



ADAPTING TO A CHANGING CLIMATE: CASE STUDY 24

ARAI MATAWAI

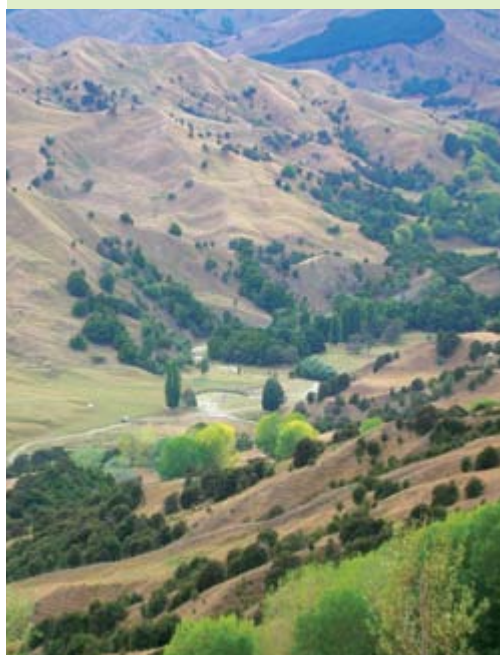
Breeding for facial eczema tolerance

THE FARM

- Sheep and beef breeding and finishing farms in Gisborne.
- Three stations totalling 2900 effective hectares, running 31 900 stock units.
- Arai Station – 1827 hectares (owned).
- Kaikoura Station – 1357 hectares (owned).
- Awapuni Station – 300 hectares (leased from the Te Awapuni Moana Trust).

ARAI MATAWAI INCORPORATED

- A Māori Incorporation, formed in 1953 and owned by 1200 shareholders from within the Rongowhakaata tribe.
- Governed by a management committee of seven people.
- Gregg Pardoe – Operations Manager, responsible for the on-farm operations.



Arai Station.

Arai Matawai is tackling the facial eczema challenge that is burdening their production levels. The way forward is seen as breeding and genetics to introduce facial eczema-tolerant Coopworth rams to their Romney ewes.

RESPONDING TO A CLIMATE CHANGE THREAT

Arai has always been a summer dry farm. It has a lot of north facing hills that burn off early in the summer and don't grow grass again until later in March. Because of the combination of low pasture covers, hot humid valleys and sheep without any tolerance to facial eczema, they were losing a lot of ewes every year to facial eczema and struggling with low lambing percentages.

Gregg Pardoe, Operations Manager, says, "with the scientists projecting that things are only going to get drier and warmer in this part of the country, it becomes pretty clear that the facial eczema issues we experience are only going to get worse."

Climate projections for the Gisborne region to 2090 suggest a warmer climate by around 2°C on average. Changes to rainfall variability are expected, with potentially a doubling in drought events accompanied by an increasing number of extreme wet events. Average annual rainfall projections vary widely, but they generally point to drier conditions.

With facial eczema spores thriving in warm, humid conditions, the need to prevent this disease from developing in sheep flocks becomes even more important, given these scenarios.

"We are the Kiatiaki (custodians of the land). These farms will be here for our people for a long time to come, we must do what we can to make sure we adapt to the changes that are happening around us. That is why we are looking at what is going on and making sure that we are altering our farming policies as we need to," says Gregg.

THE CHANGING CLIMATE MEANS CHANGING GENETICS

According to Gregg, the biggest limitation to increasing stock performance is facial eczema. The best way to create tolerance to this disease is to breed it in to the flock over time.

In 2007, Arai was lambing at 108 percent compared to the Gisborne district average of 135 percent, and their death rate was also very high. "To increase the numbers, cut down on deaths and increase kilograms of production, we need to reduce the burdens that restrain our sheep from performing at the high levels we have seen by the district's top farmers, who also have the same issues that we do."

There was also the option of using zinc capsules or drench, however Gregg believes this is expensive, time consuming for staff and will not always benefit the sheep.

Even though Kaikoura station is located in an area where facial eczema is not an issue, they still need to produce tolerant sheep. This is because the overall Arai Matawai farming plan is to send lambs from Kaikoura to the front country (Arai and Awapuni) where facial eczema is a real challenge and seems to be becoming more of a problem.

ACTION AT ARAI

The process started in 2006 when staff approached their ram breeder and told him of their concerns. He sourced half Coopworth rams to use as their sires, but that meant they would have replacement ewe hoggets with only one-quarter Coopworth in them.

