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**CAWTHRON MARLBOROUGH
ENVIRONMENT
AWARDS
2015**



JUDGES' REPORT

FARMING

GERARD FARM, ELIE & HOPAI BAYS

INTERVIEWED	Mike and Kristen Gerard
DATE	6 January 2015
JUDGES	Lachie Grant, Chris Bowron, Penny Wardle

SUMMARY

Mike and Kristen Gerard have converted limitations of their Marlborough Sounds location into strengths, modelling the farm to fit the environment. Livestock farming, forestry and biodiversity protection are in balance at Hopai, two-and-a half hours drive from Havelock or 50 minutes by boat in Pelorus Sound.

The Gerards have adapted to isolation, growing or catching most of their food and working in with neighbours when carting livestock, fertiliser or other supplies in and out to save energy and costs.



They are pioneers in protecting regenerating native bush in the Marlborough Sounds and were fencing off significant areas before incentives were offered. Large sections have been protected and in some cases covenanted through the Marlborough District Council Significant Natural Areas programme, and with the Department of Conservation.

Stand-out features on this property include:

- The matching of land use – livestock, forestry and retirement - with land type.
- Protection of ecologically significant sites, well before incentives were offered.
- Deliberate adoption of sustainable farming by reassessing farming techniques and their land's capability, based on a Catchment Board farm plan.
- Innovative attitude, including being early initiators of wilding pine control, then sharing drilling and killing techniques with others.

PROPERTY DESCRIPTION

Farm type: Sheep and beef plus forestry.

Area: 1100ha, 160ha in grass, 100ha commercial forest (65ha pines, 30ha blackwoods and eucalypts, 5ha rewarewa and beech), 40ha shelterbelts, fenced off creeks and wetlands and 800ha regenerating hill country.

Terrain: Coastal flats to rolling and steep hill.

Rainfall: About 1500mm. Has dropped from up to 2000mm since 2000. Few frosts, plenty of wind.

Soil type: Include Kenepuru steepland soils and Manaroa alluvial silt loams on the flats with low natural fertility.

Ownership: Mike's parents bought Hopai in 1979 and Mike and Kristen took over in 1984.

Stock run: 1000 breeding ewes and 100 breeding cows plus replacements, run on 160ha of flats and easy hill. Tail about 150% lambs from ewes mated (taking into account dry-drys and losses). All meat lambs go away fat. Hoggets are mated to a terminal sire. The Simmental calves sell at a weaning average of 280kg. Stocking rate: 12.5 stock units/ha.

Special features:

- Typically for the Sounds, hill country blocks are marginal due to aggressive reversion of gorse, tauhinu, Spanish heath, fern and kanuka. Wilding pines have also spread rapidly.
- The Sounds are frequently swept with heavy rain and strong winds, especially in spring.
- Strong family connections to the Sounds. The Gerard children are the 6th generation of Kristen's family to live in the Sounds.
- Isolation means high freight costs. One unit load of stock costs \$1500 and lime delivered \$82/tonne before spreading.



SOIL IMPACTS

When the Gerards bought Hopai in 1979, hardly a tree had been planted in 100 years and there was a long history of burning the hill country every 5-10 years. In the 1980s with Land Development Encouragement Loans the family tried to break it in again with the aim of running 3000 stock units. Gorse, hard fern, manuka and wilding pines were burned on hill country and the slopes regressed to run merino wethers for 10 years. However, weed seed meant regeneration was rapid and they started losing the war against regeneration, which forced a rethink of how the farm was run.

- The Gerards broke the farm into management units, following a Farm Plan developed with Marlborough Catchment Board. Hopai is a great example of adapting land-use capability units into farm/land management systems.
- Annual dressing of RPR and lime with other elements, especially sulphur over the entire farm, at almost double the rate on hill blocks compared with easier country.
- In 2014 ground-spread and flew on 180 tonnes of finely ground mussel shell fertiliser, as a trial. Kristen sees this as returning some of the calcium removed as mussels are harvested from the sea. Soil tests are awaited to assess results.
- Rotation of fodder crops with pasture increases nutrient return.
- Making baleage gives the option of feeding cattle on light ground when soils are wet.
- Subdivision into 33 paddocks, most 4-5ha, mostly based on land management units. This provides good grazing management and avoids pasture being bared down in some areas and becoming rank in others.
- Varied sward – hybrid ryegrass, clover, plantain and cocksfoot all used. Shogun ryegrass sowed in early spring was break-fed to lamb hoggets over winter but was starting to run out when judges visited in January.
- Direct drill into old pastures for minimal soil disturbance versus cultivation and planting of seed. It may be that to increase pasture production on parts of the property traditional cultivations methods have some value (see suggestions).
- About 4km of shelterbelts protect against erosion by wind and rain.
- Logs placed along beach near sports-ground and native plantings along the coastline are mostly aesthetic but could protect against coastal erosion.
- Existing tracks at the top of the blocks will be used for log collection when forests are harvested. This avoids building new tracks.
- Native regeneration on hills and the Oaheka Peninsula covenanted with DOC provides cover, preventing erosion.

