

Flood Ready Dairying

Building on strength and resilience through connections

Risk Assessment

The North Coast Dairy Industry Flood Resilience Project was established with the purpose of increasing the capacity and capability of the dairy industry sector to better prepare for, respond and recover from the risk and impact of floods in order to maintain the long term productivity, competitiveness and sustainability of the sector.

The project was established to assist the dairy industry to develop a regional strategic industry flood resilience plan that has industry ownership and adoption via multi-stakeholder input and facilitated engagement.

The project commenced in 2013 and has involved dairy farmers, processors, industry organisations and government from Taree to the Tweed in north-eastern New South Wales. Throughout the dialogue of this project, stakeholders have identified issues that impact on farm production during the preparedness, response and recovery phases of floods. These issues have been documented in an 'Issues Paper' and are analysed further in the following 'Risk Matrix' as potential risks to improving flood resilience and achieving the outcomes for this project. Issues are given a risk profile based upon their probability and the potential severity of the impact.

These risks are identified and ranked at a regional scale and their applicability, probability and/or potential consequence is likely to differ at a regional – local - individual farm scale. What may be an important issue for one catchment may not be applicable to another or the risk of it occurring may be higher.

The risk matrix provides a number of possible activities for mitigating each risk and also lists potential barriers to be aware of.

These activities will form part of the strategic action plan for Flood Ready Dairying and will provide a way forward for industry and government in building the resilience of the dairy sector to meet the challenges of floods.

Risk: Floods impact on farm profits and ability to invest in preparedness infrastructure

Preparedness	Risk: Probability/Impact 
<p>Business Health:</p> <ul style="list-style-type: none"> there are limited funds at the farm level to invest in preparedness infrastructure e.g. storage for feed, emergency fodder, feed pads, levees, laneways built for flood, generators, and/or insurance. 	<p>Activity:</p> <ul style="list-style-type: none"> Provide reminder to farmers by way of information resource (e.g. fridge magnet) of the importance to plan ahead for emergencies and contingencies. Publicise the Farm Innovation Fund, low interest loan program for on farm capital works including flood preparedness. Seek additional funding from State and Federal governments for on-farm preparedness infrastructure. Local dairy groups work with councils on identifying infrastructure works and maintenance which can mitigate the impacts of water flow and flood waters on dairy farms. Maintenance of roads, bridges, culverts to enable continued tanker access as far possible and safe. Research industry based opportunity for group insurance. Identify what insurers need as evidence for flood events and preparedness, e.g. photographs, recordkeeping. <p>Barriers:</p> <ul style="list-style-type: none"> Budgetary constraints within government for additional grant funding for preparedness activities. Loan program still requires farmers to accumulate debt but at a concessional interest rate. Councils may not be in a financial position to immediately prioritise or carry out works. Local Government and State regulations can restrict preparedness by limiting or controlling flood mound construction, feed storage areas and drainage works. Availability of private insurance or group insurance.

Risk Profile	High 	Moderate 	Low 
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Risk: Perception of flood risk – social effects

Preparedness	Risk: Probability/Impact 
<p>Social:</p> <ul style="list-style-type: none"> • people not receiving or chasing information on local flood levels and triggers • not anticipating flood behaviour (noting that all floods are different) and • not planning when to evacuate or take action or rehearsing plans with farm staff and family 	<p>Activity:</p> <ul style="list-style-type: none"> • Encourage a flood ready and contingency plan mindset. • Local dairy industry groups work together to share information about flood patterns and river behaviour, such as rainfall, triggers, upstream contacts. • Dairy farmers to keep records and a ‘flood plan’ so they have a strategy to respond to different triggers on farm such as moving cattle, shifting pumps and evacuating. • Dairy Australia or other organisations outline different resources which farmers can use to monitor weather and river heights. • Resources available for community and keeping informed – e.g. local warnings, risk mapping <p>Barriers:</p> <ul style="list-style-type: none"> • No two floods are the same, it is hard to predict and have a set response. • Farmers will respond to conditions as they occur and may not identify the need to have a written plan. • Flood preparedness not seen as a priority, day to day when low chance. Not thinking ahead. • Social and personal barriers around the negative perception of floods and their impacts.

