good farm
PLANNING HUB

Taking an Integrated Approach to Farm Planning:

Module 6: Your Farm Emergency Plan

Your Farm Emergency Plan

This plan will help you prepare for the worst and ultimately it will help with:

- **Survivability:** Planning can substantially improve the likelihood that you, and your business, will be resilient after a disaster, so it should be high on your priority list.
- **Opportunity Spotting:** An emergency response plan can help you identify opportunities for you and your business and become more resilient - whether it's having access to backup sites or workspaces, or essential items like generators, preparedness pays off.
- **Peace of Mind:** It can boost confidence among your family and staff members, especially if they're involved in the planning process.
- **Insurance Benefits:** It could help you negotiate lower business insurance premiums.

Planning for adverse weather events not only saves lives but can also be the game-changer for you, your family, and your business.

It's important to take proactive action before disaster strikes.

By investing time in planning and preparation, you can be better equipped to handle any situation. Whether it's a cyclone, earthquake, storm, tsunami, or even a cyber threat, being ready for whatever comes your way is key.

In Taranaki, there are a range of possibly disaster types, from flood, fire, tsunami to storms. There is also the risk of a volcanic eruption.

Who is this plan for?

Name:		Contact Number:	
Name:		Contact Number:	
Name:		Contact Number:	
Name:		Contact Number:	

What are your GPS coordinates?

What volcanic zone are you in?

Check available hazard maps to see what volcanic hazards your farm may be exposed to.

Mount Taranaki erupts

If Mount Taranaki was to have an eruption, depending on your proximity to the mountain, you could be impacted by:

- The hazards that your farm will be subjected to depend on how close you are to the volcanic vent.
- **Lahar** are fast moving floods of ash, mud, water and debris that usually flow down valleys and channels. If these flows are very large, they can jump valleys and channels and cover large areas of land. They look like rivers of wet concrete that change size and speed. Lahars are deadly and highly destructive to anything in their path. They can occur during or long after an eruption has stopped, usually following heavy rain.
- **Pyroclastic flows** are fast moving clouds of steam, debris and hot ash. They flow down a volcano's slopes destroying nearly everything in their path. These flows are deadly and highly destructive causing fatal burns, suffocation and other injuries. They form when eruption clouds or lava domes collapse. Flows are most likely to travel within 15 km from the top of the volcano (red area on the map) and in valleys.
- **Ash** are the small rock and glass fragments that explode out of the volcano forming an ash cloud. Over time, the ash cloud expands, and ash particles fall to the ground. Wind controls the direction of ashfall. The largest and heaviest ash particles usually fall closer to the volcano, whereas finer and lighter ash is often carried farther away by the wind (many hundreds of kilometres)[1]. Ashfall is the smallest grain size (<2 mm in diameter) fraction of tephra, which is a word incorporating all volcanic material, that you may see used in science advice[2].

A volcanic eruption could result in:

Disruption to power supplies, roading and communication systems

- Ash is conductive when wet so can cause electrical equipment to flashover. Controlled power outages are also likely to allow for electrical system components, such as lines and insulators, to be cleaned. There are likely to be significantly lengthy power cuts (days to weeks) during and after an eruption that may affect the whole region, not just your farm directly.[3]
- Bridges may be damaged due to lahars washing them out and leaving sectors of the region cut off. All services attached to road bridges (e.g. water, fibre, gas lines) will also be affected by bridge washout.
- Communication systems such as cellular networks and internet networks may also be cut off. Satellite based internet such as Starlink may also be affected due to atmospheric effects caused by ash clouds and gases.

Contamination and disruption of water supplies

- Water source – surface water is more vulnerable to contamination than groundwater
- In general, livestock will refuse to drink contaminated water
- Motorised pumps, filters

Building and Structures

- Ashfall accumulation on buildings may damage guttering through excess loading, block stormwater drains, and cause accelerated corrosion of roofing materials where the ash is acidic.
- Building collapse due to very thick ash deposits (>100 mm) is rare in New Zealand but may occur in wet conditions (ash can double in weight), where structures and roofs are in poor repair, and/or in long-span, low pitched roofs such as sheds.[4]

Contamination of pastures and crops

- The extent of pasture damage from ashfall will depend on the amount of ash, the timing of the fall, and the composition of its chemical coating. None of these factors can be precisely predicted in advance.
- Ashfall on pasture and crops may cause them to be unpalatable to cattle and sheep.
- Impact on your livestock health e.g. excessive wear on teeth. Some chemical coatings on the ash may be poisonous to animals such as excessive fluorine.

