

Natural Disaster Preparation Manual

Fact Sheets and Checklists to assist
your preparation, recovery and resilience
for natural disaster



Nursery & Garden Industry
Queensland

Introduction

Cyclones, floods and severe storms can have a significant impact on your business by damaging or destroying protected cropping structures, equipment and plant stock. This Natural Disaster Preparation Manual is designed to be used in production nurseries as a broad guide to assist business owners and managers prepare the nursery for cyclone and flood conditions.

The Natural Disaster Preparation Manual contains fact sheets, checklists, tools and tips. Designed specifically for the nursery industry, the pack can assist you to increase your business' ability to bounce back after a natural disaster, reduce the downtime and hasten the return to production.

Snapshot of the nursery industry

The Queensland nursery industry is a significant horticultural sector with a combined supply chain (production to retail) valued at more than one billion dollars annually. The industry employs approximately 6,000 people spread over more than 2,000 small to medium sized businesses including production nurseries and retail outlets. At the time of Cyclone Debbie crossing the east coast of Queensland in March 2017, nursery production was forecast to contribute more than \$902million (farm gate) to the state economy (Queensland Government AgTrends update, April 2017).

The Queensland production sector of the industry is located predominantly along the coastline of the state, between the Tweed River in the south to Cairns in northern Queensland with pockets of producers situated in various inland locations such as Mareeba and Toowoomba.

Nursery design and layout favours flat land with access to healthy waterways. Although flood plains provide the ideal layout site, the challenges of building a nursery on a flood plain become obvious during a flood. The topography of the property should always be taken into account during nursery planning. Nursery sites are sometimes located on steep, sloping sites, or exposed flat land. During a cyclone wind speeds can increase over hills and the most vulnerable structures and highly valued plants should be relocated and positioned in the most protected locations.

Family owned nurseries

Another dynamic influencing the resilience capacity of the nursery industry is the high number of businesses that are operated by spouses or multi-generational families. Often, the nursery owner / manager lives on the same site as the nursery. This factor increases the level of stress in a natural disaster as both the nursery business and homestead is threatened.

Business recovery needs to be treated as a priority for the family-owned nursery because the livelihood of the family depends on the ability of the nursery to return to production as soon as possible. The responsibility of the family-owned nursery to staff and the local community can also be a stressor, as the nursery owner wants to retain key, trained staff, be capable of making weekly payroll, and retain a position of influence within the local community. Evidence collected after Cyclone Debbie (2017) and Cyclone Marcia (2015) show an average income loss experienced by nurseries is over \$350,000 with full recovery taking up to three years. The Natural Disaster Preparation Manual is produced by the Nursery & Garden Industry Queensland as part of the STC Debbie Agriculture Industry Recovery and Resilience Project.

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1 / Before

2 / During

3 / After

4 / Checklist

5 / Rebuilding



1 / Before

Weeks Before Cyclone Season

In the weeks leading up to storm season you need to prepare the nursery site to protect yourself, staff, family, stock and infrastructure. Usually winter is a good time to clean up a nursery site, stocktake and repair any infrastructure or irrigation systems. NGIQ provides nurseries with resources and best practice advice on how to build and prepare your nursery to survive a natural disaster.

To access resources visit :

W / www.ngiq.asn.au

E / recovery@ngiq.asn.au

P / 07 3277 7900

12 Preparation Questions for Nursery Owners / Managers

Here are twelve questions you can ask to help understand where your risks are located:

- 1 If a cyclone or flood event came through the site, what could the nursery look like afterwards?
- 2 Are trees located too close to sheds, shade houses, pump houses?
- 3 Do plants need protection from sunburn after the cyclone or fungal infections after flooding?
- 4 Do you have spare shade cloth, cable ties, gloves, chainsaw and irrigation equipment?
- 5 Are chemicals securely stored?
- 6 How will you irrigate stock if there is a power outage?
- 7 Is insurance paid and up-to-date for adequate stock coverage? Do you have business interruption insurance? Where are insurance documents stored?
Insurance Ph no: _____
- 8 Do you have a computer system back-up?
- 9 Do you have solar-charged torches, lanterns and batteries for phones, devices, radio?
- 10 Do you have an evacuation plan for you, family and staff? Does everyone know the plan?
- 11 Will you be isolated and do staff know what to do after the event?
- 12 Have you contacted NGIQ and arranged for an outside contact person/ industry buddy to assist you?



Each nursery site is unique and you need to apply these general procedures to your own site



Stocktake

Do a quick stocktake: move the most valuable stock away from the potential disaster zone: off site or to higher ground. Which plants can you afford to lose?



