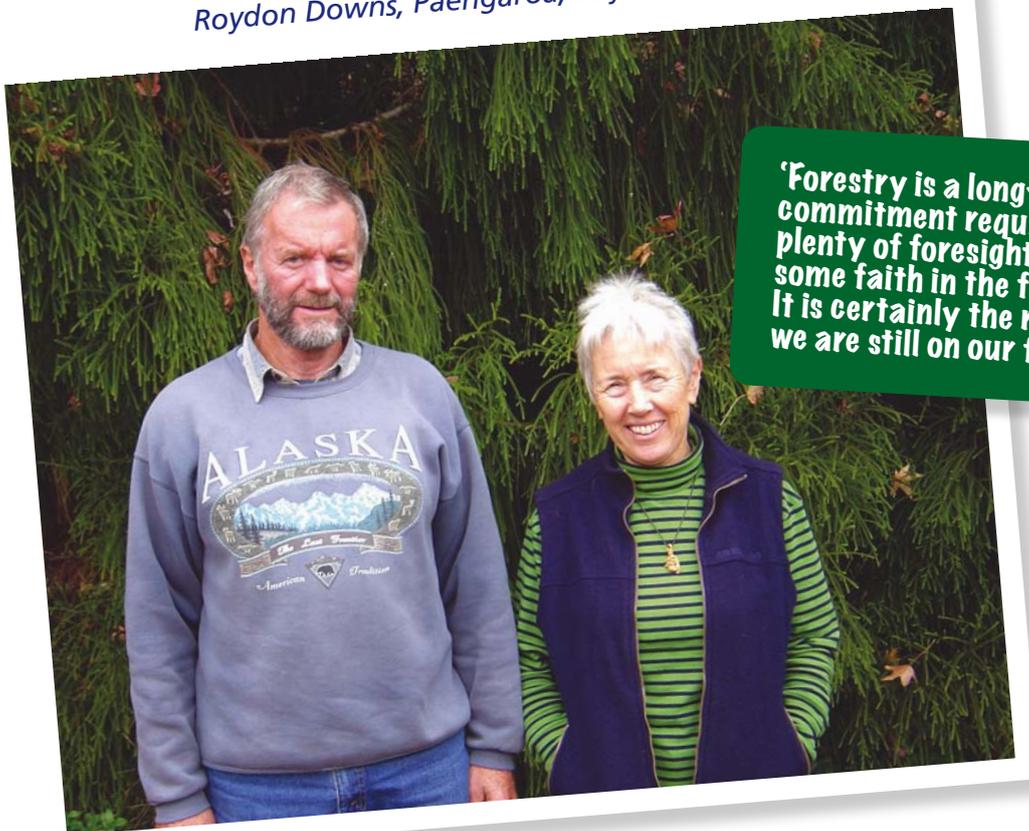


CASE STUDY 2



Geoff and Gill Brann,
Roydon Downs, Paengaroa, Bay of Plenty



'Forestry is a long-term commitment requiring plenty of foresight and some faith in the future. It is certainly the reason we are still on our farm'



Key facts

Farm size and type: The farm comprises 245ha of Bay of Plenty hill country.

Production focus: Forestry on 140ha, predominantly dairy grazing with some beef cattle on the remaining 100ha.

Soil type: The soil is Kaharoa ash. Environment Bay of Plenty has recently prepared a Soil and Water Conservation Plan and an Environmental Programme for the farm.

Climate: Annual rainfall averages just over 1500mm, based on daily records kept on-farm since 1966. The lowest rainfall has been about 1000mm and the highest, about 2200mm. Temperatures are relatively mild.

