



Dairy Farmer Insights into Natural Disasters



Planning for Extremes

Dairy farmers planned for extreme events by identifying priority actions in response to an event but placed less emphasis on recovery actions in those plans. Natural disaster plans were either formally or informally developed with a mix of views about the value of having a plan for responding to climatic extremes.

Background

This case study is based on information collected through face to face interviews with 20 NSW dairy farmers. Interviews were conducted at the end of 2023 with farmers who were impacted by recent natural disasters (ND), with farmers being asked to describe how they made decisions and what actions they took to respond and recover from natural disasters (floods, prolonged wet events, bushfires and droughts).

Farmers were located in major dairying communities along the coastline as well

as inland. Most farm businesses were medium sized (between 150 to 300 cows) while approximately a quarter were large in scale (more than 300 cows). A small proportion were businesses with 150 cows or less.

Analysis of the interviews examined what might assist with the planning process, what the perceived value of having a plan was and warning signs of when a plan is no longer “fit for purpose”. This information may help other dairy farmers to consider their own needs for planning for extremes.

Planning approaches and key features

Nearly all dairy farmers had some form of plan for responding and recovering from either a flood, bushfire or drought. There was less evidence of dairy farmers having a plan for a prolonged wet event.

The plans were mostly informal (17/20) and were not always updated or reviewed. Essentially, they were an ‘action plan in my head’, and were sometimes verbalised to the farming team, tended not to be written down and did not involve emergency agencies during development. These informal plans typically considered priority actions for an immediate response

and short-term recovery (see Decision Making case study for details).



Informal natural disaster planning

Informal plans tended to be based on previous ND experience, combined with overall farming experience, informed habitual or routine preparations and responses to certain natural disasters.

Examples of past experiences guiding ND plans are presented in Table 1, while Table 2 describes how these informal plans may have been put together.

Table 1: Examples of actions taken based on past experience related to disaster type.

Disaster Type	Actions based on past experience
Floods and prolonged wet	<ul style="list-style-type: none">• having silage in an elevated spot to mitigate against flood events• moving animals to elevated areas• relocating fence lines and redesigned farm layout to reduce potential damage and provide safety areas for livestock and people
Drought	<ul style="list-style-type: none">• planning for an investment in an irrigation system to assist with growing more fodder on farm• building additional feed storage facilities (e.g. bunkers, sheds, silos) and stockpile feed regularly (this is applicable to all types of natural disasters, but can be pertinent in droughts)
Bushfires	<ul style="list-style-type: none">• creating asset protection zones (maintaining low fuel vegetation around farm buildings) to decrease bushfire impacts on key assets• setting up a mobile firefighting unit (trailer, water pump, generators, hoses) in a strategic position to protect assets that have been prioritised• considering a bigger water tank and having have a fire hydrant near the house powered by a generator to be used for the irrigation pumps for a future bushfire plan

Table 2: Description of the range of information and data sources used to assist in creating informal natural disaster plans.

Information and data source	Description
Family farming knowledge	Practical knowledge passed down through the generations and lived experience on the property over decades has meant there has always been some sort of ND plan (e.g. historical knowledge provides an understanding of how resilient or vulnerable the property is)
Anticipating problems	Taking the time to think of potential problems and acting on minimising or preventing these problems based on the level of risk (e.g. over engineering building structures to reduce risk of structural failure in floods).
Physical observations	Making physical observations in the local landscape to guide the ‘action plan in my head’ (e.g. an upstream river height triggers a set of actions such as securing conserved feed and moving animals to higher ground) – however this can mean having only a few hours to prepare.
Discussing and consulting	Reviewing and discussing ideas with partners, farming teams or dairy advisers and adjusting plans on a need’s basis (e.g. natural disaster planning can become part of daily conversations about farm operations, family planning meetings to discuss what assets to protect, what actions to take and evacuation priorities).
Integrating natural disaster plans with strategic dairy business plans	Integrating ND preparations as part of ‘business as usual’ strategic planning for future proofing. These responses could include investing in silo construction for additional storage as well as incorporating a feedpad to build on the infrastructure that is already set up for feeding on a sacrifice paddock.

