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Primary Industries

Natural Disaster Preparedness

# Flood Ready Dairying Strategic Plan for the North Coast Region of NSW

Building on strength and resilience through connections



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# Foreword

Natural disasters can have devastating consequences for the dairy industry and the broader community. Flood events are the most costly natural disasters for the NSW north coast. Events such as the 2011, 2012 and 2013 floods put substantial pressures on dairying operations as well as the industry generally in the region.

Flood events are a part of dairying and living on the north coast. Farmers and communities are resilient to floods though each event creates impacts and issues. Being flood prepared at the farm, local and regional level is one way we can attempt to reduce the costs of floods on our farms, family, animals and community. Having a plan for the way we will act before, during and after a flood can support us when an event occurs.

This Strategic Plan for Flood Ready Dairying represents a multi-strategy approach to reduce the impact of floods on dairy businesses; the families and people involved; the processors that rely on farm milk production; and the community that benefits from milk production in the region.

The Steering group that has guided the development of this Strategic Plan, has used its collective experience with floods and the dairy industry to propose a range of strategies to build on the experience and resilience that exists within the dairy sector to continually improve flood preparedness and recovery from floods.

The Plan also highlights some important principles that are included to prompt reflection and discussion about what Flood Ready Dairying really means. The plan has not set out to solve all flood issues but rather to provide an agreed framework to guide and focus continued and future investment in flood resilience.

This Plan is not the end of the story for the Flood Ready Dairying project but is a reference document to encourage the continuation of dialogue, collaboration and local connections for building on the capacity, innovation and strengths within the dairy industry.



Rik Whitehead

**Chairperson – Flood Ready Dairying Steering Group**





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# 1. Introduction to Flood Ready Dairying

## About the NSW North Coast Dairying industry

The Dairying industry in the region extends from the Manning near Taree to the Tweed on the Queensland/NSW border. The industry is situated within a subtropical climatic zone that is characterised by warm wet summers and cool dry winters. The region usually has reliable rainfall and high pasture growth potential leading to low cost milk production / high gross margins. Annual milk production within the region is approximately 210 million litres and is worth around \$126 million in annual gross production<sup>1</sup> (over 20% of the State's milk production).

Number of Dairy Farms	Average Farm Size	Number of Dairy Cows	Average Herd Size	Average Herd Production	Average Price per Litre
220 <sup>2</sup>	221ha <sup>3</sup>	44000 (approx) <sup>2</sup>	200 cows *	>5000L/cow/yr *	52c/L <sup>2</sup>

The region's dairy industry is characterised by family-owned and operated dairy farms producing milk year-round for the domestic fresh milk market. Dairy production is commonly based on grazing of tropical grasses to provide feed over summer-autumn with temperate grasses re-sown annually to provide feed for winter-spring. Conserved fodder and purchased feeds are used to fill seasonal feed gaps and to support herds in times of flood. Production systems rely on natural rainfall that is supplemented with irrigation if available during dry periods.

## Why the project was initiated

In recent years, the NSW North Coast has experienced a number of major flood events in close succession. For example, Kempsey, located on the Macleay River experienced major flooding in autumn and spring 2009, winter 2011, summer 2012 and summer 2013. The cost to individual farms from a major flood event can be substantial. In the case of the 2013 flood event in Kempsey, it was estimated that it caused \$130,000 per farm in damage and loss.

Although dairy farmers acknowledge the historical risk of flooding and take precautionary measures, managing consecutive major flood events and the cumulative impacts is very challenging to their businesses.

Following the successive flood events on the North Coast, dairy farmers and other stakeholders were keen to reflect on what had occurred and identify strengths, weaknesses, opportunities and future risks to improve resilience and sustainability of individual farms and the industry as a whole.

Opportunities for reducing the impact of flooding to the dairy sector were identified including:

- Improving on-farm preparedness at the local community level and regionally based on a risk management approach.
- Use of customised, individual farm flood plans.
- Making best use of and improving accessibility to timely and relevant rainfall, river level, flood warning and evacuation trigger levels.
- Developing networks within catchments and across sub-catchments to support the well-being of farmers, to provide assistance and to maintain community connections.
- Improving the systems used to collect and provide damage reports to appropriate authorities in a timely manner.
- Proactively siting, designing and managing infrastructure related to nutrient points of source, such as effluent systems and feed pads, to reduce environmental impact during flood events.