“We decided that we needed to speed up the process so we are now using a full Coopworth ram,” says Gregg. This means the progeny is half Coopworth and when put back over a full Coopworth ram will give $\frac{3}{4}$ Coopworth replacement ewe hoggets. “The more Coopworth we can introduce to the flock the more tolerance to facial eczema we can build.”

Proven success elsewhere

Charlie and Kerry Seymour from Kohata Station near Gisborne, have been using facial eczema tolerant rams since 1998. They attribute facial eczema tolerance as the biggest contributor to lifting their lambing percentage.

Charlie Seymour says, “in 1995 we lambed 2283 ewes and we had 2633 lambs at shearing time (115 percent). No hoggets were lambed. In 1998 there was a very bad outbreak of facial eczema. We lost 300 ewes and were left with eight surviving rams out of 35. Facial eczema is always a major concern, as a minor challenge 3–4 years out of five and a serious challenge every 10–12 years on average.”

“Eczema tolerance became our number one objective; we visited all the Coopworth studs in the upper North Island and chose to purchase our rams from Ashgrove Stud. We liked the sheep and wool type. Our first year with some facial eczema tolerant hoggets for scanning was 1999. Our aim was to bring as many hoggets with eczema tolerant genes into the flock as possible. While the system was costly it also gave us a great maternal selection.”

“From 2000 onwards hoggets were lambed and in 2007 we produced 2720 lambs from 1325 ewes and 495 hoggets (149 percent). In 2008 the hoggets scanned 147 percent and docked 136 percent. The mixed-age ewes scanned 203 percent and the two-tooth ewes, 171 percent. The three-year average wool weight per sheep stock unit is 7kg/ssu.”



Gregg Pardoe – Operations Manager.

It will take two years before the flock get mated to a full Coopworth and produce three-quarter Coopworth progeny.

After two years, they expect to start seeing a change in the genetics and improvement in sheep productivity due to less facial eczema inhibiting the growth and reproduction of their ewes.

Other benefits that come as the productivity of the farms increase are an improved work environment as staff no longer have to deal with a high death rate in the flock and positive returns to shareholders.

BEYOND BREEDING – OTHER RESOURCES

Feed budgeting tools such as Farmax are used to forecast feed deficits during the summer months when facial eczema levels are dangerous. At this time of year the sheep graze hard into the dirt trying to get enough to eat and the spores have more opportunity to transfer from the pasture to the sheep.

By using these modelling tools, Gregg can see pasture deficits coming and forecast facial eczema risk so he can plan where stock can safely graze. This summer Gregg was able to graze forestry blocks around the district, and by putting stock into these blocks it meant that they could build a feed surplus at Arai.

Gregg is confident that this approach is the way forward and by adapting farm policies and practices now, the land will be taken care of for future generations.



Active feed monitoring and planning help maintain stock in good condition.

“Facial eczema seasons are likely to be more widespread, severe and probably longer lasting. Animal production and welfare will suffer if appropriate preventative measures are not taken. Genetic selection for FE tolerance is well proven and permanent in a flock. This is the main pathway farmers should go down in the face of higher FE challenges in my opinion.” J R Meban, B.V.Sc.

TIPS TO AVOID FACIAL ECZEMA

- Maintain high pasture covers.
- Avoid humid, sheltered valleys.
- Head for southerly faces, cooler and higher altitude paddocks.
- Place older sheep or cattle on higher risk areas.
- Use fodder crops as they are facial-eczema safe.

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

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Key points

- 1 Arai Station, a Gisborne summer dry farm, has previously struggled with ewe and production losses to facial eczema due to a combination of low pasture covers, hot humid valleys and sheep without any tolerance to facial eczema.
- 2 With future climatic conditions likely to exaggerate the problem, the team have decided to tackle the problem now by introducing facial eczema tolerant Coopworth rams to their Romney ewes.
- 3 The benefits on Arai Station are just beginning to come through.
- 4 From this point onwards sheep productivity is expected to increase due to less facial eczema inhibiting the growth and reproduction of their ewes.
- 5 Other expected benefits include a better working environment on the farm, as staff members do not have to deal with the high number of sheep afflicted with facial eczema and better production and financial results for the farm overall.

FOR MORE INFORMATION

- *Facing up to Facial Eczema*, a publication by the New Zealand Sheep Council and available on the Ceres Farm website www.ceresfarm.co.nz



Breeding towards facial eczema tolerant sheep.

