

Meeting A Sustainable Future

Farmer Profile

Athol and Jane New, Mayview – Hinds/ Hekeao Plains

Farming Challenges and Mitigations

This farm is part of the Meeting a Sustainable Future project. Mayview's focus within the project is on optimising the irrigation system on the farm, as while the farm in general has few limitations, soils are well drained and irrigation can have a large impact on N loss if not managed correctly. The system is also relatively complex, with 8 pivots – including 2 with Variable Rate Irrigation (VRI), and k-line area, so careful management is needed. As part of the Barrhill Chertsey Irrigation scheme, their nutrients are managed in an aggregated way.

Why Mayview is involved in the project

"We wanted to be a part of the Meeting a Sustainable Future project so that we could both share the learnings we've had at Mayview, and to be able to access the latest information coming from research and other farmers putting mitigations into practice."

- Athol New, Mayview

Introduction

Mayview is close to Mayfield, and is run under a company structure where Athol New, Juliet McLean, and Michael Falconer are directors. The farm was converted in 2016 and was purchased by Mayview in July 2019. and the first season has been about getting to know the property and infrastructure. Mayview has a complex irrigation system with 8 pivots and some k-line area. 2 of the pivots have VRI, and effluent can be applied through any of the irrigation system, either raw or injected at a diluted rate.

Mayview aim to create a return which will allow them to continue to grow the business. They also want to achieve sustainability across the business, with focus on the following areas:

- Having a workplace which supports work life balance, and offers the opportunity to develop
- Utilising technology and management decisions to reduce environmental impact
- Working towards a bobby free farm, potentially aided by the addition of a support block which allows the farm to rear its own beef calves



Relevant Farm Characteristics

Soil <ul style="list-style-type: none"> • 89% Lism 1a.1, 11% 2a.1 • 82 Average PAW₀₋₆₀ 	Rainfall & Irrigation <ul style="list-style-type: none"> • Average 721 mm annually • Barrhill Chertsey Irrigation • 87% pivots (8 in total, 2 with VRI), 10% k-line, 3% dry 	Effluent System <p>Weeping wall to storage pond, can be applied through all irrigation at either 100% or injected rates</p> <ul style="list-style-type: none"> • 97% pastoral area has ability for effluent to be applied
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Farm System and Performance – 2019/20

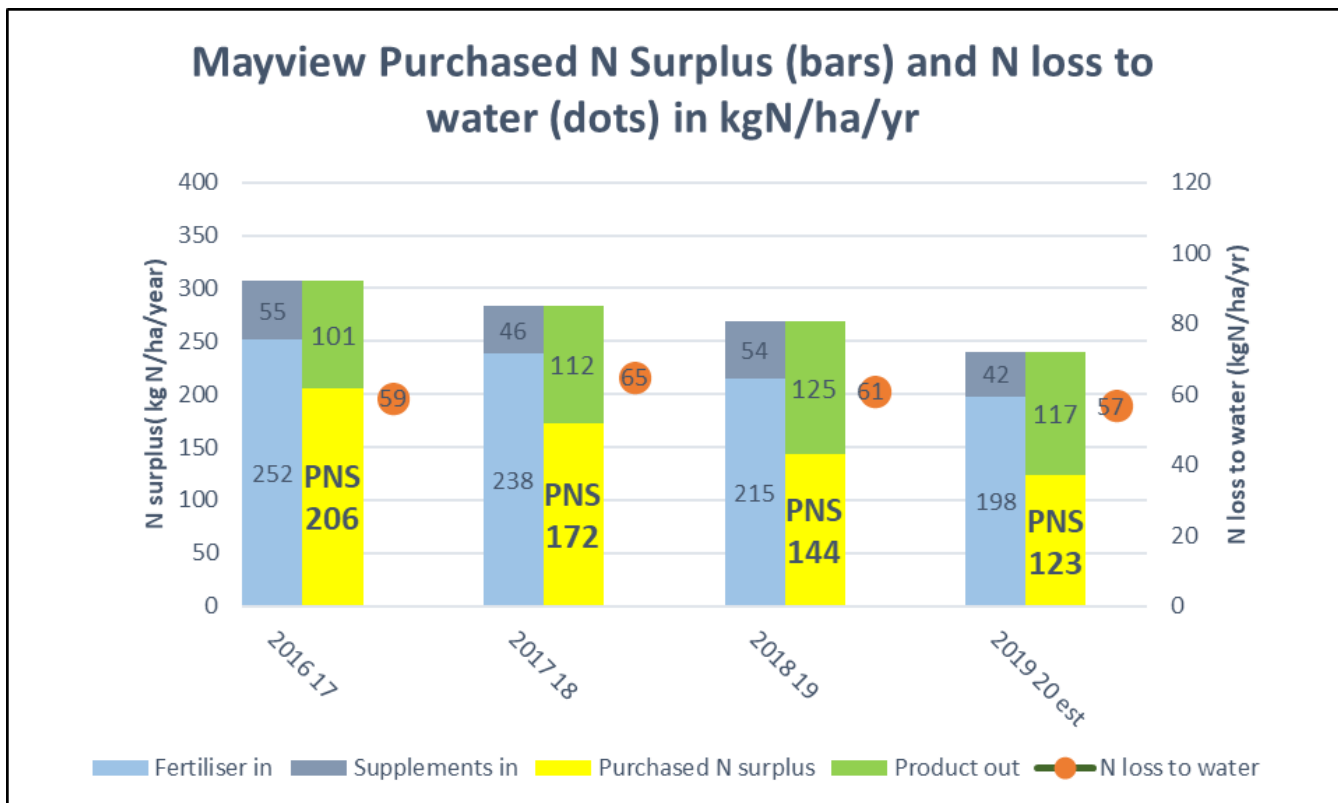
Effective Hectares <ul style="list-style-type: none"> • 347 milking platform • 356 total area 	Team <ul style="list-style-type: none"> • 6.2 FTE • 194 cows/FTE, • 99,700 kgMS/FTE 	System <ul style="list-style-type: none"> • 3.5 cows/ha (540 kgLW/c) • 15.8 tDM/ha pasture harvested • 2.3 tDM/ha imported supplement eaten • 3.2 tDM/ha grazing off eaten • 21.3 tDM/ha total feed eaten <p>• Operating Profit not estimated as first season on farm</p>
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**Further info on Overseer versions, information sources etc can be found at the end of this document*

