

“Climate change means to me the change in how our rainfall is spread across the year and in the way that it occurs now. That’s as a farm view, and as a world view climate change means ‘Mans greed’.”



Williams Hill, Puketitiri

The Farm

- 1297 ha in total of which 780 ha is effective. The bulk of the remainder is a 442 ha pine forestry block, which is a 60:40 joint venture planted in 1995.
- Altitude ranges from 396m to 823m, but most of the farm is around 457m.
- Sheep and beef operation, with about 7200 stock units before 2007, down to about 5200 by 2009.

Adapting to climate change is about finding your niche

“We’ve been farming like this for a while and are just adapting. It’s adapt or die really because the other choice is for the whole farm to be pines, or manuka. I’m open to anything. I said to the seed guy open your books and tell me what you’ve got. I’ll try anything.”

Tim Dinneen has had a tough time over the last few years but is optimistic and determined about the future. The Williams Hill farm at Puketitiri is owned by a family trust and leased by Tim and his wife.

At first glance it would be easy to say the farm should be shut up and planted in trees. That has happened with some of the harder country on the farm. A closer look reveals a range of land classes that, if managed well, provide plenty of opportunities. Tim believes that they just need to find their niche. The ideal is to have every hectare of the farm doing something, with protection from the sun and wind and making things as productive as possible. There are options going forward even if it becomes warmer and drier in the future.



Climate

“November is the big growing month up here, if you don’t get a good November that’s it you’re out.”

“Traditionally with these sorts of farms you’d outgrow your stock numbers in the spring and everything would go rank then you’d spend all summer cleaning it up and then autumn arrives. You could handle a dry February/March because you’d have standing feed.”

They have a unique microclimate in their area, which extends along the foothills of the western ranges from Tarawera Station down to the Waitara river. Rainfall averages 1160mm, from records going back to 1982. Until the latest (2009/2010) summer what they’ve experienced in the last few years is that all of the rain is now coming in the winter months. And they’ve been getting dry Novembers. With the ash and pumice soils they need fairly frequent spring rains.

Winters are getting warmer and easier. Winter used to begin about April/May but it’s now the end of May when winter kicks in (with the exception of 2009). A dry winter is good in this area. Huge snow falls can still happen. It’s not as constant but heavier when it comes.

Climate risks

“It seems to be that when you get something now it’s worse than it was, it’s never Joe average any more. You either get no rain or you get heaps of rain.”

“It seems to be that when you get something now it’s worse than it was,...”

Rainfall variability provides the biggest climate risk. In recent years the main challenge has been the dry springs. In general they’re getting more severe events. This includes drought, the shift to more rainfall in winter, and short-sharp bursts of rainfall in summer.

Stock policy

Stock numbers have been significantly reduced with three consecutive droughts since 2006/07. Pre-drought they had 3500 ewes, 900 hoggets, 80 rams, 220 cows with all progeny kept until 2 – 2.5 yr old, and 50 Friesian bulls. Post drought numbers have dropped down to 3200 ewes, 950 hoggets, 80 rams, 85 cows and 118 R1’s. A consultant review showed that the sheep were twice as profitable as the cattle. One reason was that the cattle were spending too long in winter at just maintenance.

Pasture and feed management

“We’ve all been told at the monitor farms to keep your grass down, but when you have higher grass it has a shading effect on the soil, so you don’t dry out as fast.”

The main grass species are currently natives, rye, a bit of cocksfoot, and still some sub-clover after 50 years.

With the consecutive droughts they’ve been losing 500kg DM a year because the grass is too low all the time (1000kg’s DM). He’s now setting target lengths of about 1800 by the end of November.

With the droughts they quickly used their feed store. In the first drought they had two years of hay and silage stored, because they farm for a drought. This was used up and they also bought in ten tonne of palm kernel. In 2007/08 they managed to cut 300 bales of hay. In 2008/09 they were down to one paddock. They have been getting winter feed in just to maintain cattle. In retrospect they would have been better off financially by ditching the cows and selling the store feed.





