is needed to ensure that climate adaptation planning supports our local food system for the health and resilience of our communities.

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[2] Natural and Built Environment Act 2023. Clause 129 (g). Accessed online https://www.legislation.govt.nz/act/public/2023/0046/latest/LMS847877.html.
[3] KPMG, 2017 New Zealand's domestic vegetable production: the growing story.
[4] *The association of food security with psychological distress in New Zealand and any gender differences*, Social Science & Medicine 2011
[5] Ministry of Health. (2019). *Household food insecurity among children, New Zealand Health Survey*

# 2. Resilient local food systems

Protecting human health and wellbeing should be one of the principles guiding climate adaptation policies, including the right to safe, healthy, affordable and culturally appropriate food.

Achieving this outcome requires:

1. resilience of food supply in the face of climate events, both nationally and regionally, and

2. support for climate adaptive growing systems.

## 2.1. Growing in varied regions for national resilience

We need to grow our food in a range of regions, so when supply from one is not available due to a climate event, the others can step in to continue feeding the country. In the wake of Cyclone Gabrielle and other intense rain events in 2023, crop supply was affected across Northland, Auckland, Bay of Plenty, Gisborne and Hawke's Bay. These shortages were felt in higher prices for consumers.[6]

When big growing areas are severely impacted by a storm or drought, other regions need robust enough horticultural sectors to make up the food supply needs of the population. Many big growers are already diversifying their supply by opening sites in both the North and South Island in multiple regions. Encouraging that approach and allowing smaller growers to produce all over the country requires consistent planning rules for horticulture region to region.

The Climate Adaptation Act (CAA) or similar legislation can help with this by ensuring consistency with the NBEA to enable the supply of fresh fruits and vegetables in decision-making frameworks.[7]

To make our national fresh fruit and vegetable supply more resilient, we need to grow the right crop in the right place to meet demand. One of the key priorities of the Aotearoa Horticulture Action Plan is to develop regional "adaptation blueprints" to ensure policy settings enable the right crop in the right place.[8] When land uses shift with managed retreat, changing water allocations should recognise the human health contributions of fruit and vegetable growing. This will support climate adaptation efforts within our food system.

## 2.2. Building food system resilience within regions

Truly local food systems – where crops are grown close to the communities who consume them – add resilience in times of disaster or disruption. If a community is cut-off in an

[6] 1news. "Cost of fruits, vegetables expected to rise further post-cyclone". 1 March 2023. Accessed online https://www.1news.co.nz/2023/03/01/cost-of-fruits-vegetables-expected-to-rise-further-post-cyclone/.
[7] Natural and Built Environment Act 2023. Clause 129 (g). Accessed online https://www.legislation.govt.nz/act/public/2023/0046/latest/LMS847877.html.
[8] Horticulture New Zealand. "Growing Together 2035: Aotearoa Horticulture Action Plan – Strategy". February 2023. Accessed online Growing together 2035 – Aotearoa Horticulture Action Plan (February 2023) (mpi.govt.nz) (p. 11)

emergency due to road or bridge failure, locally grown fruits and vegetables can provide interim food supply. In later sections, we go into detail about why horticulture is not a sensitive land use and can continue in some areas too risky for schools or housing. It would be a risk to local food security, however, to push all horticulture into floodplains. For this reason, our entire food supply should not be based in the flood zone. Growing should be allowed, but not limited to, these risky areas so that some food is in a better position to survive weather events.

There does not need to be conflict between growing for domestic consumption and export profits to support the local economy. Vegetables are grown in crop rotations, where different crops are grown on the same piece of land to improve soil health and reduce pest and disease pressures. Most of these vegetables are grown to supply the New Zealand market, but onions – a profitable export crop – are rotated through as well. Their sale helps support the cost of the rest of the rotation.

Helping growers grow the right crop in the right place requires more science. Resources like the Data Supermarket are building understanding about what crops can be grown in changing climate conditions, but that tool is still designed for researchers.[9] We need an accessible interface to make this data available to growers from the community garden to the commercial scale.

## 2.3. Policy support for climate adaptive growing systems

A single adverse weather event can decimate a season's crop, but there are some adaptive growing systems that mitigate the chances of disaster. Vegetables grown indoors or undercover in Northland, Auckland and Bay of Plenty were more likely to survive the latest cyclone events.[10] Covered cropping – the practice of growing indoors – keeps plants warm through the winter and protected from heavy rain, wind and frost, enabling a year-round supply of fruits and vegetables like tomatoes, courgettes and lettuce. Covered cropping includes greenhouse growing and hydroponic systems. The covered cropping sector is under a big push to decarbonise, cementing its place in the future of climate resilient food supply.

