"We need to acknowledge that economic development and indeed our future is only sustainable if our food production systems strengthen, rather than deplete natural capital and they are not reliant on fast diminishing finite resources."

Mangarara Station, Elsthorpe

The Farm

- 610ha in total of which 500ha is effective. The remainder includes a 35ha lake, a 13ha QEII block, and various laneways and shelterbelts. There are currently 75ha of hill country leased out to a neighbour.
- Of the 500ha effective, 55ha is peat flats where they're able to control the water table to retain moisture levels through the summer. Another 231ha is easy rolling country. The remaining 212ha is hill country.
- Sheep and beef operation with about 5400 stock units.

April 2010

Planning for long-term sustainability

Greg and Rachel Hart took over Mangarara Station from his parents about a decade ago. Since that time they've been progressively moving towards a long-term sustainability picture. They're very aware of a range of global issues including climate change and peak oil, and are making proactive decisions based on what they see happening in the world. This has involved decisions related to the stock mix, soil management, pasture mixes, and tree planting. Developing a balance between short-term needs and long-term vision is a core part of their management approach.

This approach has led to a relationship with Air New Zealand. More recently they have made a decision for an even more radical change, involving development of an education centre for sustainable living and permaculture on their farm.

Climate

"There's plenty of information out there now saying climate change will result in more droughts, more wind and increased heavy rainfall events. I am taking this information as well as what I see going on in the world and making my decisions."




Rainfall records have been kept since 1999. Average rainfall is 940mm, with recent years being well below average. In 2008 rainfall was 745mm and in 2007 it was 720mm. Autumns appear to be getting drier over the last few years.

Rainfall variability is the biggest challenge. Through feed budgeting and monitoring of feed covers, the growth rate they were getting in November 2008 was about 50 percent of an average or expected growth rate. So to deal with the variability you have to have the flexibility. The dry is the hard one.

The 2007 drought

Greg managed the drought with the flexibility of the cattle policy, and de-stocked. De-stocking was based on decisions made with feed budgets and watching what's happening on the farm. By May, when the first frosts came and new grass wasn't going to grow, decisions were made that the stock had to go.

Stock policy

The sheep:cattle ratio is around 60:40. The ewe flock is the core capital stock on the hill country but numbers have been reduced. In 2008 they lambed 2200 ewes. They breed their own replacements, so there are 500-600 ewe hoggets wintered.

They've been getting more cattle on because of the returns. The cattle policy has been trading to totally flexible. They're the first buffer for drought management or when things are tight.

The Farmax programme is used as a decision-making tool, so all decisions are converted back to cents/kg DM. The ewes are giving lower returns but are suited to the land type, and do bring some balance into the system.

Soil

"The goal is to achieve a low input system that is still economic."

Greg is working on implementing a biological soil management programme. He is aware of the benefits from applications of calcium, humates and other inputs that are benefiting the soil microbiology. Farmers who are managing soils biologically are getting phenomenal benefits. Before switching to the biological programme they were putting lime and RPR on for two years as a transition away from acidic fertilisers.

"The goal is to achieve a low input system that is still economic."

Overall they're looking for an approach that increases organic matter, water holding capacity, and drought tolerance. An important part of their consideration is for more sustainable systems (lower energy, higher C, drought proofing, animal health). With increasing fertiliser costs they're also looking for solutions that involve more locally sourced inputs.

Pasture

"I do believe that grass grows grass. It's hugely beneficial not to nail pasture hard at certain times of the year."

Greg is focused towards more diversity in the stock's diet. This involves sowing some fescues, chicory, and three clover species as well as planting trees for fodder. They recently planted 30ha of fescue for its drought tolerance and animal health benefits.

They're now trying to operate around higher residuals. The preference is to keep the stock moving and keep the pasture longer. A workable system is still being developed to see how much cover they can maintain through the middle of summer. Keeping longer covers reduces the bare ground where you'll get thistles and other weeds in. Greg also sees benefits to soils and productivity.

He has questions around the breeding of a lot of the grasses that have been sown in recent years. The ideal for rolling hill country is a balance between growth/production and durability and ability to survive during drought. Other factors are pasture and soil management.

Cropping

"I'm very conscious now of releasing carbon from our soils. I understand that ploughing peat in particular releases massive amounts of carbon."

> "I'm very conscious now of releasing carbon from our soils."