The Gerards do not run cattle on pug-prone paddocks in winter but shift them to stonier country. However, all paddocks the judges saw appeared to have some pugging damage. They are breeding towards a compact Simmental, partly to minimise pugging impact but these may still be too heavy for the soils.

FORESTRY

The Gerards have been at times outspoken critics of some logging practices in the Sounds which has increased pressure to maintain high standards. They have thought ahead when developing their forest, anticipating how it will be logged using existing tracks to maintain soil stability.

- Harvesting planned for, utilising existing roads as log collection platforms at the top of blocks and will also plan to pull logs down to flat country.
- Native vegetation left in gullies.
- Avoid planting over-steep faces.
- Forests are set back from the foreshore.

WATER IMPACTS

- Creeks double-fenced and protected, providing mountain-to-sea native vegetation rare on private property in Marlborough. This provides valuable habitat and food for native bird and fish species.
- Riparian plantings include a wide range of natives and also exotic species beneficial to birds and bees.
- Natives are eco-sourced, many propagated on the property.
- Since 1992, have fenced and planted wetlands where stock used to get stuck. Plantings include kahikatea, pukatea, cabbage trees and tawa.
- Chemical control of porina avoided. Insect growth regulators that can be used are extremely toxic to aquatic organisms.
- A Marlborough District Council survey identified a diverse range of native fish species including large-bodied galaxiids and banded kōkopu.
- Exotic forests do not impinge on the coast.
- Shelter belts protect against wind and rain erosion.
- Minimal use of nitrogen fertiliser.
- Sheep are emptied on paddocks before being held in the yards which are close to the coast.

Vehicle tracks drop steeply into creeks, reinforced by rock. Crossings have not been culverted or bridged but paddocks are fenced to have creeks on one side so stock do not cross through when grazing.

Stockwater is not reticulated as Mike and Kristen do not know of good springs close to the main paddocks – although this might require further investigation - and pumping to a tank would be required. Stock have access to waterways where the banks are stable.

WASTE MANAGEMENT

Kristen started cleaning up mussel waste including ties from the beach at Hopai in 1999 and wrote a report to the Marlborough District Council and MPs on the problem in 2000. Since then, the industry has started a one-day beach clean-up and requires ties holding lines to be collected as they are cut off rather than dumped in the sea. She has photos of gannets in a colony on the beach picking up and making nests from the ties.

- Baleage wrap is baled and sent for recycling through PlasBack New Zealand which develops products for the agricultural and horticultural markets made from recycled plastic
- Recyclable household rubbish taken to the recycling centre in Blenheim and non-recyclables to the waste transfer station about twice a year

- Floodgates utilising mussel floats protect riparian plantings and protected areas at creek crossings. Mussel floats are also recycled as tree protectors
- High family awareness of waste minimisation and responsible disposal
- Dead livestock is used as bait in pig traps, which is a potential disease risk.

EFFICIENCY

Water, Energy and Fuel, Other inputs

- Minimal chemical inputs.
- Efficient use of labour.
- Finish 70% of lambs, straight off their mums, with no stores.
- Run the ram with hoggets and 2/3 get in lamb.
- Sheltered house site captures heat.
- Timber grown on the property used in housebuilding and to construct the jetty.

The cost of taking a truck in and out from the farm is \$1000 so the Gerards make sure they are fully utilised. Their first draft of lambs is sent off at the same time as terminal ewes and they aim to share loads with neighbours.

BIODIVERSITY

Indigenous Biodiversity

- In 1984 handed over 50ha to Lands and Survey in exchange for freeholding Lease in Perpetuity land (Hopai and Elie hill country portions of the farm). The flats in Hopai and Elie were already freehold.
- Prominent 30ha Oaheka Peninsula covenanted with DOC in 1996.
- 620ha of regenerating native bush hillsides protected under Significant Natural Areas agreement with the Marlborough District Council.
- Regenerating species include Southern rata which turn the whole top of a knob red when flowering, rimu and Hall's tōtara.
- Started biodiversity protection work, including fencing, before Marlborough District Council and Government funding became available, but have more recently had some financial assistance with this work.
- Natives planted on the property eco-sourced from Morgans Road Nursery or grown in a nursery on the property.
- Creeks double-fenced and protected with riparian plantings including a wide range of native species. These create corridors for birds, connected to covenanted areas.
- Since 1992, have fenced and planted wetlands where stock used to get stuck.
- The emphasis is on protecting surviving vegetation rather than planting but absent forest species are being planted into regenerating covenants.
- Plantings are attracting kereru around the house for the first time.
- Breeding red-headed kakariki (endemic to Nelson while yellow-headed are endemic to Marlborough), kept in captivity to avoid inter-breeding.
- Pukeko numbers have increased, meaning planted seedlings need protection.