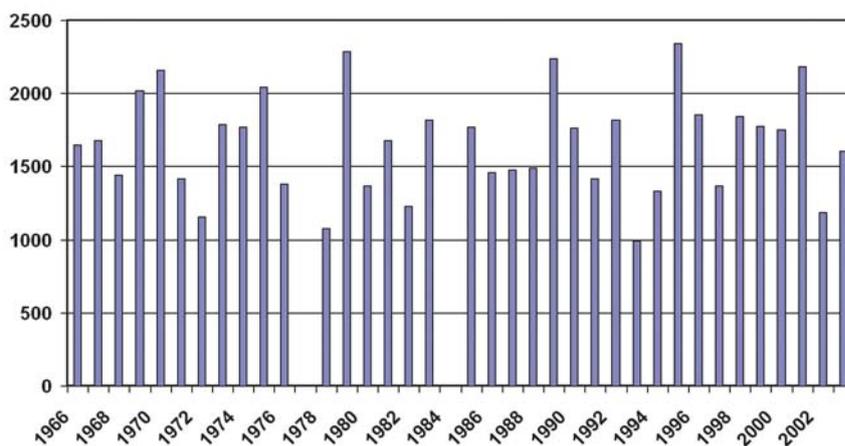
Water: There is a good, reliable, spring-fed stream through the farm.

people has come to use these huts, which are now in high demand. The development of a track network evolved from the huts, with 4000-5000 people a year now taking advantage of this. The Branns strongly believe that the development of this recreational concept has benefits in terms of public education, in particular of the benefits of trees.

Main climate features and challenges

The climate is generally good. Winters are generally warmer than in the past. They have noticed a big shift in pasture composition, both on-farm and around the district. There is more summer grass (*Microleana*) and kikuyu around now.

Roydon Downs Annual Rainfall, 1966 to 2003



Rain: The region is subject to torrential downpours from the north and north-east. The light volcanic soils on the property are very prone to erosion if exposed. This was the challenge they faced when they first took on the farm in the early 1960s.

The Branns have experienced some extreme rainfall events in their 40 years at Roydon Downs. In the early 1960s, prior to their record keeping, they experienced 'a wall of water' through the farm. The highest recorded rainfall was in March 1979 with just under 600mm for the month. They recall water in the paddocks at this time. This hasn't been experienced since. With protection of the whole catchment of the Outeheuheu Stream, combined with their own on-farm tree planting, they now experience little fluctuation in the stream during high rainfall events. This was most recently observed during July 2004, with a 200mm rainfall event resulting in minimal effects.

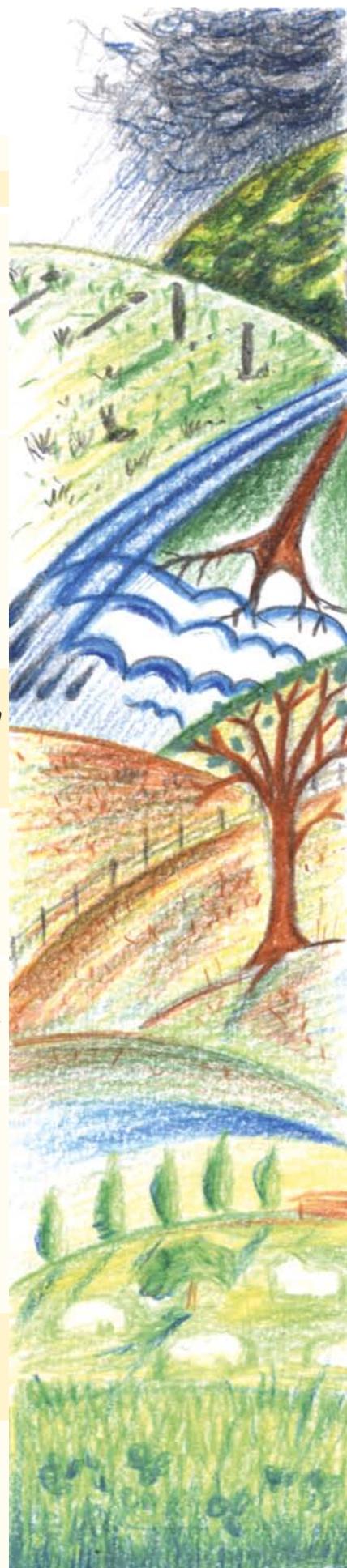
Social: Geoff and Gill operate the farm as a 50/50 partnership. They have three adult children who were all involved in the farm as they grew up. They retain an interest in the farm, with each owning trees on a 30ha block. Their daughter intends to return to the farm in the next 12-18 months. Geoff and Gill have been involved with the Farm Forestry Association for about 30 years and both have a strong commitment to public education.