Risk: Insufficient infrastructure maintenance that heightens impact of flood

Preparedness	Risk: Probability/Impact 
<p>Public Infrastructure</p> <ul style="list-style-type: none"> • drains, waterways, levee banks, bridges and roads are not maintained or prioritised for funding making the impact of floods worse. 	<p>Activity:</p> <ul style="list-style-type: none"> • Local dairy groups identify key public infrastructure in their local area which is having a perceived adverse affect on them in relation to floods, so they prioritise and provide this information to local government. • Representative organisations such as NSW Farmers progress the availability of infrastructure funding with State government for flood preparedness infrastructure. • Councils regularly check and maintain drains and waterways so that they are clear of debris

Risk Profile	High 	Moderate 	Low 
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	<ul style="list-style-type: none"> • Think dairy – farmers participate in working groups, council committees to provide dairy representation and perspective. • Improved communication between farmers, contractors and processors. Farmers to consider flood access arrangements in supply agreements. • Processors have contingency plans in place given access risks for milk pick-up. <p>Barriers:</p> <ul style="list-style-type: none"> • Local and State Governments have limited amounts of funds for the upgrading and maintenance of infrastructure. May need to consider and promote wider community/industry benefit than dairy.
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Risk: Reliance on stream gauges for flood level information

Preparedness	Risk: Probability/Impact
<p>Public Infrastructure</p> <ul style="list-style-type: none"> • lack of stream gauges in some areas (priority of locations by government) • stream gauges that do not work correctly in a flood • gauges become damaged (maintenance priorities) • uncertainty of who owns and maintains gauges in different areas 	<p>Activity:</p> <ul style="list-style-type: none"> • Information available on the location of stream gauges and the data available from them. • Farmers to consider other sources of information when gauge information is inaccurate or not available, e.g. rainfall to date and expected, contact with farmers upstream, other sources. • Information is distributed to landholders regarding changes in river gauge measures, • Farmers take precautionary measures to compensate for those gauges which may not be working correctly or damaged. Farmers pro-active and using best available information. • Office of Water and other gauge agencies routinely maintain and repair flood gauges. • Farmers actively engaged with local flood warnings and with a plan about what they will do if gauge data not available to make decisions. <p>Barriers:</p> <ul style="list-style-type: none"> • There may be physical limitations in terms of agency current capacity to update and maintain all flood gauges in a timely manner. • Farmers may continue to rely heavily on flood gauges which are damaged or faulty providing them with inaccurate information. • Priorities of agencies in terms of stream gauge numbers, locations and maintenance. • Technical issues associated with information access/dissemination.

Risk Profile	High		Moderate		Low	
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Risk: Expensive or no insurance available

Preparedness	Risk: Probability/Impact
<p>Private Infrastructure</p> <ul style="list-style-type: none"> insurance premiums are expensive (\$10,000 plus) and it's hard to get a decent policy some companies refuse to insure. 	<p>Activity:</p> <ul style="list-style-type: none"> Investigate what the current situation is regarding insurance of dairy farms on floodplain areas, review options for insurance and make dairy farmers aware of the different options. Investigate the options for a government subsidised or underwritten insurance scheme. Dairy farmers take measures to self insure and greater utilisation of Farm Management Deposit scheme. <p>Barriers:</p> <ul style="list-style-type: none"> Due to the risk and previous history of flooding on some dairy farms, private insurance companies may decide not to insure or set premiums at a high level to reflect the risk. There is little ability to influence unless collective insurance is negotiated. Government supported insurance may not be compatible with government priorities or policy.

Risk: Dairy needs are not prioritised in response to power outages

Preparedness	Risk: Probability/Impact
<p>Energy Services – Action taken</p> <ul style="list-style-type: none"> power outages can create major problem on farm in terms of milking equipment and refrigeration, animal health and welfare, ability to milk. <p>Applies to response phase also</p>	<p>Activity:</p> <ul style="list-style-type: none"> Talk to electricity providers on whether they have a priority list for repairs during power outages and whether it is possible for dairy farms to be added to the list. Need to develop relationship with electricity providers and provide information on impacts on dairy farms as a consequence of power outages Individual dairy farms conduct a risk profile of likelihood and consequence of losing power. Dairy farms invest in power back-up generators to manage impact of power outages, either on an individual or collective basis through group or processor. <p>Barriers:</p> <ul style="list-style-type: none"> Due to flood conditions it may be impossible for electricity providers to restore power

Risk Profile	High		Moderate		Low	
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	<p>immediately.</p> <ul style="list-style-type: none"> • Electricity providers may have priorities elsewhere. • Farmers may not have capital available to purchase generators.
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Risk: Commercial decisions/relationships

Preparedness	Risk: Probability/Impact
<p>Business Health</p> <ul style="list-style-type: none"> • misalignment of expectations between processors and producers regarding milk quality, pick-up and payment during times of flood • dumped milk payment (if any) by companies dairy 	<p>Activity:</p> <ul style="list-style-type: none"> • Communication of processor milk pick-up and payment policy during flood event, particularly around dumped milk. Ensure supply contracts clearly reflect what is to happen in circumstances surrounding flooding. • Undertake general preparedness outlined elsewhere, e.g. generators <p>Barriers:</p> <ul style="list-style-type: none"> • While the Food Authority sets standards for the refrigeration and storage of milk on farm, milk processors may have their own additional standards for suppliers. • Different processors - cost/quality requirements.