- Kohekohe broadcast by helicopter on Oaheka Peninsula with some success, as a trial.
- Growing rewarewa from seed, as a timber tree.

All forestry and 350ha of indigenous regenerating hillside has been registered for carbon credits and plots at 29 sites were measured in 2012 under the guidance of Nelson forestry consultant Roger May. The family is holding on to the credits hoping for improved values, especially now that overseas credits cannot be sold in NZ.



Non-Indigenous Biodiversity

Forestry

Forestry is a major strand of the farm business which Mike says can take up half his time. Plantings include blackwoods, eucalypts and rewarewa as well as radiata pine. Planting was on areas grassed in the early 80s, unsustainable by the 1990s because of reversion to weeds and the cost of control.

All blackwoods, eucalypts and 30ha of pine have been pruned and thinned.

Other Plantings

- Plant species which support bees and birds – including grevillia, camellia and tree Lucerne.
- Have 150 beehives on the property, under a lease agreement with a beekeeper.
- The Gerards are well on the way to self-sufficiency. Their productive garden includes fruit trees and a house cow provides milk.
- A woodlot of 500 trees includes pin oaks, European beech, black walnuts and alders.
- Tropical species, including bananas, are being grown in a hothouse.
- Exotic and native plants are propagated in a nursery.

WEED, PEST AND DISEASE CONTROL

Weeds

Crown Lands Ranger Joshua Rutland commented in the 1890s that he could not see long-term prospects for hill country farming in the Sounds because of lack of topsoil and natural fertility.

“On commercial grounds, as well as for the preservation of the scenery, the destruction of the birch on the hills should, as far as possible, be prevented. Experience has fully proven that this land will not grow grass, but it will grow fern, manuka and noxious plants, which can only be kept down by constant labour, for which the ground yields no return.”

Gorse and other noxious weeds and pests took off in the Sounds in the late 1960s, as roads and power supplies came in.

Kristen is aware that Tasmanian blackwoods planted for timber could become a new weed in the Sounds.

When chemical control of gorse, tauhinu, Spanish heath and fern on the hill country proved uneconomic, the Gerards intensified management of the front country where pastures and fodder crops are rotated, baleage made and weeds controlled.

- Experimented with mowing and mulching gorse.
- Metsulfron, Answer and Grazon mix used to control gorse, spraying for a month every year. Use has reduced from 40 tankfuls to 20 tankfuls.
- Aggressive old-man's beard and cotoneaster which are widespread in other areas are pretty much under control so small areas/individual plants can now be targeted.
- Environmental weeds including wandering jew and banana passion-fruit are controlled in fenced-off riparian strips. Kristen says: "It's a fallacy that you can fence and the job's done. Weeds are a huge issue." Ecologist Geoff Walls says this is because a riparian strip resembles an extended forest edge where there is no shading to suppress weed growth.
- Taskforce used as a trial against giant rats tail grass, new to the area. Killed this grass without harming pasture.
- Scotch thistle is getting away in one paddock where plantain, susceptible to hormone herbicide, has been sown.
- Mike and Kristen were a part of the pioneering "drill and kill" wilding pine control, drilling trees then injecting herbicide, prior to the Sounds Restoration Trust. This has been done on an area covenanted with DOC and on their own land.
- Wilding control on their 620ha SNA-protected area was done in partnership with the Sounds Restoration Trust, with the Gerards allocated \$14,000 of Government biodiversity funding and the trust \$5000. A \$3000 grant from the Marlborough District Council also helped.
- Wilding pines controlled in another regenerating area, not classified as ecologically significant because of their presence.



Pests

- DOC provided 6 Possumaster kill traps to use in a pocket of remnant kohekohe in a reserve area adjoining the farm. Kristen resets these several times a month and has seen kohekohe recover sufficiently to flower and seed. The Gerards also set their own traps around the farm as well as a line of stoat traps around roads.
- Trappers used to get up to 1200 possums a year off the farm. Numbers have dropped to about 300.
- The Gerards have owned their own pig dogs for five years and kill about 100 pigs/year and hunt deer – 6 killed in December 2014.
- The majority of goat control is done by the Gerard family (approx.100/year) but recently a DOC goat culler has also been employed.
- Pesticides are not used against pasture pest porina.