Corrosion of vehicles and machinery

- Ashfall may cause abrasion to windscreens, paintwork, motors, and other moving parts.
- There will be accelerated wear and tear on seals and bearings, and ash will clog air, oil and fuel filters.
- Air intakes on vehicle radiators and milk and fruit cooling vats may block with ash, leading to reduced cooling efficiency.
- Computer and electrical equipment will be susceptible to damage and arcing if damp volcanic ash penetrates seals.

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[1] From Taranaki Emergency Management Volcanic Poster series 2022 (Danielle Charlton and Teresa Gordon)

[2] From Volcanic Poster series (Danielle Charlton and Teresa Gordon)

[3] Wilson, T. M., Stewart, C., Sword-Daniels, V., Leonard, G. S., Johnston, D. M., Cole, J. W., ... & Barnard, S. T. (2012). Volcanic ash impacts on critical infrastructure. Physics and Chemistry of the Earth, Parts a/b/c, 45, 5-23.

[4] Volcanic Ash Impacts: Auckland Engineering Lifelines Group (alg.org.nz)

Your Home

Step 1: Do you have anyone at home with special requirements:

Will anyone in your farm need assistance to evacuate, or while stuck at home during an emergency?	
Does anyone rely on mobility or medical devices or other special equipment?	
Does anyone rely on prescription medicine?	
Do you have supplies to last three days or more or alternatives if power is not available?	
Do you have babies or infants on the farm? Do you have nappies, formula, etc. to last three days or more if shops and roads are closed?	
Do you have pets? Your animals are your responsibility, so make sure you include them in your emergency planning. Do you have food and water to last three days or more? Do you have cages or carriers to transport them and keep them safe? Do you have someone to collect and look after your animals if you can't get home?	

Step 2: What will you need to do if there is no water at the house?

Do you have enough drinking water stored (three litres per person per day for three days or more)?	
What if your bore hole or supply is contaminated or cut off?	
Do you have water for your pets and your animals? What will you cook and clean with? What will you use for a toilet?	
Are your water distribution systems well-maintained and clear?	
Do you have an alternative source of emergency stock water if your only source is currently surface water from a stream or river?	
If your water source is from a stream or river, do you have adequate tank water storage or other covered storage and that stored water can be distributed if pumping facilities are disrupted such as gravity-fed systems?	
Does your farmhouse have a disconnect valve on roof-fed rainwater tanks and stockpile bottled water?	

Step 3: What will you need to do if there is no power?

How will you cook, stay warm, see at night (do not use candles as they are a fire hazard)?	
Do you have spare cash in case ATMs are not working?	
Do you have access to fuel in case petrol pumps are not working?	

Step 4: We're stuck on farm – what now?

Do we have emergency supplies?

Do we have food and drink for three days or more (for everyone including babies and pets)?

Do we have working torches, a radio, and batteries?

Are your first aid/medical supplies easy to find and up to date?

Who locally has the equipment you might need, such as generators or diggers? Your local Catchment Group Coordinator can help you complete this section.

Do we know how to turn off water, power and gas?

Only turn these off if you suspect a leak or damaged lines or if you are instructed to do so by authorities. If you turn the gas off, you will need a professional to turn it back on.

Step 5: We need to evacuate

What are your evacuation routes and assembly points?

How will you get there? If you live near the coast, make sure it is outside of all tsunami evacuation zones. Where will you stay if you can't get back to your home?

Your local Catchment Group Coordinator can help you complete this section, as there may be a local Hall or Marae that is the community assembly point.

Meeting location

Where will you meet if you can't contact each other and are separated when an emergency occurs? How will you get there?

If you have to leave in a hurry, do you have grab bags?

Does everyone have grab bags* in case you need to evacuate? At home, at work, in the car? **A small bag with warm clothes, a torch, radio, first aid kit, snack food and water.*

Keep stocks of P2 or N95 masks, goggles, sturdy footwear and protective clothing that covers arms and legs.

Make detailed notes on where the grab bags are stored:

Step 6: Helping our family, neighbours and community

Do you know your neighbours?

Are there any friends, family or neighbours who might need your help to get through an emergency at home or to evacuate?

Name:		Contact Number:	
Name:		Contact Number:	
Name:		Contact Number:	
Name:		Contact Number:	

Who are your useful contacts?

Your local Catchment Group Coordinator can help you complete this section.

Rural Support Trust	
Catchment Group	
111 in an emergency	
Council emergency hotline	
Medical centre/Doctor	
Landlord/Farm Owner	
Insurance company	
Power company	
Day care/school	

What about the kids?