Moving Plants

Make a plan on how plants will be moved before and after the cyclone and instruct staff on how and who will perform these tasks.



Deliveries

Assess despatch schedules, rearrange deliveries of growing media, pots or plants, and talk to clients expecting deliveries next week.



Securing Items

Secure all loose items and materials. Ensure all dangerous substances such as chemicals are safe, secure and inventoried. Pallet wrapping has been effective in securing expensive items such as chemicals and fertilisers to secure and weigh them down.



Photos

Take photos and video footage – before and after the cyclone/flood.



Phone Charger

Fully charge mobile phones, laptops, ipads. Do you have portable solar chargers?



Fuel

Fuel up all vehicles and spare fuel drums for generator.



Food & Water

Ensure you have 3 days of food and drinking water supplies for family and pets.



Clothing

Have ready-to-wear heavy covered shoes, long trousers, long sleeves, gloves and safety glasses.



Generator

Test generator and arrange a back-up generator.



Neighbours

Talk to your neighbours and share your emergency evacuation plans. Know your exit routes.



Documents

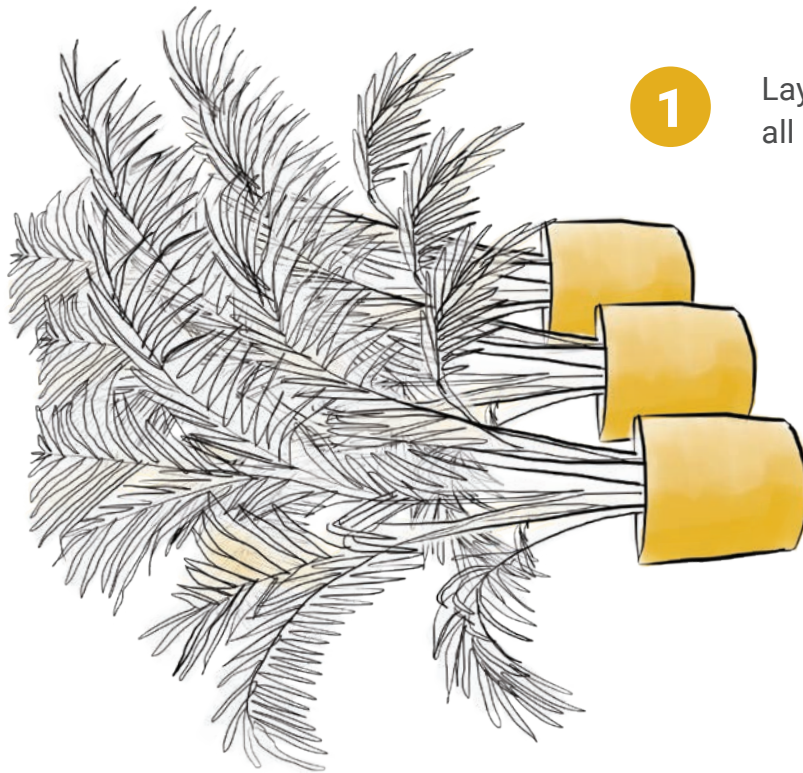
Secure critical business documents into waterproof, plastic containers.



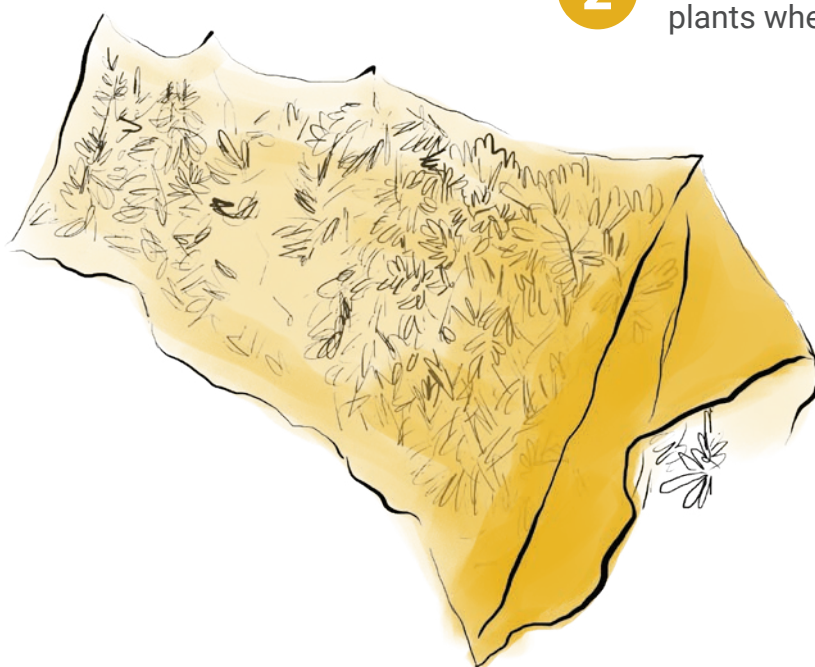
Computers

Back up your computer and elevate / move computers.