Covered cropping faces regulatory barriers to its success, however. Planning rules sometimes restrict greenhouses from establishing in horticultural areas due to the National Policy Statement for Highly Productive Land (NPS-HPL).[11] Greenhouses can also be restricted by district plan rules for building site coverage and requirements for stormwater consents. Market uncertainty due to frequent tinkering with the Emissions Trading Scheme has also made it more difficult for these businesses to find a certain decarbonisation pathway. Policies should enable greenhouses as the climate adaptation asset that they are to protect our food supply in times of adverse weather.

Other protection for our food supply from the weather include frost fans, which move air to reduce the risk of temperatures dropping before crops are damaged by frost, and hail covers, which protect from hail, wind and birds.

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[9] Data Supermarket - Our Land & Water - Toitū te Whenua, Toiora te Wai (ourlandandwater.nz)
[10] TomatoesNZ, Process Vegetables New Zealand
[11] Ministry for the Environment. "Managing the use and development of highly productive land: Potential amendments to the NPS-HPL: Discussion document". September 2023. Accessed online Potential-amendments-to-the-NPS-HPL-discussion-document.pdf (environment.govt.nz).

Many horticultural growing operations already have measures in place to reduce the impact of unseasonal or adverse weather, such as silt traps to prevent sediment erosion and soak pits for flooding attenuation. Growers are in tune with their environment and already incorporating flooding and damage considerations into their business plans.

Adaptation will be necessary to ensure our food system feeds our population through changes to the climate. Protecting our supply of fresh fruit and vegetables requires appropriate risk accounting for horticulture, which is discussed in the following section.

**Case Study: Enabling Climate Adaptive Food Production in the Netherlands**

The Netherlands are a world leader in climate adaptation and horticulture. The Dutch contend with life below sea level and export the second-most food of any country on the globe. One of the five pillars of the Netherlands Approach for Climate Adaptation in Agriculture is Crops and Cultivation Systems. They advocate improving regulations to enable structures like hail covers and indoor cropping which protect plants from frost, rain and other extreme weather.[12]

# 3. Risk accounting

Risk accounting determines how we prioritise adaptation measures or the last resort of managed retreat. The fundamental risks associated with horticulture are far less than the risks to life and property from sensitive activities like housing, schools and hospitals. Primary production, as defined in the National Planning Standards,[13] should be treated differently in risk accounting because it involves far fewer people in a much larger geographic space than urban land uses. The risk is also lower because not all employees sleep at their places of business – many employees are only there when they are awake and more aware of any potential natural hazard risk.

## 3.1. Enabling food production in areas too risky for other land uses

HortNZ strongly recommends that new adaptation policies are evaluated from a rural lens, as well as an urban one, to make sure that risk accounting is appropriate for a wide range of activities. Applying urban risk accounting to rural land uses would result in unnecessarily restricting our food production. Should an unbalanced risk accounting system force retreat from highly productive land used for food production, fruit and vegetable supply will fall, which is a risk to our national food security.

Much of our most fertile soils are located on flood plains. Primary production should not be forced to retreat from highly productive land, and adaptation infrastructure should not

[12] Ministry of Agriculture, Nature and Food Quality of the Netherlands. "International Exchange on Climate Adaptation in Agriculture". December 2022. Accessed online https://www.government.nl/topics/agriculture/documents/leaflets/2023/02/10/international-exchange-on-climate-adaptation-in-agriculture (p. 7)

[13] Primary production means: "(a) any aquaculture, agricultural, pastoral, horticultural, mining, quarrying or forestry activities; and (b) includes initial processing, as an ancillary activity, of commodities that result from the listed activities in a); (c) includes any land and buildings used for the production of the commodities from a) and used for the initial processing of the commodities in b); but (d) excludes further processing of those commodities into a different product." – National Planning Standards

diminish the productivity of versatile soils. New Zealand's highly productive alluvial terraces are an intergenerational asset that have taken thousands of years to develop. This land is the most suitable for low emissions, high-value primary production. The NPS-HPL recognises this land should be protected for land-based primary production. This should include protection from urban sprawl, protection from sediment deposition through upstream catchment management, and flood protection. For this reason, managed retreat efforts should not relocate housing onto highly productive land, and adaptation funding should be directed to protect food production.

We still need to maintain road connectivity when an area is determined too risky for housing but still suitable for food production. Roads are critical to ensure timely distribution of perishable produce from the source to consumers. This is especially important in times of natural disaster to ensure food security, so that growing areas are not cut off when we most need a consistent supply of food.

### 3.1.1. FULL-CATCHMENT RISK

Cyclone Gabrielle made clear the vulnerability of horticultural land on floodplains to large climatic events. Vast quantities of soil from pastoral hill country and woody debris were swept onto properties downstream. The adverse effect of these hill country land use choices on highly productive land was immense.

