

ACHIEVING THE KIWIFRUIT INDUSTRY'S WATER GOALS

 **Mahi Tahī**
Working Together



Water is a key component of our living environment. It is critical we consider the factors that impact on good water quality and thriving aquatic life, as key indicators of healthy water and ecosystems. It is our collective responsibility to work together as guardians of land and water.






A Water Strategy for the kiwifruit industry was developed in 2019 by NZKGI, Zespri, Māori Kiwifruit Growers Incorporated (MKGI), Horticulture New Zealand (HortNZ) and growers. This set out a number of objectives on how we can best manage water on orchards.

Since then, goals have been developed that set out specific targets to **protect water quality**, **use water efficiently**, and **build soil health**.

WATER STRATEGY VISION

To collectively protect and enhance our water resources for our people, our environment, and our communities while enabling kiwifruit industry growth.

GUIDING PRINCIPLES

-  He taonga te wai / Water is a treasure
-  Ko tātou katoa ngā kaitiaki / We are all guardians and caretakers
-  Titiro ki te pāetawhiti / Look to the horizon and beyond
-  Oranga nuku, Oranga rangi / Prosperity from the earth and sky
-  Te amokura rangatira / The mark of leadership.

GOALS



GOAL 1: PROTECT WATER QUALITY	GOAL 2: USE WATER EFFICIENTLY	GOAL 3: BUILD SOIL HEALTH
Demonstrate alignment of nutrient inputs and losses to good practice limits.	Use monitoring technology to actively manage and demonstrate efficient use of water.	Access tools and knowledge to protect and foster healthy, fertile soils.
Nutrients, like nitrogen, are important for kiwifruit production. However, these are at risk of being lost from soils and into fresh water, where they can become a pollutant.	Irrigation is most efficient when it allows just the right amount of water to be applied to, and retained in, orchard soils to meet vine requirements — without compromising production. This enables optimal use of water and fertilisers, and minimises environmental impacts both on and off-orchard.	There are many benefits of healthy soil on-orchard: 1. Improves plant health and yields 2. Reduces nutrient leaching, in turn protecting water quality 3. Holds more water and releases less water to evaporation 4. Has the potential to mitigate climate change by removing carbon dioxide from the atmosphere and storing it 5. Reduces sediment erosion 6. Can promote biodiversity.

WHAT HAVE WE DONE SO FAR?

- Commissioned multi-year science research and innovation projects to answer key questions on water and nutrients on kiwifruit orchards
- Worked with central and local government to develop policy which works for growers
- Translated what is learned into practical tools and resources that will support growers and the industry
- Shared what we are learning with fertiliser representatives and other advisers so they can best support growers
- Industry engagement with catchment groups, regulators and organisations to share knowledge and update on progress.

WHAT ARE THE ACTIONS YOU CAN TAKE NOW AND WHAT ARE WE DOING TO SUPPORT YOU?

As our work under these goals progresses, detailed information and support will be provided to you by NZKGI, Zespri and MKGI, to ensure you understand in practical terms what's required, when, and how you will be able to go about meeting these.



REMEMBER

What you put on your land, how this behaves in the soil, and the way water is used on-orchard, can impact our local waterways.



GOAL 1: PROTECT WATER QUALITY



GOAL 2: USE WATER EFFICIENTLY



GOAL 3: BUILD SOIL HEALTH

By 2025, we aspire for all our growers to be able to:

Demonstrate alignment of nutrient inputs and losses to good practice limits.

Use monitoring technology to actively manage and demonstrate efficient use of water.

Access tools and knowledge to protect and foster healthy, fertile soils.



What are some of the practical steps you can take now?

- Make sure you **record all nutrients you use** in Spray Diary and Fertiliser Diary so that our new Nutrient Use Reporting Tool can collate and display benchmarked nutrient use data.
- **Create a nutrient budget** to balance your nutrient inputs with the needs of your orchard and production goals. Contact the Zespri Global Extension Team if you need guidance.
- **Optimise orchard inputs** by considering the 'Four Rs' when making decisions about fertiliser use. Use fertiliser only:
 1. At the **right rate**
 2. Of the **right type**
 3. Delivered to the **right place**
 4. At the **right time**
- **Use the Water Quality Risk Assessment template table** in the Grower Manual to identify contamination risks/sources on your orchard, and mitigations for managing these.