Hints and Tips for protecting plants in a cyclone



1 Lay down larger plants all in one direction.



2 Cut and drop shade cloth over plants where appropriate.



3

Move higher value plants to a protected area. Some nurseries have 'sheltered' areas (embankments, gullies or natural depressions) or sheds, growing media bays where plants can be stored and protected.



4

Apply sunburn chemical protectant if available.

5

In cyclonic wind conditions, assess whether to place small trays and pots on the ground or under benches to reduce the chance of being blown about.



Hints and Tips from Fellow Nursery Owners / Managers



Peter Radke

Peter, formerly of Yuruga Nursery has lived through 6 cyclones, including the devastating Cyclone Larry, in 2006 that wiped out Far North Queensland. Here's his preparation tip:



If possible, try not to have large areas of shade cloth. This proved to be one of our biggest problems – in all cyclones. I should have cut the shade cloth, let it drop on the stock, so that it wasn't blown and ripped apart, and afterwards it would have protected the plants from sunburn.

Elaine Duncan

Elaine, of Flourish Plants North Queensland has experienced 3 cyclones. Here's her advice:



Clear the workplace of all clutter, debris, tie down what you can. Store all that you can in a shed. Cover and wrap plant labels in plastic on shelves. Prepare your shed assuming that doors and windows will blow in. Tie down outside equipment if it is unable to be stored in a shed. Attempt to save all you can.

48-24 hours prior

In the day prior to an anticipated cyclone or flood, walk through the nursery and identify anything that could come loose in high winds. Signage, hanging baskets, empty containers and equipment need to be secured, tied down.

Talk to staff and ensure they know your preparedness plans. Contact NGIQ and use facebook, radio and neighbours for updates on potential impact.



Helpful Websites

- **Nursery & Garden Industry Queensland**
www.ngiq.asn.au
- **Queensland Farmers' Federation: Farmer Disaster Support**
www.farmerdisastersupport.org.au
- **Queensland Government Get Ready**
www.getready.qld.gov.au
- **Bureau of Meteorology**
<http://www.bom.gov.au/cyclone/about/intensity.shtml>
- **ABC Emergency network**
<http://www.abc.net.au/news/emergency/plan-for-an-emergency/cyclone/#during>
- **Queensland Health & Safety**
<https://www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/dangers-in-your-workplace/storms-and-floods>
- **Master Electricians Association**
<https://www.masterelectricians.com.au/consumers>



During / Natural Disaster Preparation

2 / During

During the Disaster

When Severe Tropical Cyclone Debbie hit the Queensland coast, winds roared for several hours, and flooding surged late at night and continued for three days. During the storm, you need to follow instructions from Police and Emergency Services.

Ensure your own personal safety and that your family and pets. It's okay and normal to feel afraid during a natural disaster. Stay calm, alert and maintain your food and water intake.

To access resources visit :

W / www.ngiq.asn.au

E / recovery@ngiq.asn.au

P / 07 3277 7900

Here is general advice for you, your family and staff to follow during the cyclone.

If you shelter at home:

- Turn off all electricity, gas and water; unplug all appliances. Assess need to wrap electrical plugs in waterproof plastic.
- Keep your emergency kit close at hand.
- Bring your family into the strongest part of the house.
- Keep listening to the radio for cyclone updates.
- If the building begins to break up, shelter under a strong table, bench or heavy mattress.
- Beware the calm eye of the cyclone: stay inside until told it is safe to go outside.
- Comfort children.



Ian Stewart / Lizard Mountain Nursery

Ian Stewart's account of Cyclone Marcia as he, his wife, Elaine and daughter, Cassie and two pet dogs endured the storm:



We sat Marcia out at home. We were all up early and watching Sunrise on Channel 7 to get news updates.

The full impact hit about 9am and we soon lost power. Elaine and Cassie bunkered down in the bathroom along with the two dogs. I was going from room-to-room, but mostly we stayed in the bedroom on the western side of the house. Early on, we could see the shade cloth on Structure # 11 and #12 had two metre wind waves rolling through them, and we knew it was only a matter of time before a break occurred.