Managed retreat may be the best option for activities in active flood channels. Some hill country may be best returned to native bush or other species that prevent erosion and slash deposits during flooding. Retreat or land-use adaptation needs to consider the entire catchment, from high elevation to low because flooding impacts are exacerbated by what flows downstream. We need to design our water storage options like dams, so that they don't worsen flooding further down the catchment, but instead reduce risks by supporting peak flow management in high flows and flow augmentation at times of drought.

*Figure 1: Two people stand on top of a seven-metre-deep pile of slash on a four-hectare orchard after Cyclone Gabrielle.*

*Figure 2: Flooding of unprotected productive land, causing damage to crops in Tairawhiti. Image source: Ministerial Inquiry into Land Use*[14]

*Figure 3: Damage to an orchard on the banks of the Nuhaka River, between Gisborne and Wairoa.*

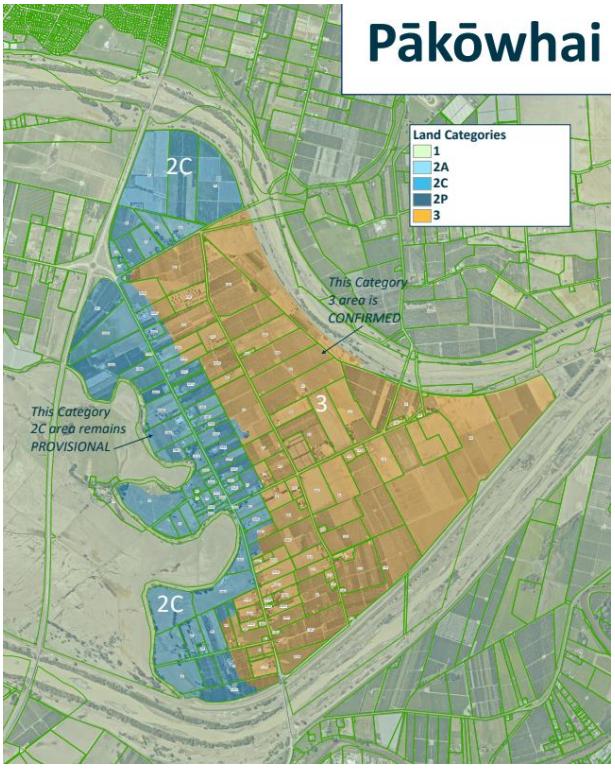
[14] Accessed online Outrage to optimism CORRECTED 17.05 (environment.govt.nz)

Weighing priorities for risk mitigation on highly productive land is playing out in real time in the aftermath of Cyclone Gabrielle. Large parts of Pākōwhai, a major horticultural area in Hawke's Bay, have been classified Category 3 – high risk.[15] Residential activities are no longer considered appropriate in this zone due to the flood hazard. This means that residential or mixed-use properties are eligible for voluntary buy-out by the Hastings District Council.

Other activities, including horticulture, can continue, although it is still unclear how associated facilities like staff rooms on orchards are being considered. National guidance could assist with this dilemma. This example shows how primary production activities can continue while residential activities retreat.

*Figure 4, Left: Hastings District Council land categorisation for Pakowhai;*[16]

*Figure 5, Right: Land cover map of the same area. Light yellow: short-rotation cropland, orange: orchards, vineyards or other perennial crops*[17]





## 3.2. Consistent risk accounting across the country

National consistency in risk accounting methods is needed so that regional and territorial authorities have clear direction and mandate to act. Councils are under an enormous workload already, with staff burning out from the sheer number of regulatory requirements. The same consultants end up doing a lot of the work across regions on climate mitigation and adaptation planning.

[15] Land categorisation maps | Hastings District Council (hastingsdc.govt.nz)
[16] Pakowhai-28-September-2023.pdf (hastingsdc.govt.nz)
[17] Manaaki Whenua Landcare Research. NZ Landcover Explorer. Accessed online Explore NZ Landcover Change » Our Environment (scinfo.org.nz)

While local context is essential to get the risk accounting as accurate as possible, central government could facilitate centralised project management of these consultants to reduce costs, improve efficiency and ensure consistent methodology across the country. These consultants would need to be enabled to work alongside local councils and communities, based on the definition of collaboration in the IAP2 Spectrum of Public Participation, meaning full partnership in the development of alternative policies and identification of the preferred solution.[18]

In terms of the methodology itself, risk assessment needs to consider both historic flood data and future climate projections to stop zoning housing and other sensitive land uses in flood zones or areas where the sea level will rise. Communities need certainty and transparency about the level of protection provided by their councils' hazard management infrastructure.

