



NURSERY PAPERS

AUGUST 2023

PREPARING FOR EL NIÑO

SUMMARY

- The United Nations has declared another El Niño event.
- Australia has been described as the nation in the developed world most vulnerable to this climate driver.
- As the climate becomes more unpredictable, it's important for production nurseries nationwide to be aware of the best ways to manage climate anomalies – even those in typically stable locations.
- Several levy-funded projects provide guidance for production nurseries looking to prepare for adverse events or prolonged periods of low rain.
- This Nursery Paper outlines some of the most important methods available to growers to manage water and prepare for more acute risks of El Niño.
- It provides:
 - » information on measuring water
 - » techniques for the most efficient use of water
 - » strategies to adapt to a lack of water.
- It also provides nursery owners and managers with a checklist to help them prepare their businesses for bushfires in the leadup to bushfire seasons.



BACKGROUND

In July 2023, the World Meteorological Organisation, an agency within the United Nations, officially declared an El Niño. For most of Australia, this typically brings hotter and drier weather, with increased risk of droughts as well as bushfires. At time of writing, the Australian government is yet to declare El Niño, it is expected to do so in the coming weeks.

The dual threats of water scarcity and increased risk of bushfires represent a genuine threat for production nurseries in the near future.

The possibility of another drought or low-water event is a direct threat to the industry's future prosperity which may be compounded by changes to water policy at national, state and local levels. If cost and scarcity of water increase, it will become even more critical for production nurseries to make most efficient use of available water and minimise waste.

At the same time, bushfires are typically more likely during El Niño, and through the nature of our industry, production nurseries are vulnerable. Volatile fuels such as grass, fallen leaves and bark heighten the risk of bushfires and, machinery, vehicles and power tools could be ignition points for fires.

Although, water and bushfire management are always priorities for a production nursery, it's imperative that plans surrounding these threats are reviewed often, particularly as El Niño looms.

A series of levy-funded projects provide direction to production nurseries looking to ensure their viability and success in the face of impending threats and this nursery paper provides insights into the most important methods for managing water in low water periods and preparing for heightened risk of disasters such as bushfires.



Effective water use

During low rainfall periods, implement a deliberate and considered strategy to use available water most efficiently and effectively.

The best way to manage water in dry times is to plan around the following key elements.

Understand your current water availability

Calculate how much water is currently available. For surface water storages, this is a relatively simple process (See <https://nurseryproductionfms.com.au/> for info on measuring dams). Underground water supplies are more difficult to measure but the yield of bores can be calculated through accurate and regular monitoring.

Measure water use

The easiest way to measure water use is by using a water meter. If a water meter isn't available, water use for each growing area can be calculated from the measured flow rate of the sprinklers. Most sprinkler manufacturers have emitter specifications on their websites.

Assess irrigation layout efficiency

Consult industry best practice to ensure irrigation is laid out in the most efficient way. See <https://nurseryproductionfms.com.au/> for resources on irrigation efficiency.

Check operating pressures

Review operating pressures to ensure irrigation is efficient and performing correctly.

Maintain filters

Check and clean all filters, even automatic filtering systems.

Fix leaks immediately

Although it probably goes without saying, it's important to fix leaks immediately, regardless of how small. Water loss can compound over time as loss of pressure will also reduce effectiveness of irrigation.

Check emitters

Observe emitters daily to identify blockages and any significant changes in operating pressure before major crop damage occurs.

Adjust irrigation schedules

For the most efficient water use, adjusting irrigation scheduling daily based on available water, daily temperature and the individual needs of each plant.

For a detailed explanation of irrigation scheduling see page 3 of the August 2021 Nursery Paper: <https://www.greenlifeindustry.com.au/communications-centre-content/nursery-paper/making-the-most-of-precious-water-resources>

Design your production nursery with water requirements in mind

Consider arranging your production nursery so plants with similar water requirements are close to each other. This makes irrigation scheduling

easier and more efficient. Container irrigation typically does not use between 50% and 80% of water applied as it falls between containers. Capture and recycle this irrigation water.

Monitor performance

All of the above will be for nothing if you can't accurately assess the impact it is having. Regular monitoring of overall water use will provide information about how much water is being used within the production nursery, and how the overall performance compares to Best Management Practice.

For more information on how to manage water usage, visit <https://nurseryproductionfms.com.au>

Prioritising water use

El Niño is likely to bring drought – so you need to make important decisions. Once you understand your available water, you can make short-term decisions that prioritise how to use water when it is low.

TABLE 1: Sample water use plan

% of water available	Strategies to implement
50	<ul style="list-style-type: none"> • Stop non-crop garden irrigation. • Check system efficiency and repair leaks. • Check drainage collection efficiency. • Monitor water quality weekly, and adjust water treatment and fertigation levels accordingly
40	<ul style="list-style-type: none"> • Reduce mother stock irrigation. • Consolidate crop growing areas. • Monitor irrigation scheduling closely. • Minimise non-essential water use.
30	<ul style="list-style-type: none"> • Stop mother stock irrigation. • Monitor dam/bore pump performance daily – pump efficiency will decline and may lead to pump damage at low water levels due to the height water has to be lifted. • Rationalise crops. • Consolidate water supplies to reduce evaporation. • Extend water supplies by blending with poorer quality water.
20	<ul style="list-style-type: none"> • Stop all non-essential water use. • Ensure scheduling, drainage collection, system efficiency and leaks are at kept at peak efficiency.

Table repurposed from *Managing Water in Dry Times factsheet*, by NGIQ.



RECAP

Managing climate risk is a long-term activity. It takes strategic planning and is an ongoing activity. While today's challenges are El Niño related, it won't be long before we see another La Niña, bringing with it higher flood, wind and cyclone risks.

So, whether you already have plans in place, or have not yet considered the risks that El Niño may bring there is no better time to begin preparations than today.

Check out the resources mentioned in this nursery paper and below for more information.

MORE INFORMATION, LINKS AND FURTHER RESOURCES

Nursery Industry Water Management Best Practice Guidelines: <https://nurseryproductionfms.com.au/irrigation-water/>

FACTSHEET: Managing Water in Dry Times Fact Sheet: <https://nurseryproductionfms.com.au/download/managing-water-in-dry-times-2013/>

FACTSHEET: How to save water in nursery production: <https://nurseryproductionfms.com.au/download/how-to-save-water-in-production-nurseries/>

Nursery Industry Emergency & Disaster Planning Guidelines: <https://nurseryproductionfms.com.au/emergency-disaster-planning/>

CHECKLIST: Bushfire Preparation: <https://nurseryproductionfms.com.au/download/nursery-preparation-checklist-bushfire/>

MANUAL: Natural Disaster Preparation Manual: <https://nurseryproductionfms.com.au/download/natural-disaster-preparation-manual/>

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