

Kaipara Water Demonstration Site Field Visit

Thursday 30 March 2023

NorthlandInc

Growing Northland's Economy
Kia tupu ai te ōhanga o Te Tai Tokerau



Project overview

Water plays a key part of transforming land use. Building on the Kaipara Kai project, Kaipara Water further supports valuable land diversification opportunities.

Two demonstration sites are set up within the community, showcasing different types of irrigation and the ways in which this can support specific crops.



Demonstration Site 1

Demonstration site one is on Te Roroa iwi land at Maunganui Bluff north of Dargaville. Season 1 crops included yam, watermelon, kamokamo, sweetcorn.

For season 2, a range of crops were considered with Squash Delica and T-133 selected as the most appropriate for the site. Squash is commercially grown. 38% Gisborne, 40% Hawkes Bay, 10% Auckland & Waikato, 10% Manawatu, 2% in Canterbury.

The season was exceptionally challenging with the climate conditions. Given this we were delighted to be able to plant the crop on the cusp of the planting window.

- Planting window: September to November with latest mid-December
- Growing days 110-120
- Expected yield: 12t per hectare
- Harvest: late summer/early autumn

Arable area: 0.7ha

Planted: 19 December 2022

Irrigation/monitoring

Water is sourced from a creek on farm, pumped into holding tanks on the hill opposite the site and gravity fed to the irrigation system. Remote controlled unit with 12 hydrants/outlets. The site was set up to irrigate using t-tape (dripper tape). A remote accessible solar powered weather station/monitoring with soil probes assists decision making on the use of the irrigation system.

Site preparation

- **Sprays**
 - Weed control - mid October (Glyphosate) 5l/ha + spreading agent (oil)
 - Weed control - 5 Dec (Glyphosate) 5l/ha + oil
- **Fertiliser based on recommendations from Balance Agri nutrients as a result of soil testing applied mid November**
 - Superplus 1 ton/ha
 - Yara Complex 700kg/ha
- **Cultivation power harrow**
 - 21 November
 - 18 December



Planting

Planting was much later than the planned late October due to ongoing climate conditions. Crops were planted 19 December, at the very end of the planting window via a manual finger planter with Te Roroa providing the crew. Irrigation was also installed and commissioned.

Post planting sprays

Pre-emergent spray applied 21 December

- Solvo 400mil/ha
- Corral 4lt/ha
- Oil 1lt/ha
- Lavron 40mil/ha (insecticide)
- 300lt/ha water rate

Post-emergent spray was considered however the site was continually monitored and not required.

Sprayed the site for powdery mildew and insecticide for tropical army worm 16 March 2023.



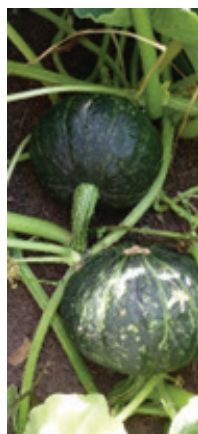
Planting with finger planter.



Te Roroa team finished planting and irrigation installation 19 December 2022.



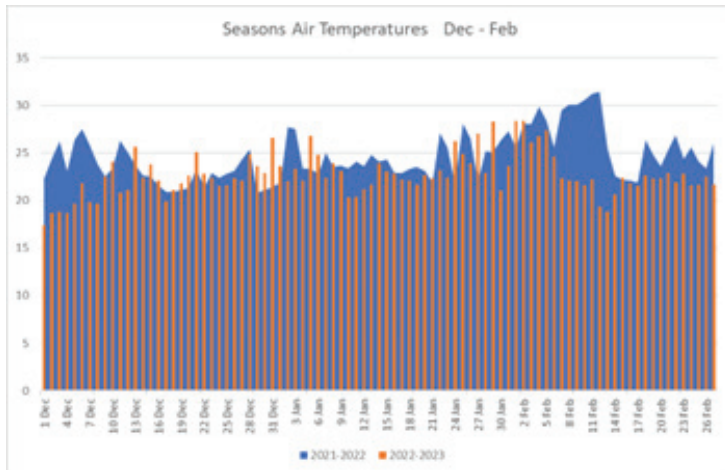
Crop progress 11 January 2023.