### 3.2.1. CALCULATING RISK FOR HORTICULTURE VERSUS HOUSING

Risk accounting must take into account the differences between urban and rural land-uses. The more people spend a lot of time on a plot of flood-prone land, the riskier it is for that activity to continue. Dense housing anticipates a large number of people spending at least half of every day and sleeping in that neighbourhood, which a large horticultural operation has a limited number of workers on the property during fewer hours of the day, fewer days per year, and most employees do not sleep at the business property.

The second difference is the design life of housing versus horticultural structures. Housing may be built to last a century. Once housing is built on a piece of land, it is very rare for the land use to change. Structures that support fruit and vegetable crops like crop support structures (e.g., trellises, frames for bird nets and hail covers, artificial wind shelters[19]) have a design-life closer to 15 years. Orchards also have short periods when they can profit off of certain varieties of fruit, so they often replace their trees every decade or so to follow market demand for new varieties.

*Figure 6: 2D orchard crop support structure. Image source: Plant and Food Research.*[20]

[18] IAP2 Spectrum of Public Participation. Accessed online Spectrum_8.5x11_Print (iap2.org.au)
[19] HortNZ. "Images of Crop Support Structures". Selwyn District Council. Accessed online DPR-0353 Horticulture NZ - Photos.pdf (selwyn.govt.nz)
[20] Robots and super orchards · Plant & Food Research (plantandfood.com)

A basic flood return period calculator shows the vast difference in likelihood of a flooding event affecting a structure based on the design life (Table 3). For instance, a crop support structure with a 15-year design life has a 14% chance of seeing a 100-year flood in its period of use. In contrast, a house with a 100-year design life has a 63.4% chance of seeing a 100-year flood in its lifespan.[21] That difference in likelihood shows why it may be tolerable to establish orchards but not a residential neighbourhood on a floodplain.

Existing risk approaches incorporate the likelihood of event and the magnitude of effects as a function of vulnerability. These calculations are illustrated below.

Risk = likelihood x consequences

Consequences are made up of the magnitude of the hazard event (Table 4) and the vulnerability of the activities or structures at-risk (Table 5). For instance, housing is more vulnerable because when people are sleeping at home, they will be less quick to react to a disaster. In the same vein, an orchard would be less vulnerable because people do not sleep there.

*Table 3: Design life versus flood likelihood*

| **Design life** | **% chance of 100-year flood within design life** |
|---|---|
| Crop support structure: 15 years | 14% |
| House: 100 years | 63.4% |
| School: 100 years+ | 63.4%+ |
| Infrastructure: 100 years | 63.4% |

*Table 4: Examples of magnitude of hazard events*

| **Hazard** | **Example of magnitude** |
|---|---|
| Flood | Depth, velocity of flood waters, volume of debris transported by flood |
| Earthquake | Magnitude on the Richter scale |

*Table 5: Examples of vulnerability*

| **Activity** | **Vulnerability** |
|---|---|
| Housing | People may be asleep when disaster event occurs, people of all ages present |

[21] Flood Return Period Calculator (weather.gov)

| | |
|---|---|
| School | Children present |
| Seasonal workers' accommodation | People may be asleep when disaster event occurs, English may be a second language |
| Old building | Not earthquake strengthened |

| Q. 17 | Should risk assessments be carried out only by technical experts or should other people also have a role? What role should other people and organisations have? |
|---|---|
| Risk assessments should be carried out by technical experts given the calculations involved. Scientific knowledge is needed to determine the likelihood and magnitude piece of the risk calculation. The vulnerability piece, however, will require public input. Communities have varying tolerances for different consequences on different activities. | |

### 3.2.2. SEASONAL WORKERS ACCOMMODATION

Seasonal workers' accommodation describes buildings for the purpose of housing the short-term workers for a farming activity, rural industry or post-harvest facility. For instance, the accommodation might house workers for multiple apple orchards only during the busiest parts of the growing season.

Due to strict planning rules in some regions, it is difficult to site seasonal workers' accommodation anywhere other than near rural production activities. There is also a functional need for the workers' accommodation to be nearby, so workers don't have unreasonable commutes, and to provide the pastoral support for workers employed under the Recognised Seasonal Employee scheme. These structures are only occupied for part of the year and the structures themselves have a lower design life than residential housing, but workers living there are vulnerable because they may have English as a second language or be less familiar with the area. Seasonal workers' accommodation should be allowed in areas where horticulture is still permissible, but the accommodation should be prioritised for adaptation measures and disaster protection due to its vulnerability.

# 4. National framework for climate adaptation and managed retreat

HortNZ supports a national framework for climate adaptation and managed retreat, with clearly defined roles and responsibilities for individuals, central and local government, that provides policy direction and funding scenarios. Councils need a mandatory pathway for this planning because it can be challenging to get buy-in to these processes at the local level due to competing demands for peoples' time and energy.

