

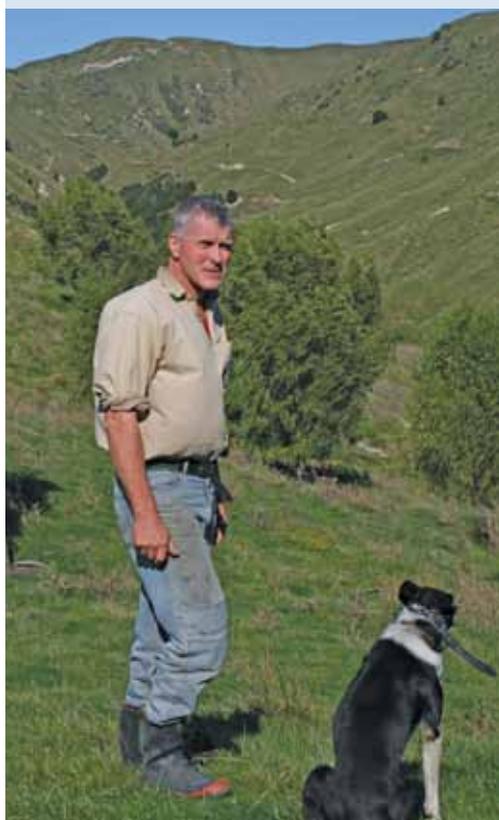
SUSTAINABLE LAND MANAGEMENT 4

FOCUS ON RESILIENCE

Farming on steep Hawke's Bay hills

THE FARM

- Waiau Station, 12 kilometres inland from Wairoa.
- Farmer Dave Read and his wife teacher Judy Bogaard.
- 1200 hectares of steep hill country.
- 10 450 stock units, 55 percent sheep, 45 percent cattle.
- Warm wet climate with 1169mm rainfall with a range of 950 to 1730mm over the last 20 years.
- 1050 hectares effective with the remainder in bush gorges and scrub.
- Dave's focus is on breeding lower cost and more resilient sheep.
- His goal is long-term biological sustainability.



Dave Read with pollard willows behind him.

Trees for soil conservation plantings and fodder, stock which are more tolerant to parasites and facial eczema, and targeted inputs into specific land classes are all ways Wairoa farmer Dave Read is making his farm more resilient.

Dave and his wife Judy farm 1200 hectares of very steep country 12km northwest of Wairoa. It's demanding country to farm, and except for an old airstrip, it's all class six and seven land, with parts erosion-prone.

MAKING THE FARM MORE RESILIENT

Dave has been farming here since 1989, when he and brother Chris faced serious droughts and a 900-hectare farm without a stock-proof paddock. Since 1994 he has farmed with his wife Judy, and they have added another 300 hectares.

Waiau Station now has 1050 effective hectares, with another 30 hectares of kanuka, 22 hectares of bush fenced and protected with the QEII National Trust, and 100 hectares of bush scattered through the gorges.

The farm runs 3600 ewes and replacements, with the ewes lambing at 135 percent. The 430 cows and replacements are composites, with an Angus Hereford base.

The whole farm is class six and seven land with good fertility. The only flats are an old airstrip where Dave is thinking of planting lucerne.

He says they have huge fluctuations in pasture growth rates. Twenty years of rainfall data show the average annual rainfall is 1169mm with a range over 20 years of 950 to 1730mm. "We are not typical East Coast. We are wetter and more variable than normal."

Six years ago they added another farm at Mohaka south of Wairoa to make their business more resilient. Here they have 290 hectares of class six and seven land managed by Mike McGurk and used for finishing.

While Waiau Station is mainly a breeding operation, Dave says the key to being financially resilient on the farm is to consider every mob a trading mob.

WILLOWS MAKE GREAT DROUGHT FODDER

AgFirst consultant Rod Savage has worked out that Dave's use of willow fodder in droughts is only costing 15c/kgDM. This is very cheap compared with other feed sources in droughts which are around 30 to 40c/kgDM (but it does have a high labour demand).

Dave spends around \$1800 a year on planting 300 poles, which he also grows himself.

While the trees reduce sediment, mass movements and flood damage, the economic benefits of planting for erosion control are pretty hard to work out, Rod says.

Of the 300 poles planted each year, Dave puts 70 percent into gullies in areas he thinks will move. Research shows these gully plantings are estimated to reduce sediment input to watercourses by 22 to 78 percent.

A further 20 percent of Dave's trees are planted on erosion scars, where mass movement can be reduced by 50 to 80 percent. The remainder of the trees go along water courses, which reduces flood damage by 30 to 80 percent.