Risk: No flood warning or alert system

Preparedness	Risk: Probability/Impact
<p>Local flood warnings and alert systems</p> <ul style="list-style-type: none"> • changes to previous SMS flood level warning process due to agency changes. 	<p>Activity:</p> <ul style="list-style-type: none"> • Farmers stay engaged with BOM & SES websites for flood and warning updates. • Dairy industry, SES, LLS and DPI establish agreed protocols for using and supporting an SMS style alert system for landholders within areas potentially impacted by floods. • Landholders determine what is the most important information to be communicated via SMS • Farmers aware and making use of other public alerts distributed through media. <p>Barriers:</p> <ul style="list-style-type: none"> • Mobile numbers for SMS may be difficult to establish and keep up to date across the entire region. Industry may be required to support this level of communication.

Risk Profile	High		Moderate		Low	
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Risk: Insufficient support networks in times of floods

Response	Risk: Probability/Impact 
<p>Social Support</p> <ul style="list-style-type: none"> insufficient follow-up during and after the event to check that everyone is OK, mutual support, make referrals <p>This is an ongoing need.</p>	<p>Activity:</p> <ul style="list-style-type: none"> Encourage local farmers to check up with each other during and after events. Utilise local dairy networks and contacts to see how people are going. A list of local and state support services is developed and made available to farmers, both in terms of physical and mental health as well as agronomic services. Regionally based LLS staff build networks with local farmers and a system for following up with affected farmers or encouraging use of dairy industry network. Use of rural support network for at risk people – ensuring well-being of those affected and identifying trigger/threshold event <p>Barriers:</p> <ul style="list-style-type: none"> Farmers may be limited in their capacity to contact other farmers depending on whether they are impacted by floods themselves and urgency and complexity of tasks at hand. Support groups may not be aware of the impacts on dairying in particular areas and the need to follow-up unless specifically made aware of the situation. Farmers may not follow up on support measures which are available due to stigma concerns and competing priorities. Stress and mental health symptoms may not be obvious and therefore may be overlooked.

Risk: Emergency Fodder not available / cash flow reduced

Response	Risk: Probability/Impact 
<p>Business Health:</p> <ul style="list-style-type: none"> limited cash on hand that can be used to buy emergency feed supplies emergency fodder – unavailable, can't deliver, 	<p>Activity:</p> <ul style="list-style-type: none"> Provide constant reminder to farmers and farming groups by way of information resource (e.g. fridge magnet) to plan ahead for emergencies as far as possible. Industry groups/DPI/LLS consider coordinating a donated fodder registry after significant floods, and/or assists with locating fodder that farmers can purchase directly. Local groups to develop communal fodder supplies throughout the year so there is a pool of

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<p>limited funds to purchase</p>	<p>resources which can be access during times of floods. Each farmer receives an entitlement based on the amount they contribute and this could be traded with other farmers depending on need.</p> <p>Barriers:</p> <ul style="list-style-type: none"> • DPI may not be able to provide emergency fodder to all farmers during flood events. Emergency fodder is for short term emergency animal welfare purposes. • A register of donated fodder requires resources to establish and maintain. There is no guarantee that fodder will be donated or that there is sufficient need to establish a register after each flood. • Individual dairy farmers may not be willing to contribute to a communal fodder supply. There is a need to establish clear rules around contributions and access.
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Risk: Insufficient supplies of supplementary feed

Response	Risk: Probability/Impact
<p>Business Health</p> <ul style="list-style-type: none"> • not having enough supplementary feed on hand to be self-sufficient for 7 days, and not being able to source more before a flood hits 	<p>Activity:</p> <ul style="list-style-type: none"> • During high risk times for floods, farmers take measures before the event as far as possible to ensure that they have a sufficient amount of supplementary feed on hand. • Dairy industry supports a feed inventory across the region before high risk flood times to assist plan a fodder source strategy. <p>Barriers:</p> <ul style="list-style-type: none"> • Quality and affordable fodder may be difficult to access or expensive if other areas impacted by tough seasonal conditions or disasters.