## 2. The aim of the project

The North Coast Flood Ready Dairying Project aims to increase the resilience of this industry by empowering dairy farmers and other stakeholders to better prepare and plan for the risk of flooding as well as to respond effectively and hasten recovery from the impact of flooding. The goal is to maintain the sustainability of the north coast dairy industry, maintain the productivity and profitability of production systems and ensure the security of supply to the local milk processors and consumers.

### About this plan

This plan identifies and addresses key vulnerabilities, risks, opportunities and the management strategies and practices that can be used to better prepare farm enterprises, farm families as well as the supply chain for the impacts of floods to increase community resilience.

It provides a pathway to achieving the vision and represents the partnership and the commitment from farmers, industry, local emergency groups and key government service providers to address the issues identified throughout the dialogue of the project.

The plan adopts the following set of principles of resilience as developed by the Coalition of Australian Governments - COAG (2011)<sup>a</sup> in the National Strategy for Disaster Resilience:

1. Understand the hazards and risks
2. Anticipate floods, prevent and prepare
3. Work together to coordinate effort, use strengths
4. Work in partnership with agencies and authorities
5. Make Emergency Management Plans that build resilience
6. Be flexible in response
7. Volunteer
8. Reduce risks
9. Restore satisfactory functioning quickly

The principles of disaster resilience and this plan acknowledge the four phases of disaster management: prevention, preparedness, response and recovery.

## Vision

*Dairying on the NSW North coast has the capacity to manage risks, form links and networks, and access resources at all levels to be profitable, collaborative and resilient to floods.*



**Figure 1: The four phases of disaster management.**

**Prevention of impacts** includes considering ways of working with environment, water flow, infrastructure and other available knowledge to prevent or mitigate flood progress.

**Preparedness** is a process of risk management and planning to anticipate floods and limit adverse impacts.

**Response** is the immediate action taken once flooding is present/occurs to ensure safety and limit impacts.

**Recovery** is the work done to restore people, farm and industry operations, and communities back to everyday functioning, and includes reflecting on the lessons learned (making better).

The concept of a disaster management cycle is important because every experience of flood builds experience and learning to be even more effective before during and after floods in the future. It reminds us that we are always somewhere on the cycle and often dealing with a couple of phases at once such as recovery and preparedness. **This is resilience: to be able to learn from the past, act more wisely, collaboratively and effectively over time.**

Flood Ready Dairying builds resilience through developing connections at the local, catchment and regional scale. Nearly every strategy in this plan and its implementation is dependent upon effective leverage of these connections through the four phases of disaster management to:

- obtain and disseminate information, experience and know how including the establishment of a resource hub;
- consistently manage resources and infrastructure on farm to limit environmental impact;
- plan and work together to respond confidently to floods to protect people, livestock, property and farm resources;
- cooperate to promptly address obstacles and maximise farm continuity;
- support farmers, their families, their employees and their communities at all times; and to,
- influence decision makers to consider the particular needs of and proposals from the dairy sector.



## 3. Who benefits from Flood Ready Dairying?

The beneficiaries of Flood Ready Dairying and application of strategies based on the principles of resilience include many stakeholders:

**Dairy farmers and their community** can benefit from:

- A plan designed to reduce the impacts of floods on the farm business, it's animals, it's assets (including natural assets) and the people that live and work on the farm.
- The sharing of knowledge, experience and the building of skills through connections with other dairy farmers, industry organisations and support agencies.

**Processors** can benefit from:

- Working collaboratively with suppliers to reduce the impacts of floods on production, farm operations and the people involved.

**Consumers and community** can benefit from:

- The continued viability of the North Coast Dairy Industry ensuring local supplies to the domestic milk market are maintained.

**The Dairy Industry** as a whole can benefit from:

- Dairy farmers having confidence to go forward and manage risks which improve the industry position and increase the sustainability of the sector.
- Dairy farmers having a better understanding of what support services are available.
- Demonstrating to local communities that the dairy industry is striving to protect and manage the natural assets of the catchment on which they rely.

**Government agencies and emergency services** can benefit from:

- Understanding the issues and priorities for the dairy industry in the preparedness, response and recovery phases of floods to enable more targeted and effective support services.
- Working more proactively with the dairy industry to build and invest in programs which will bring about improved farm management practices to protect community and natural assets.

It is anticipated that benefits will extend beyond the core of the dairy industry to other community stakeholders such as emergency management bodies, local governments and the wider community through stronger networks, cooperation and partnerships.

