

## Northland Beef/Sheep Farmer Resilience Study Summary

### **Project brief**

“Towards Resilient Farm Businesses in Northland” is funded by MAF’s Sustainable Farming Fund (SFF). The project sought to establish a better understanding of how landowners perceive risks around adverse weather events and to identify the factors that influence their actions and decision making in relation to such events.

The aim of this study was not to statistically analyse levels of resilience in Northland agriculture but to build a picture of factors that were influencing farmer/horticulturalists resilience and to use this knowledge in following years to assist farmers and organisations involved in aiding rural recovery from adverse.

### **What we did**

Three focus groups were held with the three main sectors that make up Northland agriculture: beef/sheep; dairy; and horticulture (avocados). A focus group sought to identify participants’ experiences and responses to adverse weather events. The information collected was then used to inform the following farmer interviews that sought a greater depth of understanding of the issue. Ten semi-structured interviews were undertaken in each of the three sectors across Northland. Farmers were asked questions based around five main themes: farm demographics; historic storm experience; impact of the 2007 storms; response to the 2007 storms; information sources that were useful. This summary reports on the beef/sheep sector of the study.

### **What we found**

During the workshop and interviews farmers were asked to identify the bigger adverse weather events that had impacted them. The storm events of 2007, 2008 and the El Nino drought in the early 1980s featured heavily with other events such as cyclone Bola and a number of locally isolated weather events were also identified. The identification of isolated events likely reflects the diverse geographic spread between participant farms and the diverse microclimates that exist in the North.

Highlighting the value of local networks and connections, farmers often reflected on adverse weather events with second hand knowledge passed to them by family or community members. Transfer of information in this way builds social knowledge within communities that can be combined with farmers own experiences to provide a foundation for comparing recent or upcoming adverse weather events and their potential impacts. For example, one farmer knew the flood we were discussing was not the most significant event experienced on farm because his father had described to him an earlier flood that had reached far further along the hillside. This provided a valuable benchmark for this farmer in terms of flood experiences. In this way, localised event recollections are an important locally based information source that contribute to orchardists risk assessment and decision making.

All farmers advised that adverse weather events were random in nature and did not follow any identifiable pattern. Many did however identify regular annual or biannual weather events including storms, and dry summers that did follow a pattern but that were not as severe in nature as the larger events mentioned above. This suggests that participants were addressing the dynamics of weather events on a regular basis.

### Adaptation strategies to adverse weather events

The farmers involved in this case study describe farms as having a diversity of landscapes. This includes areas that are flat, rolling or steep in nature; ranging soil types including loams, silts and clays; and planted areas that can be singles or clusters of native bush or farm forestry. This diversity means that farmers must be aware of the challenges served-up by such an environment. Farmers discussed that adverse weather events impacted various parts of the farm differently. A common example of this was significant rain/storm events that may bring erosion to hillsides and flooding to flatter areas of the farm. Risk assessment and decision making around dealing with or preventing damage from both storm and drought events was discussed by participating farmers.

Storm events were the most common adverse weather event identified by farmers. This is likely to be because significant storm events have impacted Northland recently in 2007 and 2008. Storm events typically had two major components: flooding and erosion. Table 1 shows a range of strategic (long term) and tactical (short term) actions that had been used to manage farms through storms.

Table 1: Strategic and tactical actions identified by farmers to address wet and windy adverse weather events

	Strategic actions	Tactical actions
Flooding	Utilise flats into farm plan strategically – i.e. only use for specific uses such as hay or easy to move stock.	
	Buy your farm wisely – know what the limits, risks and opportunities are for the farm before you buy.	
Animal security	Don't overstock – know your farms limits and plan for unexpected weather.	Stock moved to higher ground early if concerned about weather.
	Flexible stocking policy – stocked higher when more feed, less bad weather. Lower stocked when less feed, more bad weather.	Allow stock into bush areas if more shelter needed.
	Need to have paddock gates in the high part of the paddock. This also needs to be linked to the main track to higher ground.	Cut fences in emergencies to get stock out of a flooded paddock.
		Move stock in daylight – hard to do at night by torch in rain and much more dangerous.
Feed security	Go into the winter with sufficient feed surplus e.g. hay/bailage. This will also help in emergencies.	Break feed stock and conserve grass – feed shortage.
	Can use pine forest area for emergency or winter grazing if needed (also good in drought).	Sell stock if not enough feed – problem if these are your replacement stock.