Risk Profile	High 	Moderate 	Low
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Risk: Well-being and Social Health

Response	Risk: Probability/Impact
<p>Social & Personal Health</p> <ul style="list-style-type: none"> • stress and the need to work excessive hours in a disaster • farm and family issues are closely linked • ageing farmers and not necessarily back-up family support nearby 	<p>Activity:</p> <ul style="list-style-type: none"> • Farm plan indicates how stress and work issues will be handled in a flood disaster. • Farmers made aware of social support services and networks in their local areas which may be able to offer assistance. • Local dairy groups work with local council and charities to make resources available for volunteer organisations to assist with recovery and fencing. • Farm family gatherings and farm walks to create interaction and talking. <p>Barriers:</p> <ul style="list-style-type: none"> • Farmers may not follow up on support measures which are available, especially during floods when they are busy or concerns about stigma. • Recovery volunteering requires high levels of coordination and commitments from both council and local charities for assistance with camping grounds, amenities, meals, risk management. • Volunteer based recovery assistance can only reach a limited number of affected farms. Prioritisation after a flood is difficult.

Risk: Farmers not using available information/relevant media

Response	Risk: Probability/Impact
<p>Public Information</p> <ul style="list-style-type: none"> • too much reliance on one source of information • contradictory or incorrect information provided from a localised context • reliability and timeliness of information through BOM, SES, local radio. • reliance on the internet for information. 	<p>Activity:</p> <ul style="list-style-type: none"> • Greater clarity and information around weather forecast and floods, especially around how farmers interpret information. Possibly through BOM or LLS extension. • Farmers ensure that they have other means to access emergency information either through radio device or telephone. • Contact details for local emergency and information services are compiled and distributed to local dairy groups through the local emergency management committees. • Farmer access to and use of public information on emergency risk and warnings to be part of normal farm business operations and not just reserved for times of emergencies. <p>Barriers:</p> <ul style="list-style-type: none"> • Such activities are required to be coordinated at a regional level for relevancy of information.

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<ul style="list-style-type: none"> difficulties in finding contact details for services, e.g. Friday night flood. 	<ul style="list-style-type: none"> Internet access, use of technology may not be widespread across all farmers. Multiple sources of gaining information will be important. Accuracy of stream gauges and confidence in the data supplied for decision making.
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Risk: Pragmatic approach – essential services

Response	Risk: Probability/Impact
<p>Public Infrastructure</p> <ul style="list-style-type: none"> roads are often closed too early and without prior timely communication to farmers. This can leave cattle trucks and supply trucks stranded. 	<p>Activity:</p> <ul style="list-style-type: none"> Farmers incorporate the risk of road closures into their flood plan. Where possible establish contingencies in terms of access, food supplies, fodder. Act early rather than leave late. Identify and promote sources of road closure information, e.g. RTA Facebook, NSW police communications Council and SES improve on strategies to effectively communicate road closures to affected communities and households. Upgrade (seal) secondary roadways that provide access to and from farms during floods and undertake works necessary to remove load limits that restrict use of such roads to transport stock and/or product. Apply common sense – consider WHS risks and processes Use local experience and radio Build relationships with police and other emergency management groups in preparedness phase. <p>Barriers:</p> <ul style="list-style-type: none"> Given the nature of floods, it is often difficult to give sufficient prior warning when closing roads. Agencies respond to risks. Council and state government funding constraints may limit their ability to upgrade secondary roads and there may be higher infrastructure priorities. Public safety concerns are a priority and so can keep roads closed until deemed safe.

Risk Profile	High	Moderate	Low
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Risk: Risk to animal health and welfare and associated community perceptions of farm and industry

Recovery	Risk: Probability/Impact 
<p>Animal Welfare</p> <ul style="list-style-type: none"> recovery hindered by animal welfare challenges 	<p>Activity:</p> <ul style="list-style-type: none"> Industry/LLS/DPI make accessible information and extension to areas after flood events around animal nutrition, disease control, pasture rehabilitation etc. Farmers are aware of information sources on animal welfare prior to floods and know how to use it. Linkages to be provided on project website. Farmers to have an animal welfare plan prior to events to identify activities required and/or farmers to include animal welfare considerations in flood plan. <p>Barriers:</p> <ul style="list-style-type: none"> Timeliness and the ability to cover all areas if large parts of the region affected. Competing pressures and priorities on dairy farmers after floods.