The garden shed was first to go and just imploded. I remember thinking that won't be good, coming back at us after the eye passes, but it hit the ground and stayed there and never moved.

It's hard to describe the noise that goes with a cyclone, suffice to say it is very loud and thunderous and we can constantly hear things banging and crashing around. At one point I knew we had an iron sheet off the shed roof because you could hear it crashing repeatedly on the roof. Another crash and you're thinking, "shit I hope that wasn't part of the house", as you just become concerned for your own survival.

I remember being in the bedroom at one stage and the glass in sliding glass doors was bending 6-8 inches in and out. I never knew glass could bend so much, again I thought only a matter of time and this will go, but it didn't.

During the whole time of the cyclone you have the awful knot in your stomach, as you know you can't control what is going on around, all you can do is react. People would say you were scared and honestly, yes, but you go beyond that, as senses are heightened to survival. About 2pm things started to ease a bit and by 3pm we ventured outside and started to look around.



When an official evacuation order is issued:

- Act immediately. You and your family should follow directions; seek a public shelter or stay with friends/family further inland or on higher ground.
- Check with your neighbours that they have received the updated information.
- Turn off all electricity, gas and water; unplug all appliances.
- Lock your doors.
- Make sure everyone in your household is wearing strong shoes and suitable clothing.
- Take your emergency survival kit; commence your evacuation plan. Details on what to include in your emergency survival kit: www.getready.qld.gov.au
- Visiting from out of town? The local council or emergency agency will let you know your best options for evacuation.
- If you cannot take your pets with you, make sure they are in a safe place. (garage, laundry, etc). Leave them with food and water. Do not tie them up.
- If you are driving when a cyclone hits, immediately park in an area that is clear of trees, powerlines and water courses. Stay inside your car.
- Stay calm. Keep listening to your ABC Local Radio station listen online or via the ABC Radio app, and/or check ABC Emergency's Twitter and Facebook accounts for updates and instructions.
- If safe to do so, contact your ABC Local Radio station to tell the listeners what you can see.
- First-hand and reliable knowledge about what's going on will help the rest of the community.
- Keep our phone number handy: **07 3277 7900**

Source: ABC Emergency <http://www.abc.net.au/news/emergency/plan-for-an-emergency/cyclone/#during>



3 / After

After the Disaster

After a cyclone or other severe weather event, there will be activities to take care of immediately and some longer-term issues that should be addressed over time.

Always remember that safety is paramount and no clean-up activities should be started until all people are accounted for and there is official confirmation that the threat has passed.

To access resources visit :

W / www.ngiq.asn.au

E / recovery@ngiq.asn.au

P / 07 3277 7900

Initial Assessment

Safety is the first and most important aspect of recovering from a severe weather event.

- Listen to local radio for official warnings and advice.
- Stay indoors until it is safe to walk outside.
- Look out for damaged power lines, bridges, buildings, trees, and under no circumstances should you enter floodwaters in your vehicle or in person.
- Heed all warnings and avoid sightseeing.



Photos

Take photos and video of the damage and storm / flood waters.



Protective Clothing

Ensure that protective clothing and safety equipment is worn during the initial inspection and clean-up process, wear heavy covered shoes, gloves, long sleeves and safety glasses.



Gas Leaks

Check for gas leaks. Don't use electric appliances if wet.



Chemical Leaks

Check that no chemical leakage has occurred and all dangerous substances are safe, secure and cross-checked against the pre-disaster inventory.



Building Safety

Make sure all buildings and production facilities checked for safety before entering. Obtain an official assessment before reconnecting or using electricity, water and gas supplies.



Stock & Infrastructure

Make a preliminary assessment of stock, shade cloth and infrastructure damage.



Neighbours

If you are able to get out of the property safely, check on your neighbours.



Contact Us

Contact NGIQ and inform them of the initial damage. NGIQ staff will complete a Damage Estimate Form for your nursery and can report your situation to Queensland Government Agriculture Coordination Group to activate resources.



Insurance

Contact your insurance representative and request a loss assessor to visit the property.

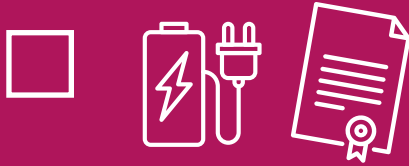
Recovering and protecting plants after a cyclone

- Depending on your site location and the type of damage experienced, your stock may require specialist technical advice.

