



“The Regenerators” - New Zealand Farmers leading a progressive transition towards agroecology

Introduction

New Zealand is an island nation in the Southwestern Pacific Ocean which due to its remoteness was one of the last lands to be settled by humans. It has a temperate climate with mean annual temperatures ranging from 10 °C (50 °F) in the south to 16 °C (61 °F) in the north. Pastoral farming is the dominant land-use and New Zealand’s economy, despite being a developed nation, is still heavily dependent on export earnings from agricultural exports.

New Zealand has had one of the world’s highest rates of agricultural land intensification over recent decades (Ministry for the Environment, 2017). Over the last fifteen years dairy farming in particular has intensified beyond natural and environmental limits through imported feed, fertiliser and irrigation. This intensive form of farming has caused increases in production but carries associated environmental problems with rising greenhouse gas emission, increasing water pollution and



Figure 1. Greg Hart looking over his farm

decreasing biodiversity. Greg Hart, a regenerative farmer from Hawke’s Bay, reflects on these environmental issues: “We have a very clear understanding that where it’s all heading is not working”.

It is also a heavily debt laden model. New Zealand dairy farmers are among the most highly indebted in the world with around eight thousand farmers collectively holding

around \$38 billion worth of debt. This has led to high levels of strain among rural communities. Steve Broughton, one of the regenerators, says: “There are a lot of stressed out, depressed farmers out there”. Greg characterises the situation like this: “There are two paths laid out in front of us now, one is that business as usual path which is leading to a climate change disaster whereas we do have another option of going down a more eco-friendly system that is in balance of nature”.

Why the farmers chose to transition

The farmers featuring in this profile have parents and grandparents who have worked conventionally on the land. All of them came to the idea of regenerative agriculture due to an awareness of the ecological limits being breached by New Zealand agriculture. They believe that while farming is responsible for many of the environmental problems faced by their country, they also believe that better farming over time has the potential to provide a lasting solution. Greg mentioned: “At the end of the day I want to be able to look my children in the eye and say you know we gave it our best shot and did what we could to try and create a future for them”. In addition, Steve stressed: “Ever since I took over the farm, I’ve always felt that the conventional way of farming wasn’t meeting the goals that I was setting really. And I always felt there was a better way, a more natural way of doing things”.



Description of the Agroecology system

Greg and Rachel Hart’s Farm - Central Hawke’s Bay

Greg and Rachel started transitioning their 610 ha conventional sheep and beef farm around 15 years ago. They now have a diverse operation which incorporates livestock, tourism, tree crops and areas set aside for nature to thrive. Speaking about their diverse approach Greg describes it as “taking our lead from nature, nature is all about diversity, diversity brings resilience to the farming system”. While a conventional livestock farm would usually farm only one or two species and have a pasture mix of only two different species, usually ryegrass and clover, their sheep, beef cattle, dairy cows, pigs and poultry all get most of their diet from dozens of species in a perennial pasture. They have and continue to integrate trees into the landscape both for production of fruit and nuts and timber as well as regenerating native tree species. They have a protected lake about 35 ha which is a wildlife reserve and have planted 105,000 native trees in the last 10 years.

Their farm is carbon neutral as they have set aside enough land in regenerating native forest and production forestry to offset their livestock emissions. They are now looking into measuring their soil carbon to see if their holistic management practises are helping increase their soil carbon. They have incorporated tourism and education onto their farm by building an eco lodge that is used for visitors and schools to stay and reconnect with nature, the farm and their food.

A conventional New Zealand farm of their size would be employing only two people and would likely only have one family living on it. They see the connections between people as important as any other relationship within their ecosystem. Greg and Rachel’s farm directly employs four people and they have another family who have recently shifted onto the land who will soon be creating their own livelihood by growing and selling vegetables on the farm. Wherever possible they mimic nature and use natural systems which helps them to reduce their reliance on outside inputs. They have totally dispensed with the need for synthetic nitrogen fertiliser, having replaced it using a “soil first approach” and techniques such as diverse pasture and holistic grazing.



Figure 2. Sam in the pasture

Sam is a young farmer working with the Harts. He has just completed a Nuffield scholarship looking at [farmers transitions towards regenerative agriculture](#) around the world. One of Sam’s main roles on the farm is managing livestock under a holistic planned grazing approach as developed by Allan Savory. The Harts are naturally diversifying their pasture as a result of using holistic planned grazing and allow the plants to grow long and develop deeper root systems than conventional farmers might. They then move the livestock onto the taller pasture and rather than eat out all the plant matter they end up trampling a lot of it forming a natural mulch layer - a “Carboniferous nappy” which promotes biological activity as well protecting soil against the dry and windy conditions often experienced in the Hawke’s Bay region. They also rotate the poultry in a way that mimics the behaviour of birds in the natural environment. The hens following behind the mobs of cattle and scratch through the manure, spreading it, picking out insects and bugs which reduces some of the insects and pests commonly found in pastoral agriculture as well as gives extra production by producing eggs. They have also created a perennial system for their pigs - by supplementing the pasture feed with milk from their dairy cows they now don’t need to bring in as many cultivated grains.



Finding the information they needed to make the transition came from many sources but in the end Greg reckons “nature is always our teacher”. Greg studied Biological agriculture from teachers like Arden Anderson, and Graeme Sait. He takes inspiration from Joel Salatin and Mark Shepherd.