Any pasture suppressed by the trees is counterbalanced by better growth in areas which would otherwise be lost to erosion, Rod says.

Now Dave plants the willows 10 metres apart, and says in the past he has planted them too closely, which makes feeding them out a huge mess.

Because the large poles Dave plants are heavy, he starts planting at the top of the hill, and over a number of years works downhill, instead of carrying them uphill.

Erosion events have reduced in severity because of the plantings, he says.

"While the plantings are not a huge cost per year, it does take a lot of work to get them in the ground. But there's a very visible payback in drought years, which without a doubt creates a more resilient landscape," says Dave.

Rod's figures estimate one person is able to harvest six to seven trees an hour for fodder.

Pollarding of the willows should not start until the trees are 25cms in diameter at breast height. Dave has found that by cutting through the

trunk when the trunk is young, the tree regrows as an extended bush, a bit like a wine glass. This allows drought fodder to grow as a cluster of slender branches above stock height that are easily pruned. The wine glass shape also provides a "pruning nest" that a tree pruner can operate safely from in a mature tree.

Research on feeding willows to ewes which were losing bodyweight at tugging showed a minimum 12 percent increase in weaning percentage with a range of 12 to 18 percent possible.

Willow also has a high metabolisable energy (ME) value at 11MJ/kgDM, and contains condensed tannins which increase ovulation rates.

Dave plants the poles for erosion but says getting feed at 15c/kgDM in a drought is cheap at tugging and one of the few options you have on a hill. "And it's a proactive thing you can keep doing in a drought."

Rod says planting willows for shelter and animal welfare will put farmers ahead of the game in the market place.

INVESTING LESS FOR GREATER RETURNS

After working with Rod, Dave is considering retiring 50 hectares of rough eroding land at the back of the farm to save money and make the farm more financially resilient.

At the moment the block runs only four stock units to the hectare, compared with 11.5 stock units on the rest of the farm. It makes less than half the gross margin per hectare of the rest of the farm and has high maintenance costs relative to its productivity.

Farmax figures show this land area produces a gross margin of only



Photo: Rod Savage, AgFirst.

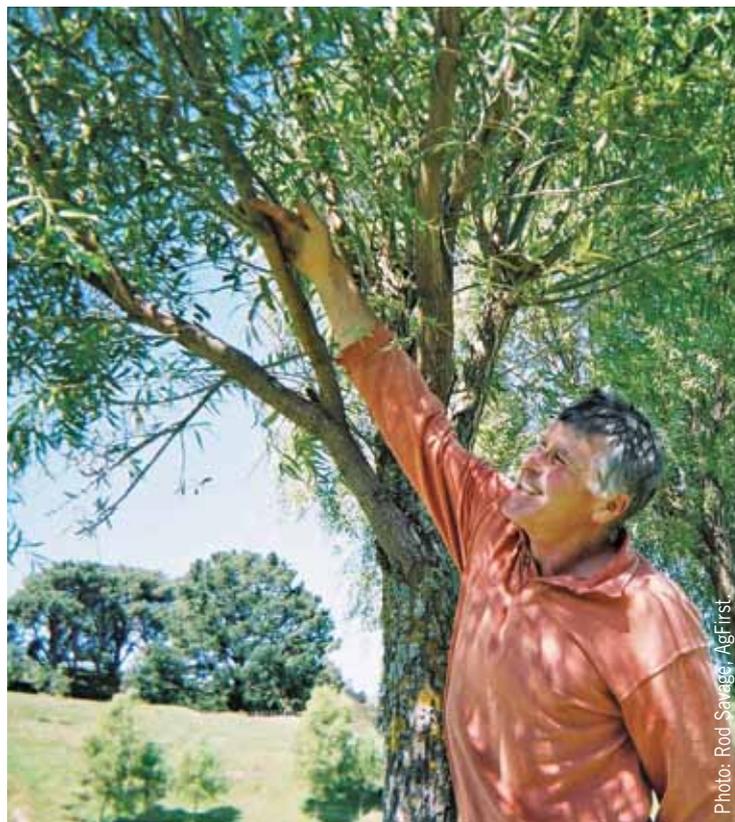


Photo: Rod Savage, AgFirst.

Pollarded willow trees are a valuable source of stock fodder in droughts.

Dave indicating where to prune to gain a wine glass shaping.

\$225 per hectare compared with the \$586 per hectare on the rest of the farm.

Shutting the gate on it would mean a saving of \$4500 a year in fertiliser and \$1500 in annualised spraying costs. And if the 200 stock grazed here were sold, that would realise another \$16 000.

This money could be invested in parts of the farm with more potential, for example, putting capital fertiliser on 100 hectares of better soils to lift Olsen P levels from the current 12 to 20.