Looking at options going forward

“This is steep hill country and so monitor farm information is harder to apply. It won’t work splitting this farm up into 2ha paddocks. You have to have a system that works here.”

“...You have to have a system that works here.”

The options are limited. An intensive bull unit might be possible on the easier country, but not on the steeper stuff. The farm could all be put in pines and the carbon credits sold. Tim’s view is that this land needs to be managed with different solutions for different land classes.

Soils

P levels are reasonable for steep hill country, 36 on the home block, 18 on the Williams Hill block and 10 out the back. The pH levels on the same blocks are 5.6, 5.8 and 5.9. Tim doesn’t believe the old thought that you don’t put lime on unless pH drops to 5.5. The fertiliser regime is being changed to a more lime based system.

Stock policy

The aim is for about 25 percent of stock units to be trading. Higher pasture covers will be kept through the summer, with all trading cattle quit before winter. Instead of wintering 7500 stock units they’ll only be wintering about 4500-5000 stock units.

Pasture

“We need to start growing some of these grasses that are grown in other parts of the world that would thrive in this sort of climate and then stock our farms accordingly. When you ask seed merchants for

something that will work here you just get a blank stare.”

“When at Massey I never learnt

anything other than getting an aeroplane to fly around and do an oversow. We need methods developed for renewing pasture in the hills, including more work on other species that will grow in this climate.”

The focus with pasture is going to be more on residuals. With longer covers the emphasis will be on growing clovers, the clovers will then grow grass. Tim thinks that grass species need to change. There are plenty of other grass species around the world. New Zealand has trialed different species in the past (40-50 years ago), but that’s all gone now.

Water

There are springs all over the farm. Stock water is provided through dams. Intensification of some of the easier country is an option for the future with possibilities for reticulated water to smaller paddocks and irrigation. However, the investment costs and effects on the whole farm operation have to be weighed up against the benefits.

Two-tier farming

Tim is looking at doing a two-tier farming trial on a block with flats and two terrace rises. The plan is to plant the terraces in pines and then plant the flats out in tree lucerne and undersow that with clover and grass. The tree lucerne will a) be feeding nitrogen to the soil, b) provide a source of stock feed and c) provide



a microclimate for the grass underneath. If the two-tier system works well then Tim would try to replicate it across the whole farm.

Stock fodder

Crops such as swedes and kale don’t work any more because they don’t handle the long dry, nor big heat events. Tim is going to trial 100m strips of the different crops he wants to evaluate, including pumpkins, fodder beet, blue lupins, and lucerne.



Erosion and flood control

The idea is to start space planting poplars at final spacings down all the guts of the farm. For the past seven years they've been fencing off and planting pines along the river frontage. This has been done in partnership with the regional council with about 20ha planted and another 24ha this year.

Culverts

They've had some large culverts wiped out twice with big rainfall events. Tim wants to use geo-cloth to trap the fines. He is going to do all crossings with that from now on.

Eco-tourism

Tim has guided a few people hunting. A company is already bringing people in by helicopter for fishing. It could be an awesome safari farm, but it would require an investor to implement and market it.



Resources/support

"I'm a great believer that the only way you learn is doing it. You've got to see the results."

The main constraint is the lack of reliable knowledge and advice. Tim feels that there is a lot of misinformation out there, from seed companies, fertiliser companies, and others, all wanting to sell their products. He would like to see some of the ideas he is looking at taken up by different people and trialled. He doesn't want information so much as testing of ideas.

Future thoughts

"The climate thing seems to be getting more and more severe."

"The national ewe flock is all pushed back into the hills. If they want to keep the industry going then they need to look at what can be done on the hills. There is a need to be revisiting things."

There needs to be more emphasis on making hill country farming more sustainable. They've been pretty neglected. New Zealand's east coast is very significant to our economy.



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