Innovative Practices

Dean Satchell of Sustainable Forest Solutions has collected Southern ladybird *Cleobora mellyi* from Hopai, introduced into New Zealand as a biological control for eucalypt pests between 1979-1987. The ladybird which established only in the Marlborough Sounds has been found to feed on psyllids on Tasmanian blackwoods, tomatoes and potatoes. To find out more:

<http://www.nzffa.org.nz/farm-forestry-model/the-essentials/forest-health-pests-and-diseases/Predators-parasitoids/cleobora-mellyi/>

<http://www.nzffa.org.nz/farm-forestry-model/the-essentials/forest-health-pests-and-diseases/Pests/Paropsis-charybdis/cleobora-mellyi---what-it-is-up-to-these-days/>

Disease and Animal Health

- To control internal parasites, drench capsules are inserted in ewes pre-lambing. Mike is aware of the risk of resistance but says high production sheep do not have much tolerance to worms in this warm, wet environment.
- Cattle are treated with a pour-on drench.
- The Gerards' are anxiously watching a recent tick infestation spread by wild deer and keeping an eye out for theileriosis, a blood-borne disease carried by this parasite which causes anaemia in cattle and can be fatal.
- Scald/footrot a problem, there could be an opportunity to use test results to select more genetically resistant rams.

COMMUNITY VALUES, RESPONSIBILITY, SUSTAINABILITY

Strategies for minimising/containing activities impinging on communities, workers and family

- Locked chemical shed.
- Mike and Kristen have attended ACC Workplace training, FarmSafe courses and hold First Aid certificates.
- The Hopai sports held on the property each year has a health and safety plan.
- Kristen and Mike are heavily involved in the Sounds community.

Education

Mike and Kristen have strong environmental ethics which they are passing on to their children. While a student at Nelson College, son Patrick submitted against an expansion of salmon farming in the Sounds at an Environmental Protection Authority hearing.

The Gerards share their environment and knowledge with the immediate and wider community. Each year they host the annual Hopai Sports Day. Other commitments include:

- Marlborough District Council, Sounds Advisory Group and Significant Natural Areas community representative – Kristen.
- Kenepuru Sound Residents' Association - Mike on roading committee.
- Fire Party – Kristen and Mike.
- Homewood Hall committee – Kristen is secretary and Mike president.
- Kristen has run a DOC-sponsored Sounds hunting competition – where competitors collect goat and deer tails – for nearly 30 years.
- Mike chairs a committee running a group-owned broadband scheme.

- Kristen helped the Marlborough District Council organise a pest education day at Portage and a weed education day at Waitaria.
- Mike and Kristen helped refine the drill then inject with herbicide approach to wilding pine control and shared their findings with interested individuals and groups.

Landscape

- Use species appropriate to the Marlborough Sounds landscape and climate.
- Blackwoods planted for timber trees blend in well with native bush.
- House design compatible with landscape.

Resource Management/Compliance

The Gerards have a good relationship with the Marlborough District Council and Department of Conservation and appear acutely aware of the potential impact of their enterprise on the Marlborough Sounds environment.

SUGGESTIONS/OPPORTUNITIES FOR THE FARM

Pastures

Typically for the Sounds, pastures are not as productive or long-lasting as might be expected although livestock perform well. Independent soil testing could be worthwhile, pointing to any deficiencies.

Pugging was evident with compaction also likely and these soil structural issues may be affecting pasture production. In this context traditional cultivation methods may be more appropriate than direct drilling. When combined with careful grazing management cultivation can improve pugging/compaction issues. Consider cultivation for short-term fodder crop, followed by re-grassing and initial light grazing (i.e. finishing lambs).

- Address pugging of paddocks, potentially by shifting to Angus or composite cattle which are lighter than the Simmentals run. The farm appears to have the right sheep to cattle ratio, with cows maintaining pasture quality by eating roughage which sheep will not necessarily.
- Perhaps use sacrificial areas during wet periods or winter, proposed for cultivation.
- Consider topping thistles in the paddock where spraying with herbicide is not possible because plantain in the pasture would be killed.

Stock

- Using capsules to control internal parasites risks resilience. Seek advice on a monitoring and targeted control programme, rotating drench families. There could be an opportunity to breed towards worm tolerance.
- The Gerards say they tend to employ workers on contract, partly because this reduces their liability if there is an accident. However, they have a responsibility to warn contractors of risks and should ensure they have their own safety plan.
- If further riparian fencing is planned, could consider two-wire electric fencing on the shady side. Some controlled sheep grazing may help reduce weeds such as old man's beard.
- Previous Awards winners Muff and Paul Newton who farm near Havelock use a sawdust-based dry composting method to manage dead stock which works well.
<http://ecan.govt.nz/advice/your-business/farming/Pages/dead-stock-offal-disposal.aspx>

Infrastructure

- Water reticulation to paddocks would be required to take Hopai to the next level.
- Environmental benefits would be the ability to keep stock out of waterways meaning no cattle standing in water, less bank erosion and less *E.coli*.
- Stock management benefits would be no sheep/lamb losses in creeks, the ability to manipulate grazing patterns by placement of troughs, better quality water, lambs do better, less stock losses, fertility transfer.