## 4. Strategies for being flood ready

Flood Ready Dairying requires identification, analysis and treatment of risks at three levels:

- i. **the farm level;**
- ii. **local industry and community level;** and
- iii. **the sector as a whole at the regional level.**

The tables on the following pages have used a risk management approach to identify desired outcomes, strategies for action and options against identified risks for the farm level, local level and regional level. Not all risks will be evident or present at each level in all cases so the tables serve to capture possible strategies and actions that may be useful to reduce flood impact.

An important approach is that farmers and industry participants are empowered, encouraged and supported to take an active and influential role in being flood ready based on what is in their influence. Focussing on issues that are outside our sphere of influence can create undue stress and frustration with little gain.

Key strategies for being flood ready at all levels can involve farmers and other stakeholders to:

• Identify / Plan	• Support	• Be informed
• Participate	• Connect	• Synthesise
• Communicate	• Improve	• Consult
• Know who	• Share	• Represent
• Know how	• Prioritise	• Lobby
• Coordinate	• Report	• Clarify
• Assess	• Empower	• Encourage
• Be proactive	• Network	• Negotiate
• Use tools	• Evaluate	• Volunteer
• Assist	• Advocate	• Influence
• Design	• Adopt	• Innovate

The above Table identifies a range of pro-active strategic approaches that encourage participants to work together in managing risks. They are based on “actions” which are available to, and can be readily applied by all stakeholders in floodplain management.

The Strategies presented in the following pages utilise these actions to provide Options for flood readiness at the farm level and across the local and regional plains. The Options have been derived as examples of practices which enable engagement, collaboration and highest value outcomes. It is important to remember that the Options serve as a guide and are not prescriptive. Farmers, processors, industry and government entities are encouraged to identify and adopt measures which best reflect their risks, hazards, priorities, needs and resources.

# Strategies for Flood Ready Dairying

**Table 1. Farm level strategies**

Risk	Desired Outcome	Strategy	Options for Farms
Risk to personal safety (farmers, employees, families, tanker drivers, SES workers and farm visitors)	<p>Hazards to personal safety relevant to floods are recognised at farm level</p> <p>Farmers, families, and employees are aware of, trained and skilled in flood safety</p>	<p><b>Identify</b></p> <p>Before, during and after floods, record and communicate identified hazards with all people entering farm.</p>	<p>Personal safety (yours, your family, employees, tanker drivers and other farm visitors) is recognised and prioritised.</p> <p>Tag and sign hazards where identified.</p> <p>Farmers, families and employees are aware of, have access to information and training in farm safety during and post flood events, e.g. electricity safety.</p>
Unanticipated (and possibly avoidable) <b>damage</b> to farm infrastructure, physical environment, livestock, produce, operations, employees and families.	Farms identify, prioritise and treat hazards and risks to minimise harm with doable management solutions.	<p><b>Plan</b></p> <p>Use available tools and support to prepare Farm Emergency Preparedness Plan including investing in farm infrastructure that will mitigate the impacts of floods e.g. flood mounds, feed pads, generators, feed stores etc according to each farm's needs and means.</p> <p><b>Be aware</b></p> <p>Identify risks and prepare for potential on-going consequences of flood on cattle health.</p>	<p>Flood information workshops provide farmers with a Flood Ready Package including tools, resources, and information.</p> <p>Download the <a href="#">Dairy Farm Flood Preparedness Checklist</a> from Dairy Australia and discuss with the family and farm employees.</p> <p>A farm flood plan template (1-2 pages) is accessible for farmers and reviewed annually as part of business practice. Participate in business and risk management workshops and incorporate flood planning in Farm Business Plans.</p> <p>Identify and participate in training opportunities to enhance flood preparedness, response and recovery awareness. Obtain industry resources on the design, siting and management of effluent systems, feed pads and laneways.</p> <p>Involve family and employees in planning and rehearsing response to flood, e.g. milking without power, safe keeping of electronic equipment and farm records.</p> <p>Find out about funding, assistance measures and special loans that may be available.</p>

Risk	Desired Outcome	Strategy	Options for Farms
Some farms may not have emergency management and flood <b>experience</b> or know how.	<p>Incorporate the learnings from events into farm operations and flood plans.</p> <p>New dairy farmers are aware of local flood risks and impacts</p>	<p><b>Participate and Volunteer</b></p> <p>Participate in emergency and business risk events and volunteer to take on roles beyond the farm.</p> <p>Participate in case studies and opportunities to develop flood readiness resources, tools and farming practices.</p>	<p>Farmers participate in programs, case studies, discussion groups, focus farm events, supplier meetings and other events to share knowledge, lessons learned and experience, and build skills to manage risk and effectively participate in all phases of disaster management. Ask a family member or workers to attend to get others involved.</p> <p>New dairy farmers have access to flood planning information and tools and have the opportunity to learn from experienced farmers with local knowledge.</p>
Farmers are unaware of role and activities of government agencies and other authorities in planning for, responding to and recovering from flood events	Farmers have an understanding of role of agencies in emergency management, what to expect following floods and where to access information	<p><b>Be informed</b></p> <p>Identify and bookmark agency websites that provide flood related information relevant to your identified risks (e.g. energy providers, communication networks, local Councils).</p>	<p>Become familiar with agency websites and keep up to date with specific emergency management practices, roles and planning.</p> <p>Following a flood event regularly access agency websites to keep up to date with recovery activities and progress.</p>
People not knowing who to <b>contact</b> for help or assistance in a flood.	Family and workers know who to contact in an emergency	<p><b>Know Who</b></p> <p>Farm Emergency Contact List.</p>	<p>Download the <a href="#">Emergency Contact list</a> or create one and work with your local network to keep it up to date with key contacts including neighbours, police, SES, medical help, Council, weather forecasts, local radio and sources of information about supplies, transport, road closures etc.</p>
Dairy farm families and workers missing out on news and <b>information</b> in the industry	You, your family and co-workers aware of news and events in the industry.	<p><b>Connect, support and share</b></p> <p>Connect with other farmers in the catchment.</p>	<p>Instigate or be part of the local dairy farmer network so you can stay connected and help with sharing information.</p> <p>Established networks (e.g. Women in Dairy, Young Dairy Network, Dairy Advancement Groups, etc.) provide a forum for information dissemination, workshops and skills development.</p>

Risk	Desired Outcome	Strategy	Options for Farms
There are limited funds at the farm level to <b>invest</b> in preparedness infrastructure.	Local partnerships are formed and a shared understanding of what the local priorities are and what the constraints to undertaking work may be.	<b>Prioritise</b>  Dairy farmers identify and prioritise what infrastructure may require attention on and off the farm in the local area to reduce flood impacts.	Be part of the dialogue between industry and local government over what roads, drains and works require attention to allow effective drainage and maintain farm access and transport.  Seek additional funding for preparedness infrastructure.  Identify farm level flood mitigation infrastructure requirements and prioritise for investment opportunities (e.g. generators, feed pads, flood mounds, submersible pumps).
<b>Insurance</b> is too expensive or not available.	Cost-effective and relevant insurance based on risks selected to provide for some business protection and farm sustainability	<b>Evaluate</b>  Work with industry and insurers to customise insurance solution to suit level of risk, needs and affordability.	Investigate with industry bodies what opportunities exist for self-insurance, reducing insurance premiums through group insurance, government subsidies and/or underwritten schemes.  Identify what insurers need as evidence for claims.
People not receiving or chasing information on local <b>Flood levels and triggers</b> and not anticipating flood behaviour	Flood information is being accessed and is being used in farm planning, evacuation response and decision making.	<b>Be informed</b>  Know the triggers and flood levels for taking action. Keep a farm flood book listing the websites and good sources of weather and information that will be valuable in a flood. Keep a log of the records during the event to refer back to.	Check out and know where the information is that will provide river level, rainfall, and flood warning information.  Keep up to date with changes to local warning and alert systems, developments in mobile technology and web based information tools (e.g. Apps).  Have a back-up plan if there is a power outage and Internet is not available e.g. battery-operated radio, mobile and phone contacts upriver.