Councils need 50-year regional strategies to build long-term resilience beyond electoral cycles. New planning direction for disasters, managed retreat and adaptation should be worked into regular planning reviews to avoid consultation fatigue on the stakeholders who engage with the constant stream of plan and policy changes. This will also reduce the burden on Council staff.

Adaptation planning should involve district and regional councils, central government, iwi, and community groups. This could be facilitated through regional planning committees under the NBEA.

## 4.1. Retreat: One option of many and a last resort

We need a mix of retreat and protection measures. Managed retreat is a finite solution – there are so many places suitable to building more housing, and New Zealand already has a housing shortage. Adaptation planning should include other options to mitigate the risk. For productive land, risk mitigation and retreat alternatives should be a priority. If an area is categorised for managed retreat, there should be incentives rather than penalties to push relocation.

**Case Study: Proactive Retreat in Amberley Beach, Canterbury[22]**

Hurunui District Council has proposed a managed retreat programme for residents of Amberley Beach, which is at high risk due to sea level rise. The council is proposing a land banking system. Council will purchase a block of land for a new settlement and reserve most of the lots for Amberley Beach residents, while selling the rest to finance the project. Residents can decide when or whether to move on their own time, but there will be a new section waiting for them to build upon. The big risk to Amberley Beach is 20 or 30 years away, but this proactive plan gives residents autonomy and financial support to make the best decisions for themselves and their families.

Our strong recommendation is that sensitive activities are given the option of managed retreat from high-risk areas, but the differentiated risk of non-sensitive activities is recognised. These non-sensitive activities, like primary production, should continue to be allowed in high-risk areas.

*Table 6: Activities in high-risk areas*

| **Examples of Sensitive Activities** (not allowed in high-risk areas, mandatory retreat) | **Examples of Non-Sensitive Activities** (allowed in high-risk areas) |
|---|---|
| Housing<br>Retirement homes<br>Schools<br>Hospitals | Horticulture<br>Pastoral Farming<br>Recreational Open Space |

[22] Hurunui District Council. "Amberley Beach: Proposal for Managed Retreat and Land Banking". March 2023. Accessed online Amberley-Beach-Managed-Retreat-Proposal.pdf (hurunui.govt.nz).

| Q. 23 | What do you think are the most important outcomes and principles for community-led retreat? |
|---|---|

Community-led retreat should prioritise human health and well-being. The prioritisation should recognise that some land should be retreated from for some activities, and the same land may be suitable for protecting for other activities. Policy should draw on the outcomes and matters that must be addressed in the National Planning Framework from the NBEA. The following suggested outcomes for a community-led retreat decision-making system, adapted from the NBEA, recognise the importance of food production for human health and wellbeing:

- In order to promote the well-being of both present and future generations, highly productive land is protected–
  - for use in land-based primary production; and
  - from inappropriate subdivision, use, and development.
- Infrastructure is provided in a timely and ongoing manner to promote the well-being of both present and future generations.
- In relation to climate change,–
  - greenhouse gas emissions are reduced to assist New Zealand to meet the target set under section 5Q of the Climate Change Response Act 2002; and
  - (new text) *low-emissions activities are enabled to support an equitable transition*.
- The supply of fresh fruit and vegetables is enabled.

| Q. 24 | Do you prefer option 1 (voluntary) or option 2 (a mix of voluntary and mandatory parts)? Are there any other options? |
|---|---|

We support option 2, a system with voluntary and mandatory parts. People should be given as much choice as possible in making their relocation including where they move and when, but sensitive activities like homes, schools and retirement communities should not be permitted to stay in the long-term. Allowing them to do so creates extra risks, cost and burden on first responders during an emergency. That said, mandatory relocation should *not* apply to primary production activities.

| Q. 25 | Do you agree that affected land should no longer be used at the end of a retreat process (with limited exceptions for things like ceremonial events, recreation, some agricultural or horticultural uses and mahinga kai gathering)? Why or why not? |
|---|---|

Horticultural uses are absolutely still an appropriate land-use at the end of a community retreat process to protect our supply of fresh fruits and vegetables. Protecting this land to enable the supply of fresh fruit and vegetables may be appropriate. Highly

productive land, in particular, is a limited resource that should be utilised and protected for primary production where possible. Horticulture is a lower risk activity because people do not sleep at these businesses, so they are more alert to emergencies than they are at home. Proactively using the land for primary production also ensures that it is looked after and spares Council the cost of maintaining it. The level of flood protection required to support the ongoing use of highly productive land for primary production will be less than would be required if the land was being used for residential activities.

This is the only question about primary production in the issues and options paper, which shows a need for further consideration for the rural environment in this policy's future development. Further policy work should include a strong focus on building resilience for rural communities.