We can’t give you a written plan...but our previous experience would tell us the sort of things that all those decisions that we talked about earlier, we have feed, we have hay in the shed, we have silage in the silage area, we have a feed pad that’s okay...we had a loafing area that people always used between the houses, and that’s been okay, but this time it wasn’t okay...so there’s a few things that this time failed on us, and it’s probably those few things that in my mind we’ve been trying to work out what we do in the future. Your disaster plan, the comment I’d make is that your experience of the past is no longer a decent guide. (Dairy Farmer, Far North Coast, 2023)



Formalised natural disaster planning

Several dairy farmers referred to having more formalised plans for their ND response and recovery efforts. Similar to informal plans, formal plans also tended to incorporate knowledge from one of more of the above sources (e.g. past experience and farming knowledge). Other factors also led to the creation of formal plans such as governance requirements (e.g. in a corporately managed situation), consulting emergency agencies who then assisted in establishing the plan and/or in instances where a formal plan was perceived to aid communicating to farm employees.

Features of these formal plans included:

- creating a written document
- developing the plan in consultation with management boards or emergency services personnel;
- actively sharing the written plan with others including farming staff, neighbouring landholders and emergency service providers and regularly reviewing and updating the plan to improve the response and recovery efforts.



Cow walking over rubber matting in the dairy to improve cow comfort and reduce lameness during wet conditions.

Formal versus informal natural disaster planning

Dairy farmers who had a more informal ND plan recognised the value in having some sort of documented plan. It was recognised by some dairy farmers that a written version of their 'action plan in my head' would be beneficial for current or future staff. This tended to come from an acknowledgement that their current ND plan was reliant on them verbally sharing their plan with others just before or during the event, which may not always be possible in terms of logistics or available connectivity if using mobile phones.

In some cases where the business was run by a couple or family unit, it was thought that the informal 'action plan in my head' was effective enough in its current form

and did not need formalising. Sometimes this was because their familiarity with each other's thinking and actions over the years meant that everyone knew about the 'action plan in my head', other times it was perceived that a written plan would likely not be looked at during a natural disaster therefore it was an impractical document.

Dairy farmers who had formalised plans perceived value in having it for a variety of reasons:

- clarity around what actions need to be taken, and when (e.g. defined trigger points with a set of associated actions)
- it helps emergency agencies coordinate their response better if the



Dairy Farmers discussing a Community Flood Plan with SES Unit Commander, Tim Merrick

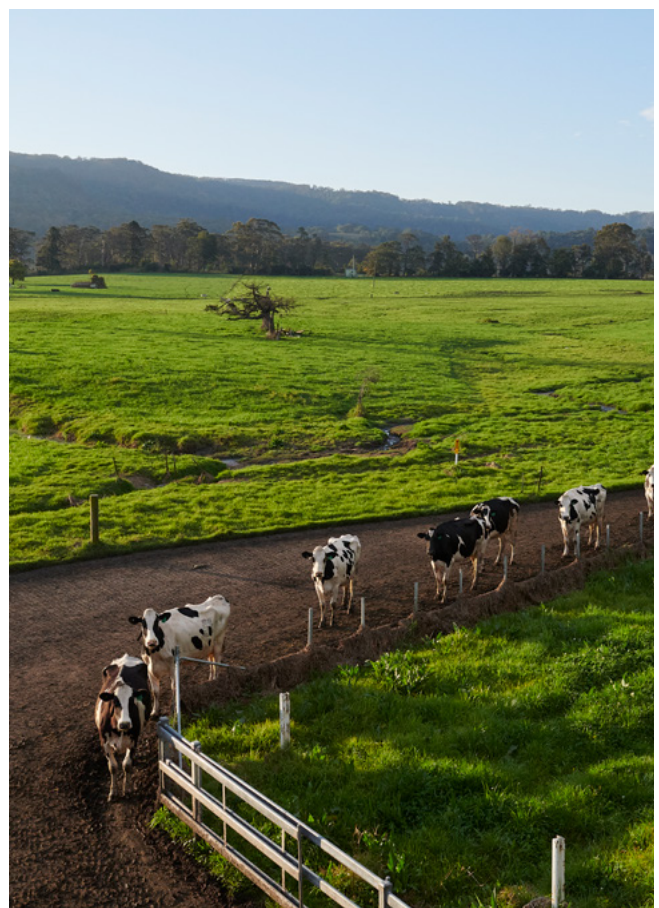
plan has been developed with their involvement plus there is a two-way communication process set up so that a delegated farmer can accurately update the emergency agencies with the community's situation and needs