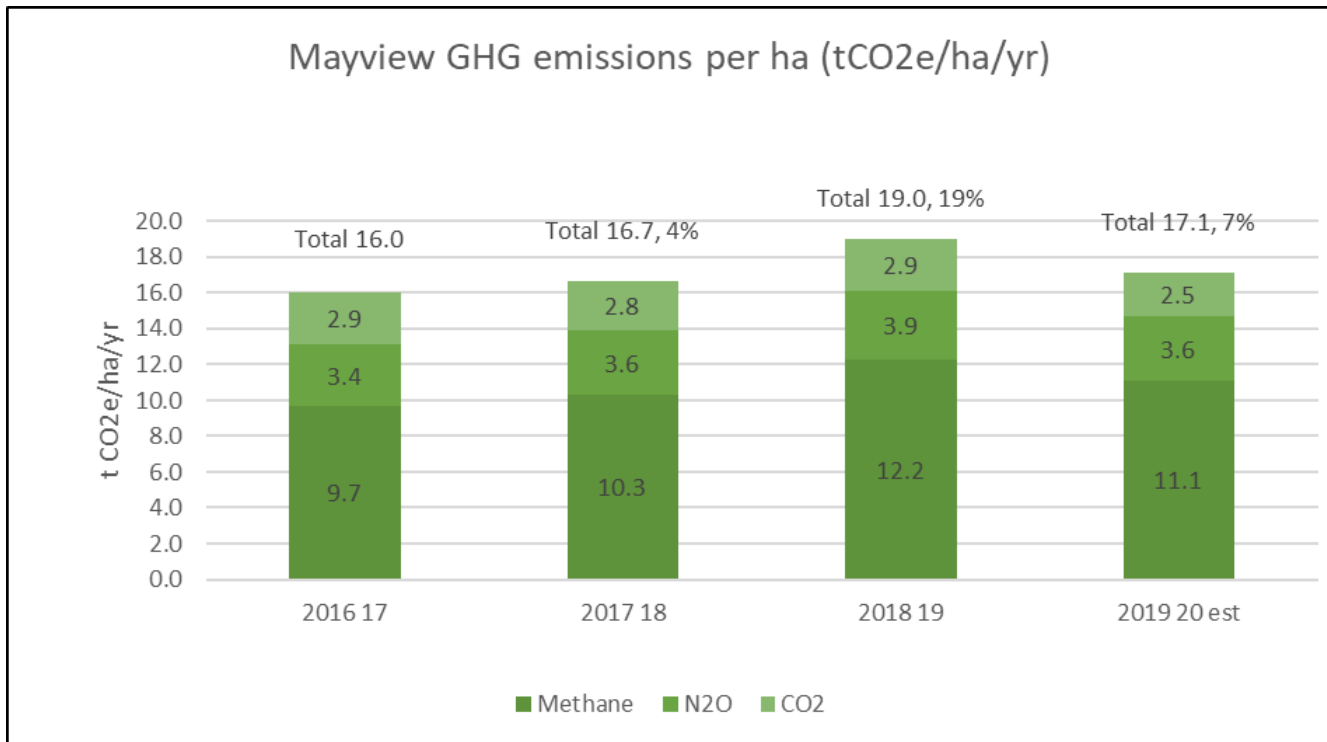
Key environmental information

Note: Farm information from 2018/19 and prior was from previous ownership

Nitrogen Loss and Nitrogen Surplus



Greenhouse Gases



Catchment and Mahinga Kai

Mayview is in the Hinds Hekeao Plains catchment, and they are aware of their impact on Mahinga Kai through the N loss the farm creates which then ends up in the Hinds drains. Irrigation and