

ADAPTING TO A CHANGING CLIMATE: CASE STUDY 34

WAIRARAPA MOANA FARMS
Build buffers into farm policy for resilience

THE FARM

- One of the larger farming operations in New Zealand with more than 10 000 hectares of sheep, beef, dairy, dairy support and forestry production.
- West of Mangakino, South Waikato.
- The farm's sheep and beef unit covers 1325 effective hectares, with an easy rolling contour and free draining, pumice-based soil. There is also 2870 hectares in dairying and 6500 hectares in forestry.
- Annual rainfall: about 1450mm.
- Altitude: 350 metres.

THE FARMERS

- Owned by Wairarapa Moana Incorporation, with about 3000 shareholders descended from Ngāti Kahungunu and Rangitāne iwi.
- The farms are governed by a board of directors chaired by Kingi Smiler and a management team which includes the General Manager, financial advisers and farm consultants.
- Farming operations are led by General Manager Andy MacLeod and Operations Manager Chris Berry.
- Won the Ahuwhenua Trophy in 2005 for Māori excellence in sheep and beef farming.

Kingi Smiler

"As well as economic performance, environmental sustainability and being good custodians of the land is important to the owners of Wairarapa Moana and a key priority to the management team," Phil Tither, Farm Management Consultant.

RESPONDING TO CLIMATE CHANGE

Severe drought conditions during the summer of 2007/08 presented a challenge for Wairarapa Moana Farms' sheep and beef/dairy support unit, yet it reached its second highest production level. The achievement was attributed to the buffering ability of its farm management policies.

Pasture growth between December and April was down 45 percent compared to the same period in the three previous years.

Despite this, the farm's management strategies and built-in buffers enabled it to hold production at 326kg meat and wool per hectare, and achieve an economic farm surplus of $394 per hectare – the second highest recorded on this block.

Neighbouring farms were still suffering the effects of the drought in July 2008, but pasture levels at Wairarapa Moana Farms were back on target within three months of the drought breaking and its financial impact was confined to the 07/08 financial year.

"Wairarapa Moana was able to farm their way through the drought due to the flexibility and buffers built into farm management policy," says Farm Management Consultant Phil Tither, who has been part of the farm's management team since 2002 to provide operational and strategic support.

Late winter and early spring is typically the farm's most limiting time for stocking rates and animal performance however it can also experience dry summer and autumn periods. Wairarapa Moana Farms introduced an intensification programme in 2002 for more flexibility and to adapt to changing climatic conditions.

Prior to 2002, the farm carried 10 stock units per hectare – 65 percent sheep and 35 percent beef breeding. The farm now carries 17 stock units per hectare – 20 percent sheep, 30 percent beef breeding and trading, and 50 percent dairy support.

"As our climate becomes more variable, our levels of buffers and preparedness to act needs to be enhanced further again." Phil Tither

The higher stocking rate and a shift towards operations that are more likely to perform, such as dairy heifer grazing and bull finishing, also makes the farm more vulnerable to pasture growth changes caused by a changing climate. The management team takes a long-term view to make the farm resilient to such change.

"As well as economic performance, environmental sustainability and being good custodians of the land is important to the owners of Wairarapa Moana and a key priority to the management team," says Phil. This focus contributed to Wairarapa Moana Farms winning the Ahuwhenua Trophy in 2005 for Māori excellence in sheep and beef farming.

WAIRARAPA MOANA AND THE CHANGING CLIMATE

Under current climate projections for New Zealand, Wairarapa Moana Farms is likely to experience:

- higher average temperatures;
- higher rainfall;
- more rainfall variance, and
- more frequent extreme climatic events.

With its light pumice soil, the farm will benefit from increased rainfall but soil erosion on tracks and around waterways will need to be managed. Likewise, higher average temperatures will increase pasture growth, but more frequent extreme events will make situations as experienced during the 2007/08 drought more frequent. To cope, farms and farming systems will have to be further developed. The farm also plans to prevent wind damage by fine tuning its shelter and cropping/cultivation practices.