- it encourages proactive behaviour
- can bring farming teams together to communicate thinking, concerns and opportunities for improving natural disaster response and recovery efforts

While most farmers viewed having ND plans (whether formal or informal) as worthwhile, there was a recognition of a plan's limitations. Sometimes ND plans did not anticipate the magnitude, frequency, intensity or length of a natural disaster and therefore were not useful in some instances. The realisation that a current ND plan was no longer 'fit for purpose' led some farmers to consider reviewing their plans.

Any plan that we would've had in place for the [recent] fires wouldn't have been sufficient, because like I said before that day, I would've said our house would never be under threat from a bushfire. Until then I've never seen a grassfire here uncontrollable. So, any fire plan we had in place before [the recent bushfire event] - it would've just gone out the window,

and the same with the wet weather sort of thing, any sort of wet weather plan we had wouldn't have been sufficient for last winter. It might've helped us a little bit going in...I guess we have informal plans in place. (Dairy Farmer, South Coast and Highlands, 2023)



Cows walking down a laneway on a dairy farm.

Key considerations for developing or reviewing a ND plan

Utilising farmer reflections on planning and natural disaster experiences, some key considerations regarding developing a ND plan include:

- **develop a plan(s) that covers a range of natural disaster events that are applicable to your area, rather than just focusing on the most recent natural disaster experienced**
 - **have a plan that includes key contact details and priority actions listed (having a recovery plan can help you to make decisions early and quickly during the recovery phase, avoiding costly and time-consuming delays)**
 - **build good connections with emergency agencies for professional advice and valuable input into your plan**
 - **discuss the plan with family/staff to get everyone involved and on the ‘same page’**
 - **define your priorities – priority setting can help avoid decision paralysis**
 - **have a realistic attitude – conditions may rapidly change for which your plan has not accounted for, so be prepared to be flexible with your plan**
- **include steps to mentally prepare yourself for the impacts of natural disasters; this can help to become accustomed to seeing your dairy disrupted e.g. recalling the last time your dairy or a neighbour’s dairy was under water and knowing that the water eventually retreats**
 - **it is important to know and acknowledge when basic principles, plan and practices are no longer working to motivate a search for other options for natural disaster response and recovery**

Your plan’s always in your head, what you’re going to do, and you’ve got to be flexible to change it. Sometimes... you’ve got to do something different and you’ve got to think of a different plan.... you can put these concrete causeways in places where it’s been wet in the past and you think...I’m ready for next time, and then it...gets wet over here [so now your original plan is made redundant in this moment...You’ve got to have a plan for a plan...It’s got to be fluid so it can move [with the dynamic conditions] (Dairy Farmer 18, South Coast and Highlands, 2023)

Conclusion

Most dairy farmers plan for natural disasters by having an informal ‘action plan in my head’ in relation to droughts, bushfires and floods. There was less evidence of planning for prolonged wet conditions because this type of natural disaster is unprecedented in the recent

weather history of NSW. Not all dairy farmers see the value in formalising their ND plan, however there is scope to support dairy farmers in developing ND plans in a more structured process for greater disaster resilience and improved performance of dairy businesses.

Acknowledgments

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