Here are steps to follow to commence the process of recovering and protecting plants after a cyclone or flood event:

- 1** Enact plans to protect and stabilise surviving plants, ensuring that they are not subject to excessive water or sunlight. Assess where to locate your most valuable stock.
- 2** Install back-up irrigation to maintain the plants. Contact NGIQ to obtain technical advice.
- 3** If shade structures are lost and plants are exposed to continual high levels of moisture and humidity, they may be more susceptible to fungal disease. Contact NGIQ to obtain technical advice.
- 4** If plants are unprotected they may also be exposed to damaging levels of sunlight. Make basic repairs to shade structures using stored supplies where safety permits you to do so.
- 5** Over the next few weeks, weeds may become a problem within the crop and around the property when shade structures are lost, crop foliage is reduced and there is a higher level of light reaching the soil or growing medium.
- 6** Check with your local Council and State Government about assistance with the initial clean up and removal of rubbish and debris. There may be funding assistance to reimburse costs associated with the removal of debris and site clean-up.

Steps for planning to do work safely



Electricity Clearance

Check that an electricity clearance has been given before attempting to use it.



Dangerous Materials

Identify any likely asbestos containing materials or dangerous chemicals.



Assess

Assess what work needs to be done.



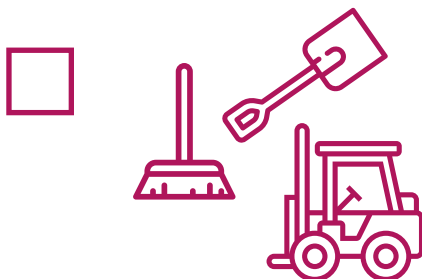
Order of Work

Work out the order of the work to be done so that new risks are not introduced, e.g. think about how you will get access to the areas where the work is to be done, or the possibility of creating instability from removing things in the wrong order.



Potential Problems

Consider what could go wrong during the clean up and repair work. Be prepared.



Tools & Equipment

Work out what tools and equipment will be needed to do the work safely.





Equipment Check

Check the correct equipment is available and is in good working order.



Worker Skills

Check that the people required to operate the equipment have the right skills and competencies and ensure supervision of less skilled workers is available. Equipment such as chainsaws are dangerous in the wrong hands.



Fatigue

Check that people allocated to perform work are not fatigued.



Protective Equipment

Make sure that workers have the correct personal protective equipment (for example rubber-soled shoes, gloves, hats, sun protective clothing and high visibility vests) and it is worn correctly.



First Aid & Drinking Water

Check that appropriate first aid, clean drinking water and hand hygiene measures are available and there is access to medical treatment in the event of an injury occurring.



Toilets

Check that there is access to toilet facilities.



Counselling

Highlight any counselling services available to staff and encourage their use.

Clean-up

- Identify who of your regular staff are able to safely come to work.
- Provide safety equipment, establish a roster and together assess priority areas.

Damage to the site may appear overwhelming and disheartening to you and staff. Prioritise activities, including initial tidying and recovering surviving plants. Your trusted staff will know what the site looked like prior to the event, which stock was moved and will be able to help you to assess damage, and plan the clean-up.

- Enact your plan on how stock will be moved and consider any risks or damaged structures that might require a re-think of your plan.
- You may have access to volunteers and charity groups who can assist with the clean-up. That's great. They can help move stock, clean up torn shade cloth and hose out muddy shade houses. If they handle plants, ensure that trained nursery staff provide instruction on to safely remove mud from pots without damaging the plant. You don't need additional damage to stock caused by willing volunteers.



Remember, your obligations under Queensland's health and safety laws still apply. By being vigilant and maintaining safety during this difficult time, you can help reduce the risk of death, injury and illness to yourself, your workers and others involved in the clean up and repair effort.

Source: Queensland Government Workplace Health and Safety website

<https://www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/dangers-in-your-workplace/storms-and-floods>



Risk management

It is important that you assess the potential for hazardous conditions and/or exposures before attempting any clean-up and recovery activity.

- 1** Identify the hazards – information on common cleanup hazards and protective measures.
- 2** Assess the level of risk – the likelihood of exposure to the hazard, and the consequences (what harm could be done).
- 3** Control the risk – identify and implement a control as per the hierarchy of controls.
- 4** Review the control measures – to ascertain the effectiveness of the control implemented and to make sure you haven't introduced a new risk.

Based on an initial assessment of hazards, you may need to provide workers or volunteers with the appropriate information, training, supervision or equipment to safely perform cleanup and recovery work.