Up until 2008 they had a share farming agreement for squash growing. In 2008 they were offered some dry dairy cows to graze and calculated better returns from grazing as against cropping. Greg also has concerns, particularly on the peat soils, relating to carbon loss and energy use. Cropping systems are still dependent on a lot of tractor work and Greg is looking at systems to reduce this.

Trees

Putting less productive land into trees allows concentration of inputs into more productive areas of the farm. They're planting for diverse uses, for drought fodder, shade, shelter, and potential carbon income from some of the trees.

In 2008 they planted 23ha in pine trees, 19ha of which was replanting a forest harvested by Greg's parents. They planted a new 7ha block of pines and another 6ha in natives. The latter is part of a 40ha planting programme for natives. Another 5ha of various species were also planted.

In 2009 the planting programme involved planting a 13ha gully in native species as part of a partnership with Air New Zealand and about 1000 larger exotic trees incorporated into pasture land. The relationship with Air New Zealand has definitely sped up the planting programme. An education component has also developed, with various groups from Air New Zealand coming to the farm.

Water

Stock water is largely supplied by a trough system with water sourced from Horseshoe Lake. Dams are still scattered around the farm and act as a back up to the trough system and also provide water in hill country paddocks.

Future thinking

"Agriculture has become just another way of making money. It should be about producing quality healthy food while regenerating the natural resources that produce it. If we do this the money should follow."

Adapting to climate risk is part of the overall package aimed at building resilience. Everything they're doing is geared towards being more adaptable, with greater flexibility and systems being put in place with soils, pasture, stock and trees. Greg puts a lot of time and effort into self education. Almost every day he spends some time digging around for information. He takes ideas on and adapts them to the farm.

Greg has a strong awareness of the path that the world is on. It's about finding balance between economics and what's good for the planet.

Resources/support

"At the end of the day you've got to make your own decisions about how you read the future, using all the resources that are available. That's the great part of being a farmer, you sink or swim based largely on your own decisions.

That's what makes it challenging and exciting. I wouldn't want farming to be totally automated like a factory without the variability nature throws at us."

"In the long-term (whether 20 or 50 years) what we're doing at the moment (with farming in general) isn't going to be an option. Therefore some research should be going into these more traditional ways of managing soils. The current reliance on the NPK system to fuel our economy needs to be questioned for the future."

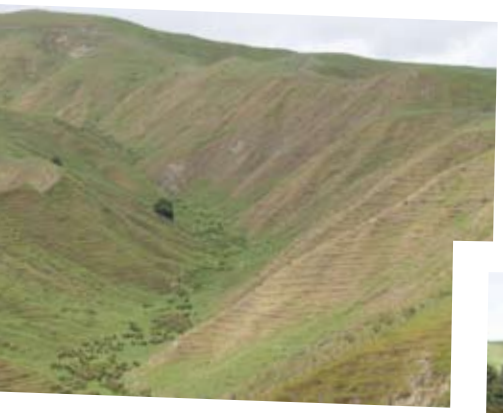
Greg would like to see some research linked with the people who have been operating organic/biological input systems for many years. For the sake of a few research dollars we need to get a better understanding of these systems. Putting some scientific detail and data around alternative soil management systems would be a huge benefit. Greg sees this as being very important with warning lights flashing with climate change, energy and other things.

He would also like to see more working models of long-term resilience.

"At present most people are drawn to the models that are more profit focused rather than those that are seeking to balance sustainability and profitability. You can't preach to farmers, they're individuals and everybody has got a different farm and a different system.
But farmers do like looking at models. If something is working they'll take ideas and try things out on their own farms."

Final reflections

Greg would like to see a future with a more balanced approach to land management involving proper land use for the various types of land. He sees a need for identifying those areas of erodable, less productive, hill country and retiring them to trees. Pine is the one that stacks up at the moment, but he wouldn't want to see it everywhere in the countryside. He would like to plant more trees on the farm for multiple purposes that will ultimately lead to increased profitability and resilience.



Written by:
Gavin Kenny

Produced by:
Earthwise Consulting Limited
709a Duke Street
Hastings 4120

Tel: 06 870 8466
www.earthlimited.org

Funded by:
Sustainable Farming Fund
PO Box 2526
Wellington

Phone 0800 008 333
www.maf.govt.nz/sff/

Hawkes Bay Regional Council
Private Bag 6006
Napier 4142

Tel: 06 835 9200
www.hbrc.govt.nz

EARTHWISE CONSULTING

HAWKE'S BAY
REGIONAL COUNCIL

Sustainable Farming Fund
Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere