

NURSERY PAPERS

MAY
2022

Preparing for natural disasters

Over the past few years Australian production nurseries have been tested as frequent natural disasters including fires, floods, droughts and cyclones have battered the country.

With each day being more unpredictable than the last, how well prepared is your business to face this uncertainty?

This Nursery Paper covers the methods available to growers better prepare for the inevitability of natural disasters.

SUMMARY

- Whilst nurseries operating in 'traditional' disaster zones are likely to have a solid understanding of risk mitigation based on experience, its often the smaller events such as sudden hailstorms or severe winds that can affect more growers.
- Managing your staff safety and human resources will always be a top priority when it comes to operating nursery businesses during natural disasters.
- Levy-funded resources can help your business plan for adverse events and help implement best management practices before, during and after they occur.
- A levy-funded project *Nursery industry natural disaster risk mitigation and recovery plan* (NY18008), has developed a series of resources including checklists, risk maps and business continuity templates to help build industry resilience in the face of natural disasters.



BACKGROUND

Australian production nurseries are generally often prone to natural disasters.

By design, nurseries are often on flat ground, near rivers or other water sources, drastically increasing their risk of floods.

Coastal nurseries are also typically exposed to cyclones and storms, hail, and other extreme weather.

With the majority of production nurseries situated in peri-urban environments, they are typically in high risk areas for bushfires and the high volume of plant material, flammable liquid and power tools means that there is further heightened risk for ignition.

As our sudden seasonal changes become more unpredictable, our industry is also under risk from frosts, heatwaves and droughts.

A strategic levy-funded projects, managed by Nursery & Garden Industry Queensland (NGIQ), and funded by Hort Innovation using nursery levy funds and funds from the Australian Government, provide growers with a set of resources to help prepare their businesses for natural disasters.

These projects are designed to help mitigate the potential significant impacts of unforeseen events on the nursery industry, reduce disruption to business operations, sustainability, and long-term profitability





Natural disaster risk mitigation

Fire, flood, storms, frost and heatwaves – interruption to business can happen at any time and changes to daily activity need to be high on the agenda for production nurseries, long before they actually occur.

The levy-funded project, *Nursery industry natural disaster risk mitigation and recovery plan* (NY18008), assesses the potential for natural disasters and severe weather events to impact upon Australia’s nursery industry.

Managed by Nursery & Garden Industry Queensland (NGIQ) and funded by Hort Innovation using nursery industry levies and funds from the Australian Government, the project has developed a series of checklists which are available for growers to help better prepare for natural disasters, long before they occur and when they are imminent.

The project has developed individual checklists for the following potential disasters:

- Bushfire
- Flood
- Heatwave
- Cyclones and severe wind
- Frost
- Hail & Storm

Preparation

There are some general nursery preparation activities which should be done across all nursery production businesses who may be at risk of any natural disaster or threat.

- ✓ Keep watch on www.bom.gov.au and your local Rain Radar. Listen to local radio forecasts and trustworthy social media sources as well as Fire Danger ratings and state-based fire apps.
- ✓ Have a written emergency plan. Allocate priority tasks. Exercise your emergency natural disaster

plan. Keep staff, family and neighbours informed of your plans and potential for impact.

- ✓ Purchase a back-up generator.
- ✓ Identify priority at-risk areas, workflow and activity.
- ✓ Check and re-stock first aid kits.
- ✓ Conduct regular back-up of computer systems and duplicate essential documents into a safe storage location (eg. plastic boxes for hardcopies or hard drive discs). Charge phones, turn off non-essential electrical outlets.
- ✓ Identify a safe zone for staff, family and pets during an emergency.
- ✓ Keep staff, family and neighbours informed of your plans and potential for impact.

Beyond the general preparation of the nursery for potential adverse events, each of the six threats have specific checklists which should be applied in preparation for natural disasters.

Note: The information contained in this nursery paper is a snapshot of the content included in the full checklists. To access the full checklists head to: <https://nurseryproductionfms.com.au/emergency-disaster-planning/>

BUSHFIRE

Associated with hot, dry and windy conditions and high fuel loads. Intense, high winds can lead to ember attack, spotfires ahead of the fire front. Fire seasons vary across states and territories.