Managing volunteers during clean-up and recovery

- Even under circumstances involving recovery cleanup and recovery activities, persons conducting a business or undertaking (e.g. local councils and employers) and workers (including volunteers) have duties under the Work Health and Safety Act 2011.
- For the purposes of the Act, a person is a volunteer if they undertake work for an employer without being paid a wage or salary. They may, however, be reimbursed for any out of pocket expenses they incur directly while carrying out the volunteer work (e.g. reimbursement for direct outlays of cash for travel, meals and incidentals). Out of pocket expenses do not include loss of wages or salary while carrying out the volunteer work.
- This should not be an onerous requirement. The best way to manage the health and safety of volunteers is to treat them as you would a paid worker.
- Establish a sign-in / sign-out register for all volunteers and visitors to site.

Volunteer Inductions

All volunteers MUST sign-in at the start and sign-off at the end of their shift. Volunteers should be made aware of the potential dangers and the proper safety precautions through a group safety briefing or induction before commencing any recovery or cleanup work. This will help lessen the risk of volunteers hurting themselves, other volunteers, workers or others who may be affected by their actions or omissions.

Before volunteers start their work you should outline:

- Personal safety issues (hydration, fatigue, breaks, hygiene etc)
- Cleanup crews should work in teams, particularly as experience levels between volunteers can differ and they can look out for each others safety
- Existing and potential hazards and the proper safety precautions
- Health and safety procedures (e.g. instructions for equipment they will be using)
- How to use personal protective equipment provided
- Tasks and boundaries of their role (e.g. only take on work they know they can safely carry out, know their own limits and consider the impact of any existing health issues, areas not deemed safe to enter by authorities yet)
- Who to talk to if they have any health and safety concerns and how to report any health and safety incidents and hazards
- What situations they should remove themselves from
- Emergency procedures
- How they can report injuries that may occur while doing recovery work and how to access first aid treatment.

Designate team leaders

You should designate a professional nursery person/s with health and safety knowledge and skills to be responsible for the management of volunteers and their health and safety.

Source: [Queensland Government Workplace Health and Safety website](https://www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/dangers-in-your-workplace/storms-and-floods)

<https://www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/dangers-in-your-workplace/storms-and-floods>



Initial Clean-up



Take photos and video

Take photos and video of damage. Use prepared stock list inventories and the NGIQ checklists to document all information.



Contact Insurance

Contact your insurance agent and request a loss assessor to visit the property.



Keep Records

Maintain accurate record-keeping of all expenses and losses including the resources (people, equipment and consumables eg. fuel) used to assist with the clean-up. Retain tax invoices, receipts, quotes. If there is government funding assistance provided, you will need to show evidence of damage and the expenditure. For more information on Natural Disaster Recovery Grants currently available, contact Queensland Rural and Industry Development Authority: www.qrida.qld.gov.au



Contact NGIQ

with an update on your business damage and likely need for government assistance. Talk to NGIQ about the type of technical support you might need to deal with plant health issues, contaminated dam water or mould spores on shade houses.

ph: 07 3277 7900 **email:** recovery@ngiq.asn.au **website:** www.ngiq.asn.au



Contact suppliers

for plants and equipment. Determine the likely time to replace damaged stock and equipment. Contact suppliers of fertilisers, containers, chemicals, growing media etc. so that you are sure of access to all the production requirements for your surviving plants.



Contact customers

explaining your situation and its impact upon them and their orders. Confirm the markets for your products and keep your customers up-to-date on your activities and expected date of business resumption.



Check Supply Chain

Check the roads, transport companies and all other components of the supply chain to ensure the continued movement of your products.



Assess your staff

Assess your staffing levels during the period from clean up to returning to full production. This time period may be days, weeks, months or years before you return to a profitable level of production. You may need to seek advice on your rights as an employer and responsibilities to employees.

Contact NGIQ on ph: 07 3277 7900 or visit **Fair Work Australia** **website:** www.fairwork.gov.au



Contact your accountant

or trusted financial adviser and ask them to work with you to ensure the business is financially viable during this recovery period.



Health

Remember to check on the health and wellbeing of your staff, family and yourself. Fatigue, irritability, forgetfulness, anger, fear and depression can be evident months and years after a natural disaster. There is a range of support services available to individuals and business owners that can assist with the mental health issues following a crisis. For more information **contact NGIQ** on ph: 07 3277 7900 or visit www.qld.gov.au/community/disasters-emergencies



4 / Checklist

A Checklist for After a Disaster

This checklist provides you with a guide to identify infrastructure, stock, vehicles and buildings that may have suffered damage.

Nurseries that also have a residence on site, can use the checklist for domestic structures.

This information can be shared with NGIQ, your insurance agent and used to commence your application for any funding assistance that may be available.