If you are not able to pick children up from school, day care, afterschool care, etc., who will? Do they know? Does the school / day care have their details?

Name:		Contact Number:	
Name:		Contact Number:	
Name:		Contact Number:	
Name:		Contact Number:	

Step 7: Getting information

How will you find the latest news/alerts? Which radio stations will you listen to? Which websites and social media pages will you check?

Your Farm

Step 1: Know your farm and know the types of emergencies that might impact it

What are the most likely local hazards facing your rural community, e.g. earthquakes, floods, storms, wildfires and isolation. Your local Catchment Group Coordinator can help you complete this section.

Assess Risks and Vulnerabilities	
How close are you to the summit of Mount Taranaki and could you be impacted by a lahar (mud flow), ash and debris?	
What potential adverse weather conditions does your area usually get? (e.g., heavy rain, snowstorms, floods, extreme heat)	
How would these events affect your farm operations, infrastructure and people?	

Understand your insurance policy

Check your farm insurance policy so you know what is covered/excluded in relation to volcanic eruption. Understanding your insurance may help you make early decisions to protect your stock and assets.

Step 2: Livestock and Animal Welfare

Plan for the safety and well-being of animals:	Notes
Where could you shift livestock, e.g. to drier, lower-risk paddocks?	
How can you save crops in drier, sheltered areas?	
Are you strategically grazing paddocks, avoiding wet spots?	
Have you made arrangements to stand cows off on laneways or concrete yards?	
Have you considered cold stress in wet, windy conditions?	
Is there adequate food and water for livestock?	
Which parts of your farm may be safer for livestock during eruptions?	
As pasture in paddocks may be contaminated with ash until the next rainfall, what supplementary feed do you have available to feed stock and can it be supplied without it getting contaminated? E.g. covered feedpad.	
Plan for how you will evacuate stock – where they will go, and in what order of priority you will evacuate them?	

Make sure all of your stock has ID or NAIT tags so if they are moved off farm they can be identified.

The impact of ashfall on animal health cannot be predicted until the ash has been tested for its chemical composition. Having said that, animals will tend not to eat pasture contaminated by harmful ash due to the taste. Sheep and goats are more likely to be affected from ash ingestion than cows, due to how they graze.

Step 2.1: Dry weather planning

Dry weather is an emergency that we know is likely to happen more often as our climate changes. It can have serious impacts on our animals and our land, but the good news is that early planning can minimise the serious impacts.

There are some helpful resources available on preparing for dry weather.

- **MPI preparing for dry weather factsheet**
- **NIWA's Seasonal Climate Outlook**
- **NIWA's Drought Forecasting Dashboard**
- **NIWA's Drought Monitor**
- **NIWA's Daily Climate maps**
- **MetService rain radar**
- **When Wildfire Threatens**
- **Fire risk conditions**
- **DairyNZ webinar on managing dry conditions**
- **Beef + Lamb NZ drought resources**
- **Taranaki Rural Support Trust**

Please also refer to the **Good Farm Animal Welfare module 4** for more information.

The following tables provides a checklist for you to consider as dry weather becomes an issue – and ideally, even before that happens.

Feed Planning

Task	Completed	Notes
Stockpile feed during favourable seasons to ensure reserves during dry periods.	☐	
Explore alternative feed sources, such as silage or hay, and consider planting drought-resistant crops. Important to consider FEI impacts.	☐	
Adjust grazing strategies to prevent overgrazing and allow pastures to recover.	☐	
Plan and implement stock reductions of cull cows early to minimise feed competition. Book space early to avoid delays.	☐	

Water Management

Task	Completed	Notes
Your water take for domestic, stock or farm dairy use must stay less than 1.5 litres a second or 50 cubic metres a day, and less than 25% of the stream flow in catchments without additional restrictions. Water use above this level will require a resource consent.	☐	
Regularly check and fix water leaks to preserve water supply.	☐	
Implement efficient irrigation systems and regularly maintain them to minimise water wastage.	☐	
Install water storage solutions, such as tanks or reservoirs, to ensure a steady supply during dry spells.	☐	
Monitor water usage and plan for restrictions, prioritising essential needs.	☐	

Financial and Risk Planning

Task	Completed	Notes
Develop a budget to account for potential increased costs during droughts.	☐	
Consider insurance options to cover losses due to extreme weather events.	☐	
Consider alternate milking frequencies OAD or 3:2 milking to take pressure off cows and reduce demand before feed is reduced.	☐	
Consider, where applicable to your farm operation, a staged dry off of some of your herd, whilst milking on capital stock.	☐	
Keep your accountant and bank manager updated on a regular basis. They may have ways to help you that you don't know about.	☐	