**Table 2. Local industry and community level strategies**

<b>Risk</b>	<b>Desired Outcome</b>	<b>Strategy</b>	<b>Options</b>
<b>Safety</b> of people moving about in their local area	Personal safety is recognised as number one priority	<p><b>Be aware</b></p> <p>Know the road closures, flood heights over bridges, and identify and avoid potential hazards.</p> <p>Tanker drivers follow processor policies for crossing flooded roads.</p>	<p>Local networks established between tanker drivers, SES and local councils.</p> <p>Dairy connections with local emergency management authorities established and maintained.</p> <p>Early SMS alerts for dairy farms established through links to local council.</p> <p><a href="#">MyRoad website</a> and local radio used to identify road closures.</p>
<b>Early warning and forecast systems do not provide sufficient time to initiate preparedness actions</b>	Farmers have advance warning and knowledge of rising water levels through a range of media	<p><b>Be informed</b></p> <p>Know where to access information as flood events unfold.</p> <p>Information, warnings and forecastings are accurate, timely and recognise changing risks across the catchment.</p>	<p>Options for enhancing information dissemination are investigated including e.g. Apps and other web based systems</p> <p>Agencies recognise that the timing of flood impacts is variable according to the location of farms along the catchment and ensure relevant information continues to be distributed as flood waters continue to move and impact farms.</p>
<p><b>Local infrastructure</b> is not maintained, making the impact of floods worse.</p> <p><b>Lack of consultation</b> and communication about road closures, status of infrastructure etc during and after flood impedes farm operations.</p>	<p>Local catchment groups consulted and empowered in local planning processes and communication is timely and effective during and after a flood.</p> <p>Legacy networks established that link to regional committee.</p>	<p><b>Participate, share, represent</b></p> <p>Local catchment based dairy groups formed to share information, build working relationships with local emergency management and local government personnel and represent shared interests and concerns.</p>	<p>Local networks promote and encourage local dairy groups to advocate for the infrastructure needs of the industry locally and share information and ideas.</p> <p>Local groups develop contingency plans to deal with issues arising from infrastructure.</p> <p>Local groups clarify and communicate roles and contact information of local officials.</p> <p>Projects that encourage proactive catchment scale action to address sediment and nutrient loading are established and invested by regional NRM bodies.</p>
<b>Power disruptions and outages</b> disrupting farm operations during and after a flood	There are agreed arrangements to deal with power outages at the local catchment level amongst dairy farmers.	<p><b>Negotiate</b></p> <p>Local dairy groups negotiate arrangements with electricity suppliers and investigate back-up generator systems as a group.</p>	<p>Joint contingency planning.</p> <p>Farmers share ideas about managing this risk.</p> <p>Back-up generator suppliers approached for advice and bulk pricing for groups of farmers.</p>

Risk	Desired Outcome	Strategy	Options
<b>Milk is not collected</b> by processors due to loss of access.	There are agreed arrangements to deal with farm access difficulties including payment arrangements for milk dumping and quality issues in floods.	<b>Negotiate</b> Local dairy groups negotiate arrangements with processors for various contingencies to be included in contracts.	<p>Joint contingency planning between processors and farmers.</p> <p>Farmers share ideas about managing this risk.</p> <p>Farmers record the arrangements in place.</p> <p>Farmers know the best practice options for dumping milk to ensure no impact upon catchment water quality.</p>
Government agencies and industry not adequately informed about the <b>impact of floods</b> .	Information about the impact of flood events is quickly, efficiently and accurately shared across the industry and provided to government.	<b>Coordinate</b> Damage reporting is facilitated and coordinated via local networks and regional arrangements.	<p>Local networks of dairy farmers in a catchment contributing to requests for information about the impact of floods and lodging timely and accurate reports to assist recovery planning.</p> <p>Flood modelling undertaken to assess impacts of sediment and nutrient loading upon water quality and loss of productive lands.</p> <p>People engaged in damage assessments are experienced and have sound knowledge of farming issues.</p> <p>Assessment tools are designed for simplicity and timeliness whilst maintaining optimal and accurate data collection</p>
The <b>needs of the dairy industry are not prioritised</b> in local emergency response planning and infrastructure	Dairy industry is informed about and has a voice within the emergency management arrangements.	<b>Connect and negotiate</b> Strong links with Local Land Services and Local Emergency arrangements provide for regular negotiation about preparation and response resources and plans.	<p>Dairy industry creates ongoing linkages with local emergency arrangements before events.</p> <p>Linkages are established and maintained between the Dairy industry, government agencies and relevant authorities to enhance awareness and understanding of dairy issues and priorities</p> <p>Flood risks and impacts for the dairy industry are incorporated into Local Emergency Management Plans</p> <p>Local seminars held to share information and resources about flood patterns, river behaviour and response plans.</p> <p>Flood response exercises involve the dairy sector.</p> <p>Industry representatives are invited to participate in relevant emergency services workshops and training activities.</p>

Risk	Desired Outcome	Strategy	Options
<p><b>Insufficient support and follow-up</b> during and after a flood to ensure people and families are coping and recovering.</p>	<p>Farmers, their families and local communities receive the support they need, especially if there are lengthy, severe or multiple flood events.</p>	<p><b>Support</b></p> <p>Farm family access to support services and programs is encouraged.</p> <p>Community based support mechanisms used during a crisis.</p>	<p>Local groups in collaboration with recovery agencies collate and distribute lists of local support services and programs.</p> <p>Local groups provide systematic mutual informal support, referral and follow-up through local networks, especially for vulnerable persons.</p>
<p><b>Impact on individual farms</b> is variable and disrupting ongoing operations of the most affected.</p>	<p>Local timely assistance is able to be provided to most needy farms.</p>	<p><b>Volunteer, Assist</b></p> <p>Local groups develop systems for mutual practical assistance / relief.</p>	<p>Local groups encourage and guide farmers to plan and prepare, highlighting tools and resources available to assist.</p> <p>Local groups develop cooperative arrangements e.g feed bank, working bees.</p> <p>Local groups link into other local networks to share information.</p>

Table 3. Regional level strategies

Risk	Desired Outcome	Strategy	Options
Dairy farmers and processors not <b>aware of immediate flood risk</b> .	Dairy farmers aware of what flood information can be expected, how it can be accessed and what it means.	<b>Improve systems</b> Flood warning, communication systems and trigger levels for road closures and evacuation promoted.	NSW DPI, LLS, SES, Local Government and Industry organisations to collaborate in promoting flood risk information and communication that can be expected during flood times.
<b>Lack of regional coordination</b> across the dairy industry in preparedness, response and recovery to floods.	There is greater and collective focus on disaster preparedness within the industry at the regional level.	<b>Industry identifies regional priorities.</b> Dairy industry engaged with the Regional Agriculture Natural Disaster Advisory Group and distributing information.	NSW DPI, LLS and Industry representatives share information on preparedness, response and recovery arrangements.  Industry works with service delivery partners to incorporate Flood Ready Dairying into existing or new farm management extension programs.  Emergency services and relevant authorities incorporate dairy flood risk and management strategies in flood planning.  Emergency agencies and relevant authorities (e.g. Essential Energy) are invited to participate in forums and workshops to promote increased awareness of roles in flood planning, response and recovery.  Seek opportunities to build regional programs which address sustainable production and environmental impact through capital investment incentives or grants, such as Landcare or LLS.
<b>Information</b> used to assess flood damage and guide assistance <b>is incomplete</b> and fails to provide a regional perspective.	Agreed protocols are in place for the capture of flood damage information across the dairy sector to enable timely reporting and communication of recovery needs.	<b>Synthesise data</b> Regional Agriculture Natural Disaster Advisory Group develops protocols and coordinates information about flood damage in the region.	NSW DPI, LLS and Industry representatives working together on streamlined regional approaches to damage assessment and reporting.
<b>Recovery needs</b> of the dairy industry are <b>not recognised</b> .	Dairy sector issues can be tabled early and confidently in the recovery planning process.	Flood recovery needs of the dairy sector are identified early and accurately.	Local dairy networks are connecting to their industry regional representatives in a timely manner and via agreed pathways.  Processor field staff are well equipped to sign-post their suppliers to the appropriate people, organisations and resources.

Risk	Desired Outcome	Strategy	Options
No agreed mechanism to <b>distribute donated fodder</b> and between dairy and beef cattle.	Needs and issues that apply to industry participants across the region are identified and dealt with.	<b>Coordinate</b> Establish/identify an industry-led regional group to coordinate access to and distribution of donated fodder.	Industry representatives form a group to identify regional needs and issues and coordinate a collaborative response.
Assistance dependency reinforced through funding arrangements.	Empowerment of farmers and industry in building flood resilience and self sufficiency	<b>Coordinate</b> Establish/identify an industry-led regional group to advocate for implementation of strategies and programs that build resilience.	Explore options and communicate preferences for alternative funding arrangements e.g. shared (matched) funding instead of grants, grants for proactive flood mitigation works, tax offsets for flood mitigation, low interest loans, etc.
Flood resilience building activity diminishes due to lack of champions or lack of ongoing engagement of stakeholders.	Dairy Resilience Project outcomes and learnings incorporated into ongoing dairy extension and business continuity programs.	<b>Evaluate</b> Form or identify an industry group to progress the legacy and outcomes of the of the flood ready dairying project.	Test and evaluate some of the tools that support building resilience and preparedness across the dairy sector in the region. Share successes and lessons learned across the dairy industry and with other sectors such as the beef industry. Promote success stories and examples of flood resilience to build confidence and momentum.
Lessons learned from past events not considered.	Industry continues to learn from events and implements strategies based on these learnings.	<b>Review</b> Post-flood debrief with key agencies.	Dairy industry promotes post-flood debrief at Regional Agriculture Natural Disaster Advisory Group meeting and at catchment level.