nitrogen fertiliser are managed to minimise the impact on these drains.

Environmental Targets and Requirements

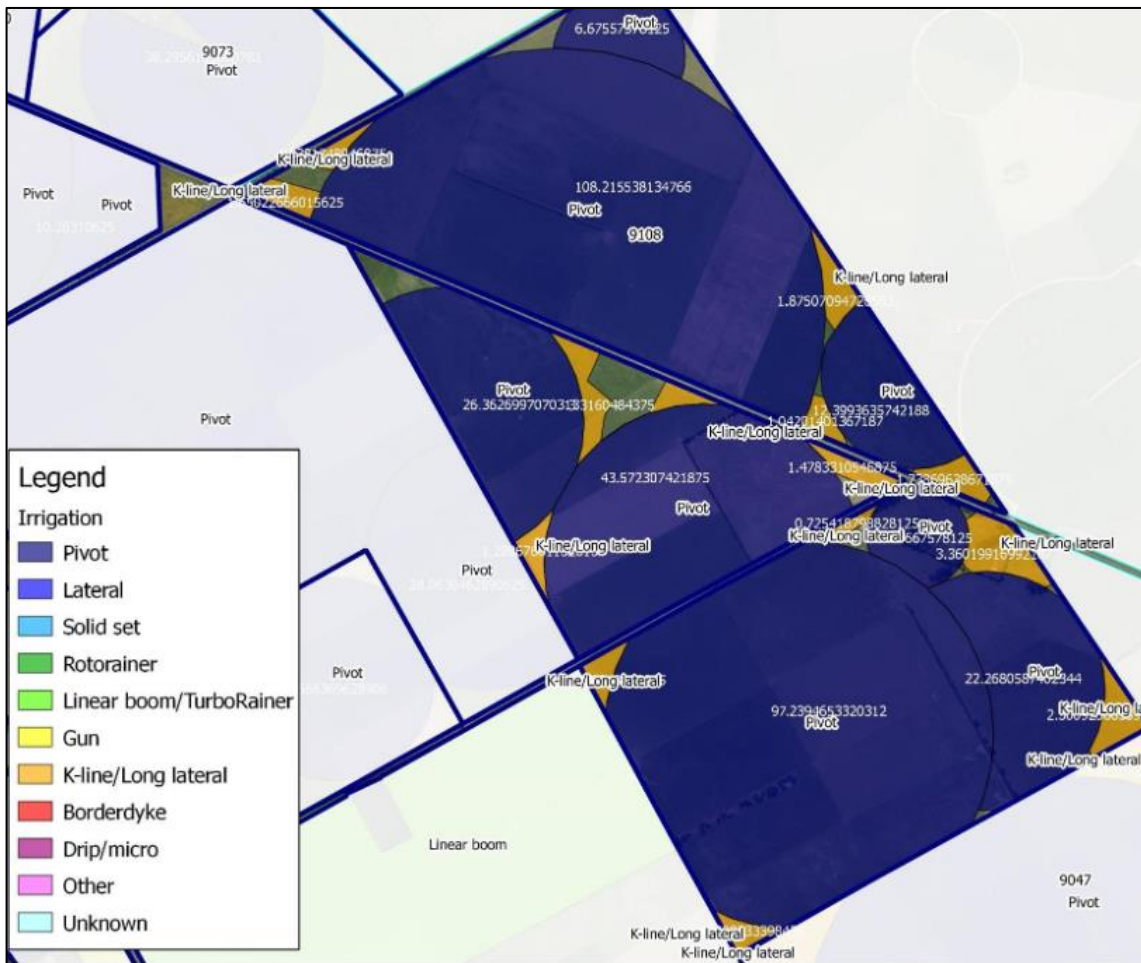
The farm is in the nutrient allocation sub-zone of Hinds (lower) between Hinds and Rangitata River, under Plan Change 2. As a member of the Barrhill Chertsey Irrigation (BCI) scheme, the land use consent is held by BCI, and the farm is required to achieve an A audit.