	Store feed e.g. bailage on higher ground.	If large storm expected, stock can be put onto flats to graze to utilise feed while available, then moved.
Flat recovery	May need to build organic matter into very thick layers of silt deposits so that can sustain pasture/crop.	Try different grass/crop species to re-establish flats for production.
	Put a mole plough through flats every 3rd year to help wetter areas dry out.	If pan created as silt dries – then rip. Resow grass on flats if required.
Fencing	1 wire electric fencing on flats that flood – easy to cut and restring	Electric fences to quickly secure stock.
	Use fibreglass poles for fencing with 2 wire electric fence – bend with force of water. Uses sprung wires which can be released prior to flood. Uses wireloks to strain fences so know where fence will likely break and at other times can always be easily tightened.	Remove rubbish from fence lines.
	Place fencing strainers on high points of the flats e.g. banks – less likely to get damaged or be buried by silt.	Re-stand/fix fences.
Culverts	Install bigger culverts strategically on-farm.	Manually clear drains during rain event if safe.
	Design culverts to work with water flow rather than against.	
Waterways	Maintain clean waterway/river.	Spray ditches so that water can run away freely.
	Fence off and plant riparian areas.	
Erosion	Plant poplar (or other species) in areas where risk of slipping or have slipped before.	Digger in to open up tracks.
	Establish an erosion control plan for the farm.	Electric fences to quickly secure stock.
	Fence off gullies and steep faces and plant e.g. pines.	Spray for weeds (can be heli-spray).
	Install water systems strategically.	To avoid pugging - send larger stock to works, break feed and shift animals regularly, stand animals off, smaller animals to wetter areas.
	Join member associations/orgs that enable information to be provided and networks e.g. the farm forestry group.	Walk stock to where need to be – e.g. another paddock or off farm to yards.
	Maintain a good knowledge of farm – experience.	Organise new water supply – other sources on-farm – machinery in to dig out.
	Maintain a flexible stocking regime so that if animals need to be taken off farm then it is possible.	Sort out with neighbours about straying stock.
	Drainage system on farm – and maintained.	Where slips on fence line –just fence around.
	Retain native bush areas.	

Except for a few farmers who typically had succeeded their family farm, few farmers discussed drought in any detail. This is likely because although Northland often experiences dry summers, they had rarely experienced what is classified as a drought. Farmers that recalled droughts identified the last significant one to be almost 25-30 years ago. From this time, one farmer recollects: *“the hills were almost white they were so dry.”* The most salient feature of a drought was the lack of feed for stock and the need to destock or purchase feed – often not financially beneficial reactions, if unplanned.

Table 2: Strategic and tactical actions on farm to address dry adverse weather events

Strategic	Tactical
Even if droughts are uncommon –plan for a dry summer.	Make sufficient supplement to see farm through dryness.
Ensure farm setup to have a reliable water supply for stock. Water access in all paddocks.	Buy in extra feed if needed.
Realise what stock classes your land and climate are best suited for. Tendency to favour cattle over sheep in this way in Northland.	Can use pine forest area for emergency grazing if needed.
Farm subdivision to ensure grazing controlled.	General destocking if feed unavailable.
Consider new grass species.	Cut stock numbers back before Christmas (any lambs and surplus sheep) and sell calves in February.
	Ensure water supply to stock.

Few farmers mentioned losing stock in storm events and while a few farmers could identify the financial farm loss, many could not. Those farmers with higher debt loadings tended to put in place financial strategies to reduce the impact of adverse weather events. These included using savings; extending overdraft or loan facilities; paying interest only on debt at strategic times; spending carefully and reducing unneeded spending; seeking rates relief from the Council.

Most farmers were dependant on their farming income as their sole financial source however a few farmers supported their income with either on-farm diversification or off farm employment. Farmers perceived this as a way they could continue their farm and farming lifestyle while reducing the financial risk. The need to be ‘on-top’ of the farms finances in good times and bad was highlighted so that a farmer can always know where the farm sits and can plan ahead to manage the risk.

Farming households varied in their resilience to isolating events such as storms. While most properties had camping equipment, food, water and fire places for heat other properties had issues should power outages occur. The most prevalent issue identified was the lack of running water to some houses, although in a robust fashion, farmers indicated they could always fetch the water from the water tank. One innovative farmer had thought this through and identified that he only needs to hook a simple battery powered pump up to the water tank to access household water supplies. To counter this lack of power, a generator is a viable option for isolated households. However, no participating farmers had purchased generators. One farmer had borrowed one and another seriously considered the option, however in both examples neither felt they could justify the cost for the amount of use it would get.

## **External resources**

Labour was identified as one of the biggest costs to recovering from an adverse storm event. Most farmers highlighted the role that Taskforce Green played to reduce the work load at no cost to the farmer. This decreased the vulnerability of farmers to the cost of labour and increased their overall resilience. Unless participants were themselves proactively involved in industry organisations, there was no mention of coordinated industry assistance with the more recent storm events experienced.