Risk: Full recovery is weakened/more vulnerable if farmer is impacted by a series of floods or other challenges, e.g. poor seasons

Recovery	Risk: Probability/Impact 
<p>Business Health</p> <ul style="list-style-type: none"> Cumulative impact of a series of floods or other challenges without full recovery before the next one 	<p>Activity:</p> <ul style="list-style-type: none"> Assess and be aware of the cumulative impact of floods on dairy businesses, personal health, farm financial and herd health and productivity. Talk to a counsellor if necessary. Industry in partnership with key agencies, identify strategies for reducing the cumulative impact of floods. Identify mechanisms that flood prone dairy enterprises use to “normalise” flood events as a routine part of farming and milk production. <p>Barriers:</p> <ul style="list-style-type: none"> Difficult to quantify and partition cumulative impacts of flood events as separate to other seasonal condition issues and terms of trade issues. Cumulative impact of major floods may be vastly different to the cumulative impact of minor and

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	<p>moderate floods. Time of year of events also a big influence on impacts.</p> <ul style="list-style-type: none"> • Prolonged wet conditions can be as devastating as a single flood event but are not declared as natural disasters.
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Risk: Social health and well-being issues difficult to detect at an individual level

Recovery	Risk: Probability/Impact
<p>Social Support</p> <ul style="list-style-type: none"> • social problems can go unrecognised or difficult to bring up and discuss, e.g. family relationships, mental health. 	<p>Activity:</p> <ul style="list-style-type: none"> • Rural social programs reaching out to dairy industry and farmers through coordinated programs to increase resilience and wellbeing, e.g. Family support programs, Community building. • Courses offered to dairy industry and rural community leaders, families and support people to build confidence and capacity to deal with social well-being. <p>Barriers:</p> <ul style="list-style-type: none"> • Need agreement with service providers to deliver social well-being services and training and ongoing support mechanisms. • Farmers may not be aware of, see the benefit, use the service or consider it a priority • Often cultural barriers and stigma attached to social health and well-being.

Risk: Limited support funding available to assist with recovery

Recovery	Risk: Probability/Impact
<p>Government Support</p> <ul style="list-style-type: none"> • ongoing need for individual farm assessment. The surveys for damage must continue to be done. • concerns that government support/grants may be 	<p>Activity:</p> <ul style="list-style-type: none"> • Public acknowledgement that there is a disaster is important to community affected. • Explore options for funding for natural disasters, e.g. establish a fund that would match farmer investment in preparedness measures. Pool money that is usually granted individually (\$15,000 Category C grants) and use it to match dollar for dollar. • Grants may be better spent on proactive mitigation works before floods e.g. fix drains so laneways don't wash out again. • Accelerated depreciation on mitigation works – e.g. you can write off a laneway repair but not

Risk Profile	High		Moderate		Low	
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<p>reduced or disappear altogether</p> <ul style="list-style-type: none"> the need for more self-sufficiency in the future 	<p>build a feed pad.</p> <ul style="list-style-type: none"> FMD type scheme to allow farmers to invest in preparedness. Money in the fund gets taken off the taxable income. <p>Barriers:</p> <ul style="list-style-type: none"> Relief and Recovery support measures are subject to State and Commonwealth agreement and negotiation. Submissions suggesting changes and providing the evidence for any suggested changes in financial support or taxation policy would take considerable resources and something for industry to determine.
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Risk: Dairy Industry not given priority in recovery phase and cannot operate without essential services/infrastructure

Recovery	Risk: Probability/Impact
<p>Public Infrastructure</p> <ul style="list-style-type: none"> Continued road closures and pending repairs impacting on stock and tanker movements and other farm issues Continued power and telecommunication outages Delays inspecting and re-opening roads after a flood 	<p>Activity:</p> <ul style="list-style-type: none"> Local dairy industry representatives have connections with local emergency management and local government personnel responsible for road closures so that triggers for closures and openings are well understood. Ongoing dialogue and communication with relevant service providers and council as applied in preparedness phase. Local recovery committees provide information to the rural community after a flood about how long closures are expected and when emergency repairs are likely to be completed. Dairy industry, DPI / LLS and emergency services have a local protocol in place with regard requests for truck movements over closed roads in emergency situations. Local community respects and complies with road closure signs that are in place for public safety purposes. Farmers to apply localised risk assessments, is a plan B available if normal access route is cut? Community campaign emphasising not to drive, ride or walk through floodwaters due to risks. <p>Barriers:</p> <ul style="list-style-type: none"> People taking risks due to frustration or ignoring road closures.