Challenges

The challenges this farm has for reducing N losses are:

- Getting to know the farm. Athol says “This first season has been about learning the soils, irrigation and effluent system, and continually improving how they operate. The farm was converted in 2016, and so there is a modern system, but it is complex, so getting the best out of it has taken some time.”

Mayview Irrigation types:



Mitigations to Reduce Environmental Impacts

Implemented to Date

Bucket tests

Tests were completed on all the pivots in the first season. “The range in performance was surprising, given the farm is quite new,” says Athol. “We replaced a number of sprinklers and have a plan to renozzle two entire pivots over winter. This should improve our uniformity and will also let us increase from 4 to 5mm/day through these two pivots, which will mean our water is used more efficiently. I’d recommend anyone who hasn’t done so do a bucket test, as it’s likely there are some easy wins that will both reduce any drainage you may be causing, and reduce the total amount of water you need to apply.”

Pasture Renewal

Paddocks are mostly direct drilled unless a specific need to cultivate is identified. 3kg/ha of plantain is now also being added to seed mixes.

Irrigation scheduling

Four soil moisture meters are already installed, and these are used to provide information on irrigation scheduling. By looking at what the monitors were showing, and what was actually happening out on farm, Athol was able to pick up that all of the moisture meters needed some refining for where the trigger points were shown. He says “Now that we have the graphs showing correctly, it’s going to make it a lot easier to share how we make irrigation decisions with the team and upskill them.”

Future Mitigations

Fixed Grid Installation

Athol has considered replacing some k-line area with fixed grid. They have had this quoted, but the price was far higher than the business was willing to pay given the impact both financially and environmentally that the change would make. While it hasn’t been ruled out, at this stage there is no immediate plan to make the change.

EM Mapping

Having now had a season at Mayview, Athol has identified an area of the farm where it is likely that SMaps hasn’t correctly identified a heavier soil. “We have in the medium term a plan to get the farm EM mapped, this way we can adjust the management of this area as it’s under one of the VRI pivots. It would also mean we can have the soil recognised in Overseer. I’ve talked to the neighbour on the boundary and they also find that this area seems to have more water holding capacity than how it is labelled in SMaps.”

Soil Moisture Meters: Four soil moisture meters are already installed at Mayview and having one under each pivot is where the farm is headed. Each pivot can then be managed with more accuracy, and Athol and the team can have more confidence that they’re not causing drainage events.

Nitrogen fertiliser use: The plan for Mayview had been to target 200 kgN/ha/yr nitrogen fertiliser for the 2019/20 season, but the final figure was 260 kgN/ha/yr. “We had two unexpected events where we used nitrogen fertiliser as a tool to increase our feed available. The first was when the BCI river take was flooded in December, and we were unable to irrigate over a key 5 day period – our growth was impacted, and we needed to ensure we could catch up quickly. The second was when we were unable to get cull cows away over autumn due to Covid 19, and so we had more feed demand than usual. We are confident that we will be able to make tweaks to our current system and be able to operate within the new regulations.”

Further Information

For further information on this farm and the changes they are making, as well as the project:

- Virginia Serra, DairyNZ. Project Lead, 021 932 515 virginia.serra@dairynz.co.nz
- [Meeting a Sustainable Future Partner Farms Page](#)
- [Meeting a Sustainable Future project page](#)
- [Irrigation scheduling](#)
- [Evaluating your irrigation system](#)

Information Sources:

Figure	Season/s	Source
Current N loss (predictive estimate)	2019/20	Overseer FM v 6.3.2 May 2020
Physical farm system information (predictive estimate)	2019/20	DairyBase

For information on DairyBase, [click here](#)

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