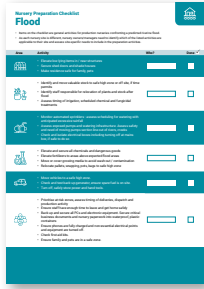
Pre-season preparation

- ✓ Keep watch on local Fire Danger Rating, BoM Fire Danger Ratings, listen to radio, review fire apps for fire conditions.
- ✓ Conduct a head count at the end of each shift. Identify and communicate trigger point/threshold for evacuation. On Catastrophic Fire warning days minimise staff on site.
- ✓ Check your Industrial Special Risks insurance cover and update asset valuations pre-policy renewal
- ✓ Conduct a pre-fire season site audit
- ✓ Liaise with your local RFS unit – increase their awareness of your site
- ✓ Make sure that your site plans are updated showing the location of all static water supplies, DG areas, water mains and fire hydrants. Locate plan at main site entrance
- ✓ Make sure your gate lock is an RFS compliant lock that they can open
- ✓ Ensure that any static water has RFS complaint fittings to link into their truck booster pumps
- ✓ Pre clear – slash all perimeter vegetation
- ✓ Remove all flammable – dangerous goods material away from critical structures
- ✓ Set up portable pumps near dams with fire hoses – link to temporary irrigation lines
- ✓ Fire wardens to conduct fire drills
- ✓ Increase staff training and awareness, ensure that they know the evacuation plan.
- ✓ Identify shade houses, structures most at risk of impact (close to scrub or bushland) and ensure these are detailed in your ISR policy
- ✓ Assess gutters, clear debris from gutters and drainage channels
- ✓ Exercise your emergency natural disaster plan
- ✓ Know your insurance cover for bushfire, contact your agent for clarification



FLOOD

Riverine floods occur after heavy rainfall. Flood warnings are issued by the Bureau of Meteorology when flooding is above a threshold occurring or expected to occur at key locations across a catchment.

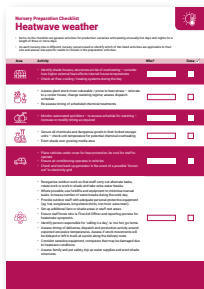


Pre-season preparation

- ✓ Identify shade houses, structures at risk of flood.
- ✓ Assess gutters, clear debris from drainage channels to enable stormwater flow.
- ✓ Exercise your emergency natural disaster plan.
- ✓ Know your insurance cover for riverine flood damage.
- ✓ Check and test back-up generator.
- ✓ Purchase spare shade cloth and store in an elevated location.
- ✓ Make specific preparations related to your production cycle.

HEATWAVE

Items on this checklist are general activities for production nurseries anticipating unusually hot days and nights for a length of three or more days.



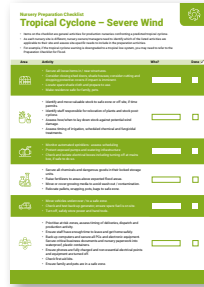
Pre-season preparation

- ✓ Know your state legislation for working safely in heatwave – <https://www.safeworkaustralia.gov.au/topic/working-heat>
- ✓ Keep watch on BoM heatwave weather warnings, listen to radio for conditions
- ✓ Provide information, training and instruction to workers on how to follow heatwave-safe work procedures, recognise symptoms of heat-stress and have process to report problems.

- ✓ Identify person responsible for 'calling it a day', ie. too hot, go home.
- ✓ Purchase suitable Personal Protective Equipment (PPE), including first aid items for treating heatstroke.
- ✓ Purchase or check/test back-up generator to prepare for electrical grid brown-outs.
- ✓ Test and tag air conditioning units. Consider purchase of additional air conditioners/fans or shade sails in staff break areas.

CYCLONES AND SEVERE WIND

Cyclones are low pressure systems that form over warm tropical waters. They typically form when the sea surface temperature is above 26.5°C.



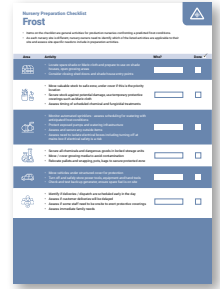
Tropical cyclones can continue for many days, even weeks, and may follow quite erratic paths. A cyclone will dissipate once it moves over land and over cooler oceans.

Pre-season preparation

- ✓ Identify shade houses, structures at risk of flood, wind damage.
- ✓ Assess gutters, clear debris from drainage channels to enable stormwater flow.
- ✓ Exercise your emergency natural disaster plan.
- ✓ Know your insurance cover for riverine flood damage.
- ✓ Check and test back-up generator.
- ✓ Purchase spare shade cloth and store in an elevated location.
- ✓ Make specific preparations related to your production cycle.

