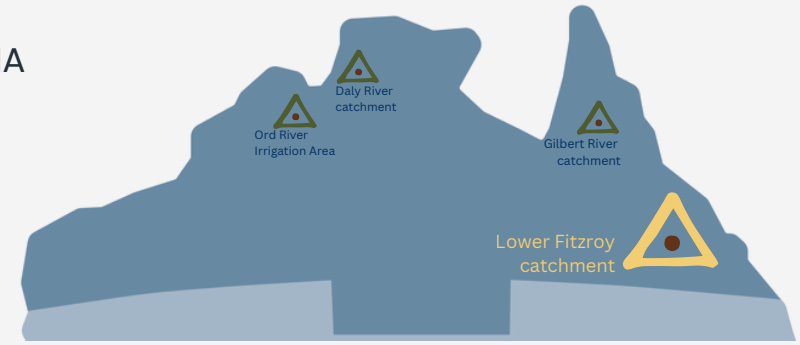
WATER SECURITY FOR NORTHERN AUSTRALIA PROGRAM (WSNA)

LOWER FITZROY CATCHMENT

Central Queensland

Node contact: Prof John Rolfe
j.rolfe@cqu.edu.au



The focus of the project is on the lower Fitzroy region. Research is being performed within the context of Northern Australia to maximise extrapolation of results

The Lower Fitzroy is one of the four nodes in the Water Security for Northern Australia program. The Lower Fitzroy catchment includes the Rookwood Weir which is nearing completion, however more research is required to reduce the risks for investors and new agricultural enterprises in the region. Some horticultural tree and specialty crops have promise but high value cropping will not automatically be created, in part because suitable soils are scattered along the river system.

research topics

- Prospects for new agricultural technology across the north.
- Optimising water quality monitoring.
- Prospects for specialty crops.
- Model the upstream and downstream supply chain needs and identify how synergies can create efficiencies.

what's happening

We're searching for ways to make agriculture more efficient in the north and there's opportunity to build new farming technology into greenfields sites to improve long term productivity.

We're mapping local supply chains risks and opportunities.

We're identifying how water quality impacts in greenhouse emissions can be measured and estimated to underpin the social licence to operate in an agriculture context.

stay connected

CRCNA.COM.AU
@CRC_NorthernAustralia
@CQuniversity

did you know?

Water entitlements from the Rookwood Weir are being sold for agricultural use. There's plans to establish up to 1 million macadamia trees in the Gogango area near Rockhampton provide seasonal watering holes for many terrestrial species.





WATER SECURITY FOR NORTHERN AUSTRALIA PROGRAM (WSNA)

LOWER FITZROY CATCHMENT

Central Queensland

Node contact: Prof John Rolfe
j.rolfe@cqu.edu.au



research topics the detail..

4.1 Prospectus for new agricultural activity

Identifying core industry needs that may be addressed using emerging digital technologies.

Identifying commercially available (and late-stage commercialisation) technologies for integration of agtech into higher value cropping systems.

Developing an evaluation methodology to assess the performance and value for end-users of relevant technologies.

Presenting key opportunities to growers for on-farm trials.

Digital technologies can potentially increase the gross value of Australian agricultural production by over $20b - an increase of 25% over current production.

4.2 Designing more effective monitoring programs to identify impacts

Defining high and ambient flows for monitoring.

Designing more effective monitoring programs to identify impacts.

Opportunities for smarter systems to collect water quality data e.g. passive samplers.

Integration of monitoring data into modelling and decision support systems.





WATER SECURITY FOR NORTHERN AUSTRALIA PROGRAM (WSNA)

LOWER FITZROY CATCHMENT

Central Queensland

Node contact: Prof John Rolfe
j.rolfe@cqu.edu.au



4.3 Prospectus for specialty crops

Conduct mixed methods social science research with local farmers to gain a deeper understanding of farming systems and practices in the catchment.

Identifying commercially available (and late-stage commercialisation) technologies for integration of agtech into higher value cropping systems.

Develop a series of crop evaluation and new technology trials with producers, incorporate data into crop performance models.

Support grower-led demonstrations of new cropping options, technologies and production system components.