Special features: A special feature of Roydon Downs is public access. Geoff built a couple of huts on the farm, originally for use by their children. By word of mouth a wider network of



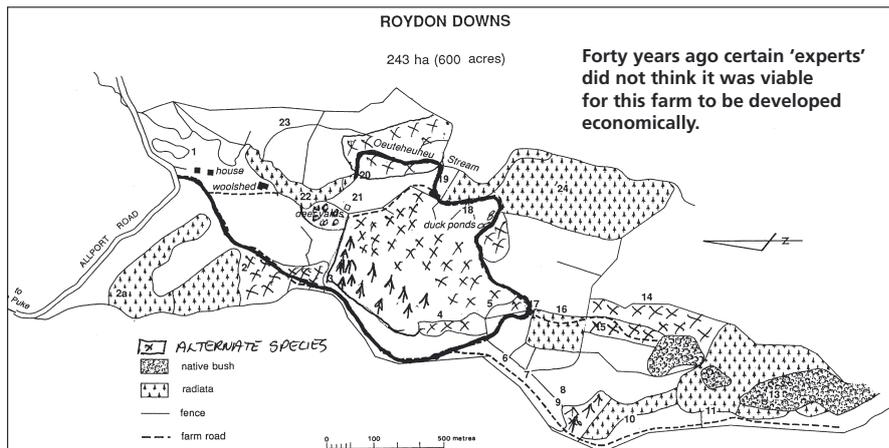
Historical development and influence of climate and weather extremes

Period	Production focus and major changes <i>Climate and weather effects</i>
Pre-European	Bush
Early to mid 20th century	Bush cleared, sheep grazing Erosion from high rainfall events
1960s	<p>The farm was purchased from Lands and Survey in 1964. It was considered unviable because of the erosion problems. There were newspaper articles at the time of the sale of this block and others, calling the sales unethical and dooming the poor farmers to failure. The initial production focus was sheep, cows and beef. Parts of the farm were reverting to Manuka and scrub. Tree planting began.</p> <p><i>There was an extreme rainfall event in 1963/64, which led to a worsening of erosion problems. As a result a tree-planting programme was started.</i></p>
1970s	Tree planting continued. Breeding cows were phased out by 1975 and they started deer farming. They were pioneers with the deer and benefited from high returns.
1980s	Tree planting continued. Leased land from Tasman in 1987/88 and put sheep numbers up to 3000. They started dairy grazing.
1990s to present	<p>Tree planting continued. Started dropping sheep and deer numbers. They sold the last of their deer in 1995 and the last of their sheep in 2000. The principal production focus now is dairy grazing (on 100ha) and forestry (on 140ha).</p> <p><i>Climatic extremes, in particular extreme rainfall events, now have no impact on the farm.</i></p>



Adaptations to develop the resilience of the farm

Oeuteheuhu Stream through the farm aided by full protection of its catchment. Climate change is likely to bring few challenges to this farm.



Biosecurity threats could be a problem, but this is already being addressed with diversification away from pines.