FROST

For frost to form the temperature at ground level needs to be 0°C or less. BoM forecasts use an air temperature of below 4°C as an indicator for frost, because the temperature at ground level will generally be much cooler than the air above it.

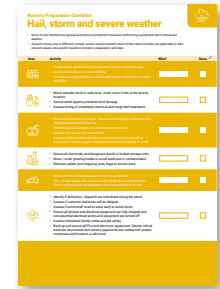


Pre-season preparation

- ✓ Identify shade houses, structures and outdoor areas at risk of frost conditions.
- ✓ Assess gutters and clear debris from drainage channels to enable stormwater flow.
- ✓ Exercise your emergency natural disaster plan.
- ✓ Know your insurance cover for frost damage, contact your agent for clarification.
- ✓ Check and test back-up generator.

HAIL & STORM

Thunderstorms may produce large hail, damaging wind gusts and can be very short notice (<4 hours).



Pre-season preparation

- ✓ Identify shade houses, structures at risk of storm damage, repair as necessary.
- ✓ Assess gutters and clear debris from drainage channels to enable stormwater flow.
- ✓ Exercise your emergency natural disaster plan.
- ✓ Know your insurance cover for storm damage, contact your agent for clarification.
- ✓ Check and test back-up generator.
- ✓ Raise all fertilisers and chemicals to areas above expected rain/flood zones.



CASE STUDY: Helping Mt Nathan Nursery bounce back from disaster

'Nursery industry natural disaster risk mitigation and recovery plan' (NY18008) has also created a Natural Disaster Recovery Action Plan tailored to the varied and unique needs of Australia's production nursery industry.

Mt Nathan Nursery, located on the Coomera River in the Gold Coast Hinterland, Queensland, is highly susceptible to flooding, having been hit by four major floods in the last 10 years. It's for this reason that owners Bruce and Joy Williams and their daughter Cath decided to participate in the pilot program for the fund's *Nursery industry natural disaster risk mitigation and recovery plan*.

"After Cyclone Debbie, we knew we had to make changes within the business to better prepare for these events to minimise risk and ensure continued business viability," says Bruce. "The costs in damages and lost stock were significant, with two of the four major flood events incurring an excess of \$350,000 in losses."

Pilot mapping was delivered by spatial data consultants Cohga Pty Ltd and LandSolution, which identified areas for infrastructure redesign and engineering solutions that will help reduce climate and seasonal impacts.

"This plan mapped out our main nursery site, providing insights on size, shape and value of production areas, that enabled us to make immediate and strategic changes to our business. We built a wall, backfilled, and put in drainage



gravel and irrigation. This was a big decision for us, as it was not only a financial expense, but it also resulted in months of lost production in that area, which had a lot of stock going back on it."

But thanks to the wealth of information at their disposal, they were able to strategically assess the loss value against future production and business growth.

This level of preparedness, along with practical options, meant the business incurred very minimal damage during the 2021 March/April floods, with minimal losses and little impact to supply. They were back in business after just a three-day shutdown.

The early stages of this program examined the various vulnerabilities faced by Australian production

nurseries. For instance, the fact that many nurseries are located on flat land, close to a water source, for ease of access, increases their risk of flood.

As part of this work, a spatial mapping portal was developed with the assistance of independent agency, Cohga Pty Ltd. This map highlights "at-risk" zones for natural disasters, identifies risk ratings for individual nursery sites, includes real-time weather data from the Bureau of Meteorology, and was used to inform further stages of the project.

The team then worked with 16 production nurseries around Australia to develop a new suite of business continuity templates to assist nurseries in the preparedness, recovery and resilience of natural disasters and extreme weather events. These nurseries came from a diverse range of geographies, production types and sizes, with the majority based in high-risk areas. Priority was given to nurseries that were both familiar with best management practices and EcoHort business accredited.

The impact

The mapping and risk data, preparation checklists, and continuity templates resulting from this program are a useful, practical tool for nurseries pre, during and post severe weather events. These assets are available to all growers via the Australian Plant Production Standard Website.

LINKS TO RESOURCES

- The resources developed by this project are available on the Australian Plant Production Standard website <https://nurseryproductionfms.com.au/emergency-disaster-planning/>. The resources include specific natural disaster preparation checklists, natural disaster management plans and industry case studies.
- PAST EDITIONS OF NURSERY PAPERS ARE AVAILABLE ONLINE on the GIA website: <https://www.greenlifeindustry.com.au/communications-centre>