Black sesame is showing early promise as a specialty cropping option for northern farmers. Trials near Rockhampton are assessing the viability of the crop.

4.4 Modelling upstream + downstream supply chain needs

Create a precinct production system model that demonstrates linkages to upstream and downstream supply chain elements.

Identifying inputs that could be supply risks to new agricultural developments.

Analysis of circular and downstream supply chain issues focusing on feedlots and the energy requirements, greenhouse emissions, fertiliser and herbicide uses under different scenarios.

A feedlot being built at Gogango, near the Rookwood Weir will have capacity for 36,500 head of cattle and annual turnover of 125,000. A $15m fertilizer plant will repurpose 43,000tn manure each year, creating a circular economy.



> "An important theme in this project is to search for transformational ways of making agriculture more efficient in Northern Australia. There are opportunities to build new farming systems technology into greenfields sites to improve productivity over the longer term."
>
> Professor John Rolfe
> CQUniversity

WATER SECURITY FOR NORTHERN AUSTRALIA (WSNA) PROGRAM

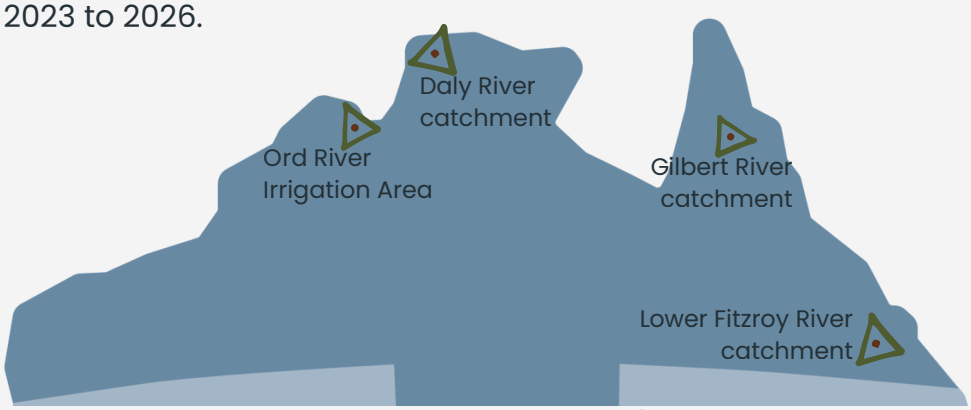


The WSNA program is being delivered through a partnership between the Cooperative Research Centre for Developing Northern Australia (CRCNA) and the Northern Australia Universities Alliance (NAUA) from 2023 to 2026.

WSNA is a research-focused approach to demonstrating that economic growth and environmentally healthy and sustainable eco-systems can co-exist.

The program consists of 15 projects (research topics) co-designed with stakeholders in each focal node that look into issues that prevent or restrict development of water resources, effective use, equitable access and environmental outcomes of water use.

The four focal nodes were developed through a 5-month engagement phase and now report to regional stakeholder advisory groups.



WSNA program locations

WSNA work packages

- Research across Northern Australia
- Water quality and the environment
- Water availability and the environment
- Cropping systems and new crops
- Supply chain and alternative economies

Research focus

- Water resource availability and allocation
- Environmental impacts and management
- Improved economic returns from the use of water resources
- Greater Indigenous benefit from water resources

Topics for other WSNA program nodes

Gilbert River catchment (Qld)

- Conservation value of aquatic species.
- Contribution of groundwater to waterhole persistence.
- Drought vulnerability
- Ecosystem services (e.g. carbon storage) for proposed development.
- Indigenous values and potential of water enterprise products.

Daly River catchment (NT)

- Investigation of multi-catchment climate change models.
- Improved understanding of the sources of springs that feed into the Daly River to assist water management.
- Wet season floodplains and water requirements of ecosystems.
- Cropping systems in the catchment, present and future.

Ord River Irrigation Area (WA)

- Review of water/catchment management in tropical environments.
- Assessing agricultural runoff and impacts to the Keep River.
- Understanding the values of water in the Ord River Irrigation Area.

Proudly supported by: CRCNA, Northern Australia Universities Alliance, CQUniversity Australia, Charles Darwin University Australia, James Cook University Australia