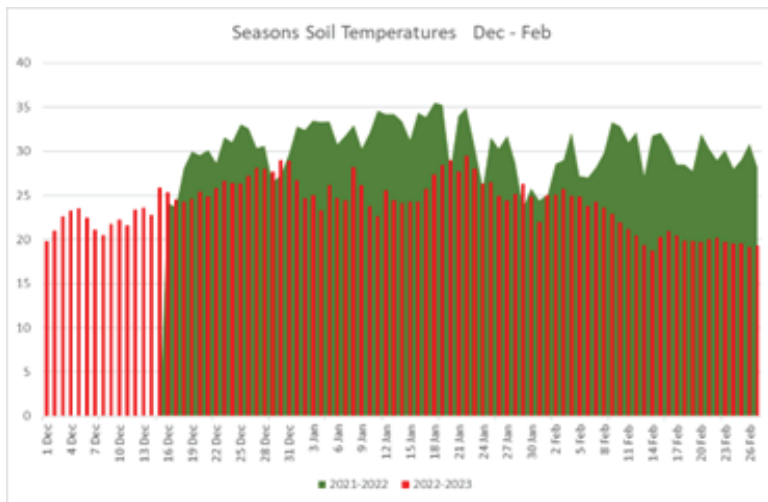
Crop progression 24 January.

Monitoring system data

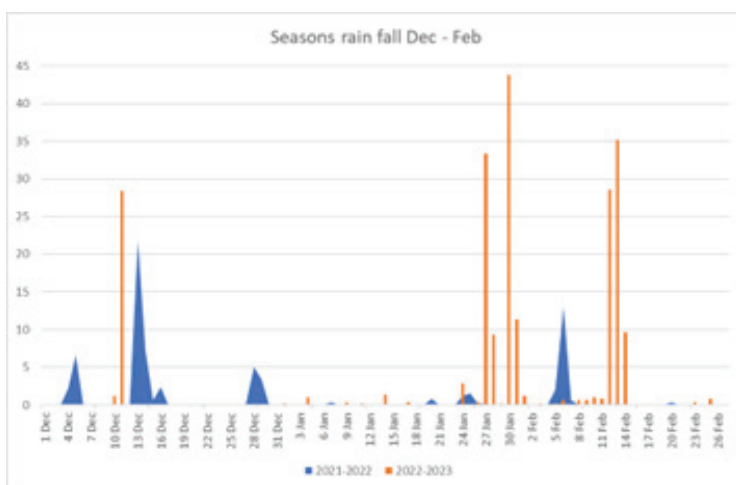
This season's data highlights a challenging 2022-2023 season with the extreme weather faced across the region multiple times since September 2022 through to February 2023.



Temperatures have been lower across the season compared to the previous season



Soil temperature average 10 degrees lower for 2022-23 season compared to previous season.



Rainfall comparison for the 3 months

2021-2022 69.8mm

2022-2023 214.4mm

Kaipara Water Demonstration Site Two

A centre pivot irrigator is installed which has a 242-metre span and can irrigate roughly 10 hectares.

Water is gradually taken from a nearby creek under an existing resource consent. Crops for season 1 included soybean/edamame, beetroot, watermelon, and kaanga ma. High-oleic sunflowers were selected for the second season.

Sunflowers can visually illustrate the benefits of irrigation as there can be a distinct difference in crop growth between the dry (non-irrigated) site and the irrigated site.

The plan was to sow the front paddock 1ha at the beginning of the season in October with the second 1ha paddock planted out as a shoulder crop in December. Fifty percent of each area was to have been irrigated and the other half unirrigated.

Continued wet ground conditions made it unsuitable for machinery to prepare or even plant throughout the three months of the planting window.

It became too late to plant sunflowers to get them through to maturity which would result in total crop failure.



The Kaipara Water demonstration sites are part of Kaipara KickStart, led by Kaipara District Council (KDC) and supported by the government's Kānoa – Regional Economic Development & Investment Unit, with funding from the Provincial Growth Fund.