## 4.2. Adaptation to protect our food supply and ancillary activities

While horticultural operations should not be expected to retreat from highly productive land, it is important to maintain effective flood protection systems in food producing areas to protect our domestic food supply. Stronger adaptation means less recovery cost and effort is needed post-disaster, allowing food production to bounce back. This keeps the cost of living down post-disaster because fruit or vegetable shortages raise prices. It also keeps the industry viable into the future. The government needs to continuously strengthen grey infrastructure like stop banks and remove silt and shingle from flood channels to prevent dangerous debris flows.

## 4.3. Adaptation measures to build-in flood attenuation

Adaptation planning needs to consider how managed retreat can build resilience for other, less sensitive, land uses. Planning frameworks should call for setbacks from rivers for housing, schools, hospitals and other sensitive activities in the places most vulnerable to flooding.

Then, land that is retreated from builds resilience for other land. For instance, moving stop banks further back allows a gradual retreat from some land in the conveyance zone. This retreated land becomes storage for flood waters. Analysing these flow-on effects should take a full-catchment approach, where upstream activities support those downstream. Establishing storage (attenuation) and native bush upstream will slow the flows of debris in flooding events.

Planned storage and overflows is a necessary form of retreat. Areas of pasture or annual vegetables could sit in these planned storage zones, where flooding is less disastrous than it would be for structures or perennial crops. Orchards, post-harvest facilities, seasonal workers' accommodation and other ancillary activities should be slightly more protected on higher ground or behind adaptation infrastructure to protect the more sensitive links in our food supply. If some primary production activities do bear the risk as storage or conveyance zones, they must be compensated for reducing the risk for everyone else. The people who benefit should bear part of that cost through targeted

rates. There are wider societal benefits of these activities staying on this land due the contributions of primary industry to GDP and food supply.

Getting community buy-in for these forms of flood protection will require significant outreach work and raising awareness. Stop banks failed us during our most recent disaster, so people are open to other solutions, but the idea of opening more privately-owned land for storage during a flood may take socialising and serious community conversations about the costs and benefits. This process is already happening in Hawke's Bay, grounded in technical work by engineers and scientists to figure out alternative protection options. Options need to be effective and feasible from a funding and consenting perspective. Bringing formed options that meet these criteria to communities facilitates an evidence-based conversation.

| Q. 10 | How can we manage overlapping interests during adaptation planning, including where there is a conflict? |
|---|---|

Adaptation planning should prioritise human health and well-being. We propose the following tiered approach to prioritise interests and recognise that adaptation planning includes protection and retreat.

1. Risk to human life
2. Risk to human life-supporting activities such as food production and human drinking water supplies
3. Risk to property and other commercial activities

This framework could draw on the outcomes and matters that must be addressed in the National Planning Framework from the NBEA to provide additional prioritisation for low-emissions activities.

## 4.4. Disaster response and learnings from Cyclone Gabrielle

| Q. 43 | Do you think our approach to community-led retreat and adaptation funding should be the same before and after a disaster? Why or why not? |
|---|---|

No, much more support is needed, and it is much more expensive to make changes after a disaster. First responders, survivors and council staff swept into their civil defence functions are all under a huge mental toll after a disaster. This makes conversations emotional, and decision-making that can draw-upon pre-disaster planning will be more effective.

After a disaster, it is difficult for councils to manage the policy and planning space because they become consumed in their civil defence functions. At a strategic level, central and local government need to plan for different disaster scenarios well in advance, from a policy and planning perspective as well as a civil defence one. Councils will need an internal disaster communications strategy to ensure accurate, robust information is readily distributed to communities.

The government needs to do proactive planning to ease regulatory barriers in the wake of a disaster. Under the current planning rules, people cannot rebuild unless the new structure is exactly like-for-like. This poses a particular problem for seasonal workers accommodation, which houses horticultural workers for part of the year. There are new requirements to allot more space per person predating Cyclone Gabrielle. Growers want to upgrade that accommodation to better serve their workers, in the spirit of "build back better", but this requires a resource consent in most cases. If a grower is not increasing the number of people who will be housed in the accommodation, there is no added risk to human life. Instead, they're just improving the infrastructure. Existing post-disaster consenting rules would prevent well-meaning rebuild efforts getting caught in red tape.

Similarly, the delays in the Order in Council process meant community members developed intense fatigue looking at destruction on a daily basis without being able to do anything about it. Central government needs to develop template Orders in Council before the next disaster that can be speedily adapted for new circumstances. In general, there should be expedited processes for post-disaster planning to allow communities to move on with their lives and recover. This advance planning will reduce councils' workload in the aftermath of a disaster and manage expectations for community members.