## 5. Pathway to success

Success will be the achievement of the desired outcomes set out in the tables above. Along the way will be indicators that progress is being made for example:

- Farmers are more confident and proactive in managing risk, that is planning for and preparing for floods
- Networks are established at regional and local levels to carry out the roles set-out in this plan
- Industry participants are communicating often about their roles in the 4 phases of disaster management and carrying them out in cooperation with each other
- Other primary industry sectors are adopting some of the ideas from this plan.

While there is considerable good-will and collaboration in ensuring strategies and actions are progressed, it is suggested that some more formal mechanisms be incorporated to track and promote progress of the Flood Ready Dairying Strategic Plan.

To ensure success, it suggested that the following steps be taken at regional and perhaps local levels:

- i. Identify the entities willing to promote the plan and strategies contained within the plan, engage relevant parties and monitor progress e.g. industry working groups
- ii. Identify indicators of success or progress for each of the desired outcomes
- iii. Plan mechanisms to gather data and/or qualitative information from time to time to assess progress as suggested by the indicators in dialogue with all industry participants. The use of case studies is favoured at this stage as a cost-effective mechanism that is easily communicated to all interested parties.
- iv. Communicate the successes and benefits to dairy industry participants and interested parties in other sectors.

“Responsibility” for Flood Ready Dairying is a shared role. Success and progress will rely on continued dialogue and interaction on the strategies identified within the plan but also allowing for flexibility in accordance with the principles of resilience.

## 6. References and resources

- <sup>1</sup> Australian Bureau of Statistics, 2010-11.
- <sup>2</sup> Department of Primary Industries 2014.
- <sup>3</sup> Dairy Australia 2013, *Dairy Farm Monitor Project, New South Wales, Annual Report 2011/12*, Dept of Trade and Investment.
- \* Local Land Services 2014.
- <sup>^</sup> Developed from Council of Australian Governments (COAG), 2011, *National Strategy for Disaster Resilience*, Commonwealth of Australia.

# Appendix A

## Tools to use and further information

The Flood Ready Dairying project uncovered a diverse array of potentially useful material, tools, checklists and guides that all could potentially play some role in increasing capacity at the farm, local and regional level. For use and future reference, some of the tools identified are listed below along with where to find them. These tools and resources are also provided on the Flood Ready Dairying website [www.dpi.nsw.gov.au/floodreadydairying](http://www.dpi.nsw.gov.au/floodreadydairying).

Tool	Description	Where to find it
Dairy Farm Flood Preparedness (checklist)	Adapted from Dairy Australia's Dairy Farm Emergency Preparedness Checklist	<a href="#">Dairy Australia Website</a>
NSW SES Floodsafe Business Plan Template	Available on-line – can be downloaded and/ or printed assists a farmer to write a farm level flood plan: potential impacts triggers for action before, during and after a flood detailed action plan before, during and after staff contact list emergency contact list	<a href="#">SES Floodsafe Website</a>
NSW SES Floodsafe Home Plan Template	Available on-line –can be downloaded and/or printed	<a href="#">SES Floodsafe</a>
Risk Management Framework	Managing flood risks using The Risk Management Process and the Risk Evaluation Tool (grid).  Framed as a step-by-step tool for farmers and communities to use.	<a href="#">NSW Flood Ready Dairying website</a>
Contact people and their organisations	A list of people and their organisations/interests who are invested in maximising the resilience of the dairy industry. This list is provided to encourage collaboration and cooperation. Continually being updated.	<a href="#">NSW DPI Rural Support Program</a>
Electricity and Safety during Floods	Essential Energy Electrical hazards awareness for rural workers. A series of Fact Sheets on: Emergency response to a fallen power line. Electricity in agriculture. Storm safety  One page guide from Essential Energy – includes contact numbers  Milking without power factsheet	<a href="#">Essential Energy website</a>  <a href="#">Essential Energy website</a>  <a href="#">Dairy Australia website</a>