- The optimal amount of water your orchard needs will vary and is best determined through **measuring weather and soil moisture data, along with records of actual water use and on-orchard observation.**
 - Check out the 'Scheduling Workshop Handout' and 'Irrigation Tech Box' on Canopy: Canopy > Growing Kiwifruit > Orchard Management > Nutrition, Soil & Water > Water Management
- **Use the Water Conservation Risk Assessment template table** in the Grower Manual to identify risks to water use for your orchard, and mitigations for managing these.

- Consider the **physical, chemical and biological needs of your soil:**
- **Complete a soil test** each year to understand nutrient and pH levels in your soil
 - Read our *Kiwifruit Journal* article on soil testing here: Canopy > Growing Kiwifruit > Orchard Management > Nutrition, Soil & Water > Soil Management
- **Avoid soil compaction.**
- **Develop and maintain a strong, permanent sward or ground cover** throughout the orchard.
- **Good levels of soil organic matter** supports your living soil – this provides the nutrients kiwifruit needs to thrive.
- **Use the Site Risk Assessment template in the 'Soil Suitability' section of the Grower Manual** to identify possible risk factors to soil health on your orchard, and identify mitigations.
- **Use the Soil Management Plan** in the Grower Manual to help identify mitigations for managing soil health on your orchard.



What we're doing to support you

- Developing a **nutrient benchmarking report** that will allow you to view how much nitrogen you are applying and potentially benchmark against other orchards in your region.
- Developing **tools to support the decisions you make** on orchard.
- Researching the **optimum nutrient requirements** for kiwifruit.
- Reviewing the **tools/guidance that support growers in Zespri GAP for soil and water management**, including the risk assessment process, and developing management plans.
- Ensuring **Zespri GAP programmes enables growers to meet legislated requirements and market set expectations.**

- Providing **advice on water monitoring** technologies.
- Researching **water needs for optimum vine and soil health.**
- Understanding **potential benefits of fertigation.**
- Understanding the **effect of drought.**
- Investigating potential for **drought-resistant cultivars.**
- Reviewing **Water Conservation guidance and risk assessment** to improve grower support in Zespri GAP.
- Enabling **growers to demonstrate improvements in water conservation** through Zespri GAP, covering both market and regulatory requirements.

- Understanding the **drivers of soil health** in orchards.
- Developing a **GIS mapping system** to store soil quality and soil health data. This will help us better understand how soil health contributes to productive vines
- Understanding **variability of orchard soil characteristics.**
- Reviewing **guidance on soil and nutrient management** within the Grower Manual to improve support in Zespri GAP .
- Enabling growers to **demonstrate improvements in soil management and nutrient applications** through Zespri GAP, covering both market and regulatory requirements.

ADVOCATING FOR YOU

The government is developing its approach to farm planning through the Freshwater Module of a Farm Plan. The Water Strategy partners support being able to use existing industry assurance schemes such as Zespri GAP as one of the options to meet the requirements of Farm Plans.

Together with Horticulture NZ, we are working with the government on this, and are in ongoing discussions with the Ministry for the Environment.

We continue to advocate for you in other areas, like regional water policy, and through active engagement in national policy changes like the Resource Management Act review.

KEY CONTACTS

To find out more, about:

- **Irrigation and nutrient budgeting**, contact the Zespri Global Extension Team: extension@zespri.com
- **Zespri GAP requirements**, contact the Pre-harvest Team: preharvest@zespri.com
- **Policy and water regulations in your region**, contact NZKGI: info@nzkgi.org.nz

ONLINE RESOURCES

To access resources relating to nutrient, soil and water management, including the Zespri Grower Manual and *Kiwifruit Journal* articles, visit:

- **Zespri Canopy website:** Canopy > Growing Kiwifruit > Orchard Management > Nutrition, Soil & Water
- **NZKGI website:** <https://www.nzkgi.org.nz/what-we-do/water/>