To access resources visit :

W / www.ngiq.asn.au

E / recovery@ngiq.asn.au or

P / 07 3277 7900

Damaged Areas	Damaged Yes / No	Level of Damage Minimal / Moderate / Severe / Wiped out	Notes
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Buildings

potting sheds, packing sheds, storage sheds, pump houses

Roof			Roof material is:
Walls			
Structure & supports			
Rain gutters			
Doors			
Windows			
Furniture / Seats			
Lighting			
Electrical – interior			
Potting Machinery			
Nursery Benches			
Nursery Trolleys			
Pumps			
Irrigation systems			
Pots			Size:
Pots			Size:
Pots			Size:
Pots			Size:
Pots			Size:
Trays			
Equipment:			
Equipment:			
Equipment:			
Plant Labels:			
Other items:			

Estimate \$\$ of damage to Buildings = est. \$

Damaged Areas	Damaged Yes / No	Level of Damage Minimal / Moderate / Severe / Wiped out	Notes
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Growing Structures

Roof			Roof material is:
Vents			
Structure & supports			
Rain gutters			
Flashing			
Walls			
Skins / Plastic / Shade Cloth			
Doors			
Screens			
Nursery Benches			
Irrigation			
Electrical – interior			
Electrical – exterior			
Lighting			
Fans / Air-con			

Estimate \$\$ of damage to Growing Structures = est. \$

Farm Vehicles

Tractor			Make/model/registration:
Forklift			Make/model/registration:
Motor Vehicle			Make/model/registration:
Motor Vehicle			Make/model/registration:
Truck			Make/model/registration:
Quad Bike			Make/model/registration:
Golf Buggy			Make/model/registration:
Other Vehicle/s			Make/model/registration:

Estimate \$\$ of damage to Farm Vehicles = est. \$

Damaged Areas	Damaged Yes / No	Level of Damage Minimal / Moderate / Severe / Wiped out	Notes
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House / Residence

Roof			Roof material is:
Walls			
Structure & supports			
Rain gutters			
Doors			
Windows			
Lighting			
Electrical – interior			
Electrical – exterior			
Garage / Carport			
Fans / Air-con			
Household Contents			
Household Contents			
Household Contents			
Household Contents			
Household Contents			
Household Contents			
Household Contents			
Household Contents			

Estimate \$\$ of damage to House / Residence = est. \$

Total estimate \$\$\$ of damage = est. \$

Notes



5 / Rebuilding

Rebuilding After a Disaster

A natural disaster could provide an opportunity to change the direction of your business, or redesign the shape and layout of the nursery site and introduce new processes.

If you are considering a new layout or structural change, we would recommend you refer to the detailed information and the technical specifications for the construction of resilient nursery facilities in the NGIQ report, *Improving the Performance of Crop Protection Enclosures to Resist Wind Loads*.

To access resources visit :

W / www.ngiq.asn.au

E / recovery@ngiq.asn.au or

P / 07 3277 7900

Things to Consider

- Many nursery businesses have traditionally featured temporary or unsecured facilities. Shade houses made of shade cloth supported by a strong, yet basic frame structure are often constructed but are not necessarily robust enough to withstand a cyclone.
- When selecting shade cloth, a more open weave may be preferable to reduce wind resistance if this also provides an appropriate level of light protection for the plants. Designs might also include the option to remove wall panels from igloos or shade cloth from shade house structures. This would mean that they can be prepared prior to an event to allow the wind to blow through.
- As we have seen from the experiences of nursery owners in Far North Queensland, slashing and dropping shade cloth from the frames might be the preferred method of immediately protecting plants from the after-effects of a cyclone.
- Weigh up the benefits of re-constructing an inexpensive and more easily replaceable structure with the possible longer-term costs of losing the structure in a weather event compared to building a more robust wind resistant structure. There are several structure systems on the market that are tailored to specific climate and crop needs. You might want to assess the benefit to your business of installing an igloo structure or a retractable roof system shade house.
- In a high wind event, loose materials and items can often do the most damage to property and plant stock. Be aware of this when designing the facilities. Consider the likelihood that any part of the structure could become airborne and incorporate ways to avoid this in the design, items that may be vulnerable in a storm include advertising materials, signage, guttering, awnings and vents. For example, overhead or suspended irrigation systems can be more vulnerable in storms and cyclones than other methods of irrigation. This may need to be considered during the nursery re-design.
- The topography of the property should be taken into account during nursery planning.
- Wind speeds can increase over hills and the most vulnerable structures and valuable plants should be positioned in most protected locations.