Community Collaboration

Task	Completed	Notes
Share resources and knowledge with neighbouring farmers or your local catchment group to collectively address challenges.	☐	
Engage with local farming organisations or your levy group, DairyNZ, for support and advice.	☐	
Share and attend dry event/drought workshops to connect with other farmers and rural professionals for advice and support.	☐	
Visit your local Rural Support Trust website and FB page to access helpful information including various assistance measures available through MSD and IRD (where applicable)	☐	
Keep your accountant and bank manager updated on a regular basis. They may have ways to help you that you don't know about.	☐	

Mental Resilience

Task	Completed	Notes
Register and attend drought workshops and take a farmer mate with you. Take the opportunity to get off farm and reconnect with other farmers going through similar challenges.	☐	
Ensure you have access to resources to cope with stress during tough times.	☐	

Step 3: Infrastructure and Environment

Infrastructure and Environment	Yes	No
Have you chosen areas that minimise environmental impact, such as soil damage, runoff, and flood risk?		
Are you avoiding letting cows stand on hard surfaces for extended periods?		
Are you taking measures to prevent effluent runoff into waterways?		
Have you considered using feed pads or grass strips for standing cows off?		

Step 4: Power supply and equipment

Power supply and equipment	Yes	No
Have you assessed the power supply to electric fences?		
Do you have backup power sources available if needed?		
Is all your equipment in working order?		
Can you run equipment from tractor power take offs if necessary?		
Do you have enough filters for your generator and other key farming equipment and vehicles?		
Do you have fuel for your farm equipment and generators on site in case of accessibility issues?		
Do you have an air-compressor for effectively cleaning ash from machinery?		

Step 5: Communication

Communication	Yes	No
Does everyone on the farm know what to do if bad weather hits?		
Have you established communication channels (phones, radios) to stay connected during emergencies?		
Have you conducted drills to practice executing the plan?		

If a volcanic eruption happens

Immediate response

- [ ] Before ash fall starts, go home, if possible, to avoid driving or walking during ash fall.
- [ ] Prioritise the safety of yourself, your family, and your workers. Ensure everyone is accounted for and away from immediate danger.
- [ ] Stay indoors once ash starts falling.
- [ ] Set up a single-entry point for your house. Place damp towels at the threshold to prevent ash being tracked indoors.
- [ ] Close all windows and doors, shut down heat pumps, air conditioning units, and seal any ventilation intakes.
- [ ] Prepare to shelter in place as well as prepare to evacuate. Listen to the radio for official advice about directed evacuations.
- [ ] Ensure generators are fueled up, plugged in, and air intakes sheltered with a hood if possible.
- [ ] Cover vehicles, machinery, and sensitive electronics indoors and outdoors. Do not remove indoor covers until the indoor environment is completely ash free.
- [ ] Bring pets inside and move livestock into covered shelters where possible.
- [ ] Move livestock to higher ground and consider leaving gates open if there is an advised risk of lahar going through your property.
- [ ] Try to ensure that animals have supplementary feed and access to clean drinking water.
- [ ] Disconnect drainpipes/downspouts from house and farm building gutters to stop drains clogging. If you use a rainwater collection system for your water supply, disconnect the tank.
- [ ] Listen to the radio for updates if electricity and internet are cut off. Follow official advice from Emergency Management and emergency services

First Days

- [ ] Conduct a thorough inspection of the farm as soon as it is safe to do so. Include buildings, equipment, and livestock. Document damage to support insurance claims and recovery plans
- [ ] Check domestic and livestock water supply and ensure free from contamination
- [ ] Clear ash and debris from critical farm infrastructure. Decide where to store cleared ash and wet it down if possible to prevent remobilisation
- [ ] Check pasture for contamination – collect samples of ash and supply for authorities to test
- [ ] Monitor animal health and seek vet help if needed
- [ ] Seek support and resources from local agricultural extension services, disaster relief organisations, and government agencies for assistance

Weeks

- [ ] Assess availability of feed and make decisions about destocking if necessary
- [ ] Source new supplementary feed from off farm if needed
- [ ] Determine the impact of ash on grass growth and make decisions about pasture rehabilitation
- [ ] Insurance claims

Risk identified	Rating	Existing actions	New actions (if needed)	Due date	Responsible person	Evidence

Monitoring progress

The use of performance measures to track and record progress helps with deciding actions and reporting progress. Record what worked well, what went wrong and why. Take photos to keep record and monitor progress.

Action	Notes

Notes