Steve Broughton’s farm. – Waikato hill country

Steve started transitioning his 289ha farm more than a decade ago. He now farms 155ha in dairy and the rest of the farm is used for plantings, replacement stock and infrastructure. Traditionally the farm



Figure 3. Steve and Nicole masters, agro-ecologist

ran on a conventional New Zealand grazing system with high inputs of fertilizer including superphosphate and urea as well as bought in feed supplements.

In the last 10 years Steve has evolved his farm from this conventional model towards a more holistic/regenerative system. He takes a soil first approach and like the Harts mimics natural processes wherever possible. In Steve’s experience “You can use nature to improve everything on farm. You can ditch all the chemicals and the pharmaceuticals and actually do a better job.” Steve’s holistic

grazing programme is a critical part of his strategy. He has 22 different pasture species but wants to diversify even more. He wants to give his cows a wide range of foods enabling them to stay naturally healthy, in his view cattle will graze on the plants which meet their mineral needs. The diverse pasture also allows him to build healthy soil microbiology. Describing the relationship between diversity and soil health Steve says “the more variety you've got on top the more variety you've got underneath.”

One of the biggest leaps of faith was reducing his herd size. He has cut cow numbers drastically which “really hurt because production fell, but it's starting to pay dividends now, a lot.” Overstocked farms are a huge source of water and climate pollution in New Zealand. Steve’s new approach is not only paying off for his bank balance but also from the health of the environment. Through his holistic grazing programme the animals eat what they need and then trample approximately 30% of the sward (pasture) into the soil which creates a layer of natural compost and mulch. Steve has increased the days of recovery (leaving the animals off the pasture) post grazing to let the pasture plants grow much taller than a conventional farm would.

In many parts of New Zealand conventional farmers rely on the sales representatives of multi-national fertiliser companies to test the soil and determine how much of their product is needed. Steve uses soil and herbage testing to determine if there are any nutrient or mineral deficiencies and then they correct whatever is missing through a foliar treatment program. One of Steve’s short term goals is to stop the use of tillage altogether as he believes “opening soil is one way of destroying our farm's ecology and putting it backwards by a number of years, also it's a major carbon release.” They are embarking on a no till form of cropping.

Steve has had to transition very slowly because of his debt. People he knows are keen to try it but they are saddled with high interest payments and banks who do not like the perceived risks. Steve compares the use of chemical fertilisers on farms as “like a drug addiction” which he is finally managing to break. Steve shares Greg’s philosophy of nature being the best teacher saying that “nature can do it all, we just have to learn”. His farm system has developed over time with the help of many different professionals. He has taken inspiration from Allan Savory and the holistic management institute. He now works with a holistic management mentor based in New Zealand and is working on taking the holistic approach even further.



Outcomes of the practices

Because of the lack of support from the Government and farming leadership there is a lack of formal science to show the demonstrable outcomes of regenerative farming in New Zealand. Many of these practices are by the admission of the farmers quite experimental and they are assessing the results as they go along. Every year though they are more encouraged by what they see in terms of their ecological and financial balance sheets. The advantages though of a transition to regenerative farming for Steve and the Harts goes way beyond the monetary. Greg describes “the greatest benefits are all the amazing people we get to meet who visit the farm almost on a daily basis. We get to eat like kings and live in an increasingly more beautiful and biodiverse landscape. We live a fulfilling life of meaning, being of service to life and the planet.” Steve has regained his love of farming through the transition saying that “it makes farming fun again”.

In terms of the farm’s productivity and profitability the Harts are finding that “you just sort of take one step towards looking after nature and she’ll come rushing back with ten”. They have been reducing their inputs costs and focusing on profitability rather than how much production they can pump out. Their input costs are significantly lower and are increasingly sourced locally. Describing their approach Greg says “It’s not just about how much you produce and how much money you make that’s got to be in balance with how much money you’re spending to produce that.”

The holistic grazing techniques are yielding good results in terms of soil health and pasture production. Sam’s noticed difference saying “you can see the response (to the technique) when the autumn rains come through the response in these paddocks is dramatically better.” Steve has noticed significant changes to soil structure and function between his regenerative and conventional plots. With the longer grazing rounds there is more plant above ground therefore more root mass below ground which is helping to build healthy soil and capture moisture and nutrients. He has also found that after the plant is eaten off by the cows in his regenerative system its recovery is much faster.

Steve’s focus is on profitability by reducing costs of production by working with natural systems to replace the need for expensive inputs. He has drastically reduced his chemical fertilizer budget which was around \$100,000 a year around 4 years ago and is now down to \$35,000 per annum. Steve says the fertiliser sales reps don’t visit any more. His plan is to go full holistic using zero chemical fertiliser within ten years. Steve thinks that in the end there are no downsides and transitioning is worth every bit of the time and money he has put into it: “When we learn patience and observation we’ll see that agroecology is the only way forward, the costs are only what you as a business owner want to put into it, once we have the confidence to allow nature to fix our problems and produce our food there really are no costs.”

Message from farmer to farmers

“Give it a go! Try a few plots at a time and just see how it works.”

— Message from Steve

“There’s that challenge of trying to think your way through solutions rather than just buying your solution out of a bag. So if that’s you, if you enjoy a challenge then this is a beauty”

— Message from Greg

“If you can connect with a few like-minded farmers and learn together it really helps having different knowledge and experience working on the same challenges and solutions. But every farm and farmer are different so you can design to suit your land and your goals”

— Message from Sam