After a couple of years, this 100 hectares should produce 1300kgDM/ha more pasture, Rod says.

While this would mean the farm has a slightly reduced cashflow for a couple of years, the overall accumulated net cash position at seven years would be positive, building in subsequent years to be a total gain of \$14 000 by year 10 and continuing to grow. The annual cash farm surplus position would show a consistent \$4500 benefit each year from year three on.

Dave says he will let the area revert, and he wants to talk to MAF about its future. "Maybe we will graze it twice a year if we are short of feed, but we won't put any inputs into it."

DIFFERENTIAL FERTILISER WORTH A LOOK

Applying fertiliser in a targeted way depending on land type could offer significant savings, Rod says.

Helicopters and fixed wing planes using GPS placement can give a more precision approach, as can applying fertiliser according to productive value.

In hill country, the mid-slope parts of the farm need the most fertiliser, while stock camps, ridges, bush areas and waterways should be avoided.

If fertiliser prices were to rise 30 percent, which is not unexpected, a precision fertiliser approach may save \$20 000 a year on a farm this size.

Soil tests from stock camps usually show Olsen P levels of 30 to 60 so they don't need any fertiliser, Rod says.

"If more than 20 percent of the usual spread area of this farm is scattered trees, stock camps, unproductive land and waterways, you potentially could be using a more precise approach."

Dave says he is still thinking about how to incorporate differential fertiliser into his operation.

He has a paddock soil map which shows a jumble of good country and steep country in each paddock.

"However, Rod's figures are very convincing. I guess we should have a play on one section of the farm."

BREEDING TOUGHER AND CHEAPER SHEEP

A background in shearing and maths has resulted in a fascinating direction for Dave Read. He is breeding lower-cost, more resilient

Key points

1. Planting spaced poplars and willows is a good investment to counter erosion and reduce pasture losses from slips.
2. Harvesting trees for fodder pays in droughts, and although labour intensive, it is cheap feed and available on-farm.
3. Diverting expenditure to better land classes can pay dividends.
4. Differential management of fertiliser has big potential.
5. Buying land in a different district spreads risk.
6. Breeding more resilient sheep is reducing costs.

sheep after careful calculations of wool costs and returns.

About 10 years ago, Dave kept a diary for a year to analyse what he spent his time on. At that time, the farm ran 40 percent sheep stock units yet 50 percent of labour was spent on sheep.

Half this time was spent on docking, jetting, shearing, crutching and dagging.

Wairoa's warm wet weather creates high humidity and fungal toxin problems. "We are second only to Northland in being a hostile environment for sheep."

For the last six years he's been breeding sheep with bald backsides, taking the flock from Perendale-based composites to add in Wiltshire and Dorper.



The recorded six-tooth and older mixed age ewes.



Photo: Rod Savage, AgFirst.

Fifty hectares of reverting block.



Slipping hills with space-planted willows that were cut for fodder last year.

He wants sheep capable of shedding their fleece and which can be shorn in mid-winter.

For the last two years he hasn't docked, and doesn't do any crutching. The sheep are dagged if they need it, and shorn once a year.

Dave also wants sheep which require less fly prevention, and he culls out sheep which are struck, as well as spreading out preventative treatments.

He doesn't dose any adult sheep for internal parasites, excepting once after a major drought.

Now Dave has joined the Sheep Improvement Ltd animal recording scheme and also uses SIL's protocol for resilience to parasites as part of the breeding programme. "We want sheep that don't need drenching, will put on weight, and keep producing under a parasite challenge."

He also uses AgResearch for sporodesium dosing sire rams to select for resistance to facial eczema.

FOR MORE INFORMATION

- **CONSERVATION TREES: Fodder willows for Hawke's Bay** – Hawke's Bay Regional Council. Go to www.hbrc.govt.nz and search under 'Fodder willows'.
- **Poplars and willows for environmental management and fodder** – National Poplar and Willow Users Group. Go to www.maf.govt.nz/sff and search under 'Poplars and willows'.
- **Pole planting – maintenance** – Taranaki Regional Council. Go to www.trc.govt.nz and search under 'Pole planting – maintenance'.
- **Soil Conservation Technical Handbook** – Ministry for the Environment. Go to www.mfe.govt.nz/publications and search under 'soil conservation'.
- **Sustainable Land Management: Hill Country Erosion Programme (MAF)**. Go to www.maf.govt.nz and search under 'Hill country erosion'.
- **Wairoa Sediment Reduction Initiative and Catchment Facilitation Programme**. Go to www.maf.govt.nz and search under 'Wairoa sediment reduction initiative'.

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