# 5. Compensation

There are a range of scenarios where Hort NZ would support compensation in the context of managed retreat and climate adaptation:

- Where councils have allowed consents and development to happen in high-risk areas
- Where statutory timeframes for managed retreat haven't been met, and
- Where flood protection mitigations have an adverse impact on highly productive land

Compensation schemes must be transparent. Land and property owners should not be financially disadvantaged due to inadequate council processes and failure to meet legislative requirements. Any land acquisition by the government should be compensated at market value either financially or through an equal-value land swap. We are open to buyouts with leasebacks, where the government or a land bank purchases a high-risk property but rents it back to a user until a certain date when it becomes too risky to do so. This gives property-owners more time to decide when to leave and reduces some of the financial risk to the purchaser by compensating some of the purchase cost with rent payments.[23]

HortNZ strongly recommends that compensation extends to the loss of horticultural land to allow growers to reestablish elsewhere and protect our domestic food supply. To exclude horticultural businesses from compensation is to fail to recognise the strategic

[23] D. Moore, A. White, K. Woock. *Assessment of mechanisms of managed retreat: Report prepared for the Ministry for the Environment.* 11 August 2022. Sapere. Accessed online https://environment.govt.nz/assets/publications/Sapere-Assessment-of-mechanisms-of-managed-retreat-August-2022.pdf (p. 19-20)

importance of food security for New Zealanders. The Report of the Expert Working Group on Managed Retreat states, "Because the aim of this programme is not to preserve wealth, we see no reason for the state to compensate for the loss of agricultural, horticultural or other land even if it has had commercial use."[24] This position fails to recognise the strategic importance and societal good of growing fruits and vegetables to feed our population and support our export-driven economy. It is not a mere wealth-generating exercise. This distinction is not consistently applied to urban buildings, many of which may be investment or commercial properties. In the New Zealand economy, a significant amount of personal wealth is tied up in residential properties.

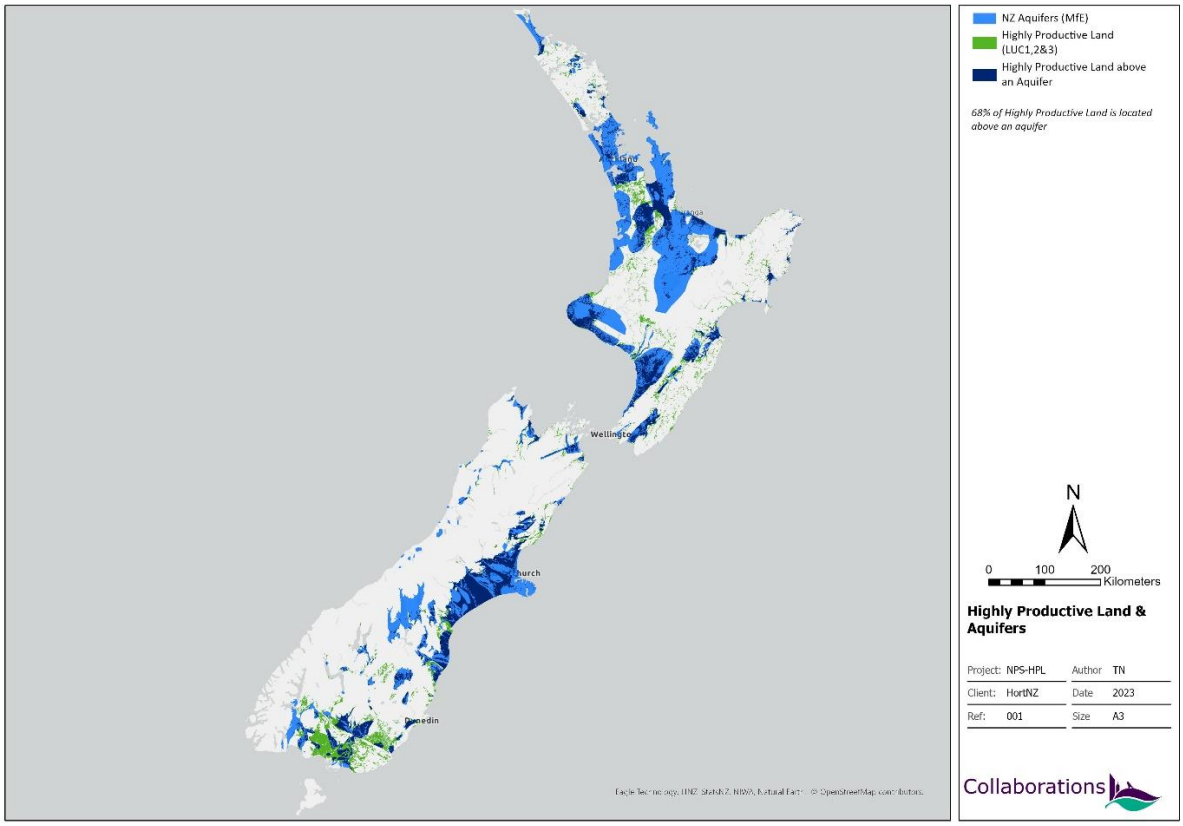
## 5.1. Fairness in changing water allocations

As managed retreat takes place, land uses will change, which means that water allocations will also need to change for the success of the future mix of activities. Current planning rules in a number of regions make it extremely difficult to transfer water consents from one location to another, or even from one land use to another. For instance, Hawke's Bay Regional Council's TANK Plan Change 9 is rigid in this area. National direction should enable reallocation of water as part of managed retreat planning. In particular, water allocations should recognise the human health contributions of fruit and vegetable growing.