- Nurseries built on flat flood plains may need to assess the cost-benefit of moving pads to higher ground. Some nurseries located on the Gold Coast hinterland have experienced multiple flood events and successfully made the decision to redesign the sites, and cut and terrace growing pads onto higher ground.
- Your plants are probably the most valuable assets in a nursery. Repairing damaged structures will be essential, but conserving as many pots as possible during that process is also critical to speeding up the recovery process and getting back to operating a profitable business. A nursery design should consider elements that will protect plants before, during and after a natural disaster and will provide back-up irrigation and power if necessary.
- Identify your high value stock and plants that can be despatched to bring quick, immediate income after a natural disaster. As the emotional effect of a cyclone takes hold of you and nursery staff, it will be a difficult decision as to which plants are healthy and which will need to be dumped. As one nursery owner said after experiencing the catastrophic effects of Cyclone Debbie, “they are all my babies”. Consider contacting a trusted nursery professional to help you make decisions on plants to be kept or dumped.
- Plant health issues will emerge immediately after a cyclone or flood event. Fungal infection is common in nurseries after a flood event as mud covers the growing media, suffocates the plant and humidity increases. Seek technical advice on how to deal with plant health issues by contacting NGIQ.
- If you decide to re-design your nursery site after a natural disaster, it is highly recommended that advice is obtained from professionals with experience in the construction of nursery facilities. The consultant/s should have knowledge about structural engineering, nursery structures, irrigation and energy efficiency to best suit the local area and property layout.
- If you are planning to make changes to the use of the site, flow of water or plan to install a new structure, always check with local planning authorities on regulations and certification requirements.

Recover from exhaustion, fatigue and shock

It is very easy to be overwhelmed by natural disasters.

We can put into place the best practices and preparations, but there will always be an element of a natural disaster you cannot control or predict.

What do you do? How do you cope? How do your team members respond?

- An added boost of adrenalin during a crisis, can be like a shot of caffeine – great in the short-term, but it leaves you empty, tired and fatigued.
- There are many services to assist with mental health and personal recovery after a crisis, and we can prepare our bodies to take on a crisis and manage well our response to the event and post-event clean-up. If you continue to run on adrenalin, it may cause health problems down the track.
- Stressful events are extremely taxing on our health and ability to function rationally. Medical research and your own memory tells us that a critical event can be remembered, re-lived for many years, and the simple act of talking about it, can trigger the same adrenal-shock response. It's a natural chemical reaction in your body triggered by memory. For example, when you smell a scented rose, you trigger a pleasure chemical; but when you smell mouldy floorboards, you trigger a memory of flood waters.
- When we do not address the physiological and nutritional deficiencies during a crisis, we suffer from adrenal overload.

Effects of Adrenal Overload



Shaking hands



Shortness of breath



Headache



Muscle fatigue



Exhaustion



Brain fog



Herbs and remedies to add to your First Aid Kit



Ashwagandha



Rhodiola



Siberian Ginseng

If you have time to prepare your business for an impending cyclone or flood, you have time to prepare your body for the impact of adrenalin. The use of adaptogenic herbs can help. Always seek professional medical advice before taking supplements.

Ashwagandha (*Withania somnifera*), **Rhodiola** (*Rhodiola rosea*), **Siberian Ginseng** can be used as supplements pre, during and post-cyclone. These herbs support our adrenal glands and help us modulate our moods – this can help us maintain control over our stressful circumstances. These adaptogenic herbs can be taken as recommended 2 – 3 times daily until you feel back under control, calm and confident.



Emergency contact information

Emergency

000 Triple zero

*(112 from mobile)
Police, Fire and Ambulance*

132 500

*State Emergency Service
(SES)*

Bureau of Meteorology (BOM)

QLD General Warnings	1900 969 922	www.bom.gov.au
QLD Tropical Cyclone Warnings	1300 659 212	www.bom.gov.au/cyclone
QLD Land Weather and Flood Warnings	1300 659 219	www.bom.gov.au/qld/warnings
QLD Coastal Marine Warnings	1300 360 427	www.bom.gov.au/marine
Australian Tsunami Threat Information	1300 TSUNAMI 1300 878 6264	www.bom.gov.au/tsunami

Radio

ABC Local Radio	www.abc.net.au/local
ABC Local Radio Frequency Finder	www.abc.net.au/radionational/frequency/
Commercial Radio Australia (CRA)	www.commercialradio.com.au

Nursery Industry

NGIQ	(07) 3277 7900	www.ngiq.asn.au
Queensland Farmers Federation	www.farmerdisastersupport.com.au	





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