Tool	Description	Where to find it
Managing in floods and wet conditions	A series of advisory flyers from Dairy Australia covering milking; lameness; feeding; farming in a variable climate; wet weather management ideas on the farm; planning for recovery; animal health; animal welfare.	<a href="#">Dairy Australia website</a>
What to do Before, During and After a Flood	28 page handbook issued by Emergency Management Australia for use by general public easy to read, good practical advice	<a href="#">Emergency Management Australia website</a>
NSW DPI Training	List of online courses available including 'Managing climate risk on farm'	<a href="#">NSW DPI Pro Farm website</a>
Tips for looking after yourself	Fact sheet from Disaster Assist setting out practical strategies for coping	<a href="#">Disaster Assist website</a>
How Disaster Affects Everyone	Fact sheet from Disaster Assist setting out common human reactions to disaster.	<a href="#">Disaster Assist website</a>
Building Emotional Resilience - GRDC	Farmer Health Fact Sheet from Grains Research and Development Corporation (GRDC)  highlights strategies for strengthening emotional resilience at an individual level  touches on depression, helping others and resource organisations/websites	<a href="#">Grain Research Development Corporation website</a>
DairySAT – action planning for environmental considerations	An online self-assessment which assists dairy farmers to consider, prioritise and plan for potential environmental impacts.	<a href="#">Dairy Australia website</a>
Dairying for Tomorrow	Website with up to date resources on environmental management issues, including effluent, nutrient and catchment health management.	<a href="#">Dairying for tomorrow website</a>
Future Ready Dairy Systems	Website – Future Ready Dairy Systems (FRDS) is about practical and profitable practices for dairy farmers to deal with increased climate variability, including wet weather management.	<a href="#">Dairy Australia website</a>

URL addresses for each of the websites listed above are provided on the following page for those using hard copies of the plan.

**Dairy Australia Checklist**

[http://www.dairyaustralia.com.au/~/\\_media/Documents/Animal%20management/Environment/Extreme-weather/Dairy%20farm%20emergency%20provention%20checklist.pdf](http://www.dairyaustralia.com.au/~/_media/Documents/Animal%20management/Environment/Extreme-weather/Dairy%20farm%20emergency%20provention%20checklist.pdf)

**Floodsafe Business Toolkit**

<http://www.floodsafe.ses.org.au/floodsafe/business toolkit/WorkflowHandler>

**Floodsafe Home Toolkit**

<http://www.ses.nsw.gov.au/communitysafety/floodsafe/homefloodsafepage/>

**Contact people and their organisations**

<http://www.dpi.nsw.gov.au/aboutus/services/community/support-workers/guide>

**Essential Energy Fact Sheets - Series**

<http://www.essentialenergy.com.au/content/AgriBusiness>

**Essential Energy – Safety During Floods Fact Sheet**

[http://www.essentialenergy.com.au/asset/cms/pdf/safety/flood\\_fact\\_sheet.pdf](http://www.essentialenergy.com.au/asset/cms/pdf/safety/flood_fact_sheet.pdf)

**Dairy Australia –Milking without Power Factsheet**

[http://www.dairyaustralia.com.au/~/\\_media/Documents/Animal%20management/Environment/Extreme-weather/Managing-in-wet-conditions/Wet%20conditions%20March%202012%20update/Managing%20in%20wet%20conditions%20-%20Milking%20without%20electricity%20supply\\_web\\_Mar12.pdf](http://www.dairyaustralia.com.au/~/_media/Documents/Animal%20management/Environment/Extreme-weather/Managing-in-wet-conditions/Wet%20conditions%20March%202012%20update/Managing%20in%20wet%20conditions%20-%20Milking%20without%20electricity%20supply_web_Mar12.pdf)

**Dairy Australia - Managing in Wet Weather Conditions**

<http://www.dairyaustralia.com.au/Environment-and-resources/Extreme-weather/Managing-in-wet-conditions.aspx>

**What to do Before, During and After a Flood**

[http://www.bom.gov.au/water/floods/document/What\\_todo\\_floods.pdf](http://www.bom.gov.au/water/floods/document/What_todo_floods.pdf)

**DPI Profarm Courses**

<http://www.dpi.nsw.gov.au/agriculture/profarm/courses>

**Tips for Looking After Yourself**

<http://www.disasterassist.gov.au/FactSheets/Documents/Tipsforlookingafteryourself.pdf>

**How Disaster Affects Everyone**

<http://www.disasterassist.gov.au/FactSheets/Documents/How%20disaster%20affects%20everyone.pdf>

**GRDC - Building Emotional Resilience**

<http://www.grdc.com.au/GRDC-FS-EmotionalResilience>

**DairySAT**

<http://www.dairyaustralia.com.au/Environment-and-resources/DairySAT---Dairy-Self-Assessment-Tool.aspx>

**Dairying for Tomorrow**

<http://www.dairyingfortomorrow.com/>

**Future Ready Dairying Systems**

<http://frds.dairyaustralia.com.au/>