A combination of factors led to the planting of trees on Roydon Downs. The topography of the land (either very steep or flat) and the manner in which it was originally broken in led to the high vulnerability to

The resilience of Roydon Downs to climatic extremes (present and future) is very high, with a strong foundation developed over the last 40 years. Forty years ago certain 'experts' did not think it was viable for this farm to be developed economically. By working with the limitations of the land, some good management in terms of removing debt early on, and working with a 25-year development plan, the Branns have proven the sceptics to be wrong. The farm is an excellent working example of ecological resilience and economic viability. It is well buffered from climatic extremes, with the clear-flowing

erosion that the Branns inherited when they bought the farm. The extreme rainfall event they experienced at the time of purchase and pressure from Lands and Survey (which resulted from adverse publicity when they took over the farm) to address erosion problems led to the planting of trees. They were pioneer tree planters and were also pioneers in the deer industry. The relatively low work input and high returns from the deer allowed them time and resources (they could afford to take big paddocks out of pasture) for tree planting. This



was good for 15 years, from the mid 70s through to the late 80s.

Where will the farm be by 2050? There are a number of possibilities including further development as a farm forestry unit, development of a farm park, controlled subdivision. A likely scenario is a combination of these.

Forestry/trees: 75 percent of the total tree area is in *Pinus radiata*. Other commercial tree plantings include Cypress, Redwoods, various Eucalyptus species and 1ha with mixed natives (Rimu, Totara, Matai, Kauri). Remaining tree plantings are for protection of catchments and for aesthetics.



A succession away from pines is already being implemented. Pines will continue to be the main planting on hillsides, but they find other species, such as redwoods, do better on fertile slopes. By 2050, the goal would be to have the pines reduced to 30-50 percent of the total area in trees. They are already shifting to longer-rotation species as indicated above.

Benefits: The trees provide a buffer against high rainfall events, with the focus on commercial forestry providing economic benefits. When they held a field day as 2003 supreme winners in Bay of Plenty for the Ballance Farm Environment Awards, Geoff gave a handout showing the returns from their investment in trees. On reading this information one farmer asked "why aren't we all doing this?" There was silence for a while and then another said, "because we're farmers".

Information/support: They were on their own for the first four to five years, but have since had a long association with the Forest Research Institute (30 years) and the New Zealand Farm Forestry Association (35 years).

Water: Any water surplus from high rainfall events is managed by the trees. This brings to mind a quote from 'The Tree in Changing Light' (by Roger McDonald, Random House, Sydney), which refers to trees in arid environments as 'columns of water'. The same

could be applied in wet environments. As columns of water, trees help buffer extremes of wet and dry. The Oeuteheuheu Stream is clear, no longer floods and supports trout. This is attributed to protection of the stream on-farm and the off-farm catchment over the last 40 years.

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Diversification: Geoff and Gill have developed recreational opportunities on the farm, with walkways and huts. They have also invested off-farm in a forestry venture.

Soil: Their principal problem 40 years ago was soil erosion. This has been addressed by tree planting and stocking policies. They used a lot of fertiliser in the early years but eased back because of price and recommendations. They don't put any fertiliser on the hills now, but do truck it on to the flats. They have never used any N fertiliser. The depth of soil and its organic matter content have increased over time.

Pasture management: They have not actively managed their pasture. Pasture species have changed, as noted earlier.

Stock management: They have developed stock-management systems that have suited the tree picture. They began with sheep and

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beef, then moved to deer and sheep in the mid 1970s, and now do dairy grazing. The deer were more lucrative for a period but were causing too much damage in the end. This led to the shift to dairy grazing and a move to lower stock numbers.

Infrastructure: They have good access everywhere on the farm which is important for tree harvesting.

Meso connections

The Branns have developed a very strong social and environmental picture beyond their farm. They have been a strong influence on their neighbours, most of whom have planted trees. Through their efforts the whole catchment of the stream through the farm has been protected. There are changes with neighbours, with kiwifruit and avocados being grown along the road. Access to Rotorua and Te Puke/Tauranga is not as great an issue as it was in the past and so further development of the farm park concept and controlled subdivision are possibilities for the future, within the context of the farm forestry system. They have a positive attitude as to how the farm might be developed in the future, with the bottom-line being maintaining, and building on, the foundation they have established over the last 40 years.

They have good relationships with the Regional Council, largely because they have been proactive in doing what the Regional Council is promoting anyway.