While this submission establishes that food production on highly productive land does not meet the risk threshold for managed retreat, in rare cases, primary production may be compelled to retreat from flood zones. As Irrigation NZ wrote in the *NZ Herald*, "Before we embark on removing our farmers and growers from the path of floods we need to be sure we can re-establish our food production on the equivalent fertile land that is well-serviced with reliable water that will also endure the inevitable future dry periods."[25] Finding equivalent land means that the soil is of equal or better land use classification (LUC), there is comparable access to water, and similar connectivity to major food distribution infrastructure like major roads, packhouses, retail distribution centres and ports. The map below shows the locations where highly productive land sits over aquifers in dark blue. These areas are well-suited to horticulture.

[24] Report-of-the-Expert-Working-Group-on-Managed-Retreat-updated-25-08-2023.pdf (environment.govt.nz) (p. 228, para 5.176)
[25] Opinion: Managing our land and water resources - NZ Herald

*Figure 7: Aquifers and highly productive land in New Zealand*




## 5.2. Insurance for productive land

Growers do not have crop insurance because it is either unavailable for their crop or unaffordable, no matter the size of the business. To protect New Zealand's food supply, we need alternative insurance solutions for productive land. For instance, growers in the Netherlands have access to Multiperil Crop Insurance, subsidised by the government, to cover weather impacts.[26] This supports business continuity and prevents businesses from closing because of one bad season. This scheme showcases the government's commitment to growing horticultural crops to feed its own population and maintain a strong export market for the good of the economy.

## 5.3. Disaster relief funding

Disaster relief takes a long time. We are over seven months on from Cyclone Gabrielle, at the time of writing, and communities are still feeling uncertain about whether they will be able to stay in their homes and whether their businesses will be viable in the future. A lot of money was rightly poured into the cyclone response. Central government imposed such strict timeframes and criteria for qualification, however, that some of the funding was inaccessible to cyclone-affected growers.

[26] Ministry of Agriculture, Nature and Food Quality of the Netherlands. "International Exchange on Climate Adaptation in Agriculture". December 2022. Accessed online https://www.government.nl/topics/agriculture/documents/leaflets/2023/02/10/international-exchange-on-climate-adaptation-in-agriculture (p. 11)

HortNZ engaged with dozens of growers to help them apply for funding for sediment and debris removal. The hurdles to get access to debris-removal funding excluded many people in need. Some landowners hired equipment upfront to clear their orchards of silt and slash as quickly as possible to save their trees, with the expectation that they would get financial assistance later. In the post-disaster whirlwind, some lost track of receipts or didn't have them in the format the government required for the Debris and Sediment Fund. Combine that with limited computer-literacy and opaque caps on available funding, and a lot of people were left with less compensation than they expected for recovery.

Before the next disaster, expectations around post-disaster funding need to be clearly set with national direction. Some people were caught off guard that the available funding was far less than the 2004 floods. Timelines for spending recovery dollars need to be realistic – clean-up is a slow process, especially when it's wound up in red tape.

*Figure 8: Unusable land on a vegetable/cropping farm after Cyclone Gabrielle*

# 6. Community-led action

Rural communities cannot be overlooked in disaster response. Their greatest concern after a disaster is access in and out of their area.

Resilience looks like community hubs or social meeting points to coordinate relief and maintain connection during times of crisis. Marae do an excellent job of this. Another great example is the Sustainable Hawkes Bay Centre for Climate and Resilience, which quickly mobilised their networks to coordinate donations of essential goods to those affected by Cyclone Gabrielle.

The government needs to support existing and grassroots hubs to prepare for their role in crises through community resilience grants, whether those hubs come in the form of grower groups, marae, churches, cultural centres or something else entirely.

## 6.1. Education, science and data

These community hubs also need help upskilling around disaster resilience and knowing what's coming at a hyper-local level from climate change. This requires data stories designed for a general audience, not just available data, and disaster models scaled to the property level. They also need data stories about how climate regulation and policies will affect individuals, businesses, and communities.

Sticks and carrots in the CAA, or similar legislation, will not be enough to push changes in individual actions. Our communities need hopeful stories of successful adaptation and retreat. This includes stories of businesses leading the way by growing resilient crops and making a profit while doing so.