The farm has fenced rivers as well as gorges and significant areas of regenerating bush. Pouakani 11 Trust shareholders have supported the move and almost 300 turned out to plant native trees in one newly fenced-off river area. More planting is planned.

BUFFERS FOR CHANGING CLIMATIC CONDITIONS

Four strategies have been implemented on the farm's sheep and beef unit to reduce its susceptibility to the changing climate. Phil explains: "The drought did have a cost on pastures, production and profit, but hopefully the impact on livestock and people was moderated to the best of our abilities."

BETTER FEED MONITORING AND BUDGETING

Wairarapa Moana Farms use a feed management programme to monitor and forecast supply, demand and expected pasture cover. A useful pasture growth database with six years of historical information has been established. With the exception of the drought year (2007/08), pasture growth has become relatively predictable.

"As with any business, information is key," says Phil. "Knowing where we are relative to our targets, and to previous years, allows us to be more proactive in decision-making. The Farmax model also provides the platform for us to test 'what if' options of changing stock numbers or feed supply inputs."

The farm keeps a year's worth of silage in reserve.

INTRODUCE LIVESTOCK BUFFERS

The management team introduced bull beef trading to the farm in 2003 for two main reasons: it typically generates good returns, and having animals that are readily-tradable creates more flexibility.

The sheep and beef unit aims to make bull beef 15 percent of its total stock.

INCREASE SUPPLEMENTARY FEEDS

The sheep and beef unit typically grows 64 hectares of winter forage crop followed by summer forage brassicas. This bulk of high quality feed ensures high animal performance despite adverse climatic conditions.

They also cut about 300 hectares each year for silage (although this can range from zero to 450 hectares, depending on actual pasture cover and the surpluses level).

"It is now farm policy to have at least 12 months' silage at the end of each winter, so if we encounter a dry spring, and silage is unable to be made that year, we will have something to feed out in late summer/early autumn following the dry period and be ok the following winter," says Phil.

An unusually dry summer in the Waikato.

ENSURE CONSISTENT PASTURE GROWTH

Before 2002, little nitrogen fertiliser had been used on the property, says Phil. Since then, an average of 63kg per hectare per year has been applied.

"We make financial provision for 90kg nitrogen per hectare per year, but are flexible in how much and when nitrogen is applied depending on pasture levels and current economics. This allows us to smooth out some of the natural variation in pasture growth."

LOOKING AHEAD

Wairarapa Moana Farms' shareholders are focused on long-term sustainability and the management team are committed to adopting farm policies and risk management strategies that adapt to a changing climate.

The sheep and beef unit continues to fine tune its policy, with an increasing level of dairy support including dairy heifer grazing, winter cows, and silage.

"As our climate becomes more variable, our levels of buffers and preparedness to act needs to be enhanced further again," says Phil.

ADVICE FOR OTHER FARMERS

- Have an active feed monitoring and planning system.
- Use decision support models.
- Have buffers in place so you can cope with a 50 percent drop in pasture growth for three months.
- Consider management buffers, such as holding some trading stock, growing supplementary feed and applying nitrogen fertiliser to boost pasture growth.

FOR MORE INFORMATION

- Ahuwhenua Trophy Excellence in Māori Farming **www.ahuwhenuatrophy.maori.nz**
- Wairarapa Moana Farms **www.wairarapamoana.org.nz**

THIS IS ONE IN A SERIES OF CASE STUDIES CALLED ADAPTING TO A CHANGING CLIMATE

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Key points

1. **Wairarapa Moana Farms has introduced practices to create flexibility and buffer against changing climatic conditions.**
2. **The farm uses modelling tools for effective feed monitoring and planning.**
3. **Bull beef trading has brought flexibility – stock can be readily bought and sold throughout the year.**
4. **Supplementary feed, such as forage crops and silage, is grown to provide a buffer when pasture level is low.**
5. **The farm's nitrogen budget is adapted to pasture and economic conditions.**
6. **To manage future climatic conditions, the farm needs to maintain its monitoring, incorporate more buffers in its policy, and make proactive decisions.**
7. **Wairarapa Moana Farms economic performance and environmental sustainability contributed to them winning the Ahuwhenua Trophy.**

New Zealand Government

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