

# COTTON, GRAINS, CATTLE

## Sustainable systems for crop diversification

Ord River Irrigation Area, (Kununurra) Western Australia

Timeline: 2022 to 2026 (4 years) A.2.2122028



The Cotton, Grains, Cattle (CGC) program is an integrated agricultural system, focused on bolstering productivity across the north's cropping and cattle sectors. The aim is to create economically sustainable, place-based integrated farming systems around cotton, grains and cattle to support production of universally marketable cattle from local crops, providing alternative market options.

Enhance economic sustainability of integrated farming for producers.

Create cropping systems suited to tropical climates & less reliant on imports.

Build local capacity to support production, reducing costs & biosecurity risks.

Ensure ethical value, responsible planning & social licence.

Develop agronomy & nutrient management to reduce farming carbon footprint.

## Project: Sustainable systems for crop diversification

'Supporting sustainable diversification of Ord River Irrigation Area (ORIA) cropping systems' is one of six projects in the CGC program. This project is focused on integrating complimentary cotton-grain-cattle farming systems to supply cattle and cropping markets - each with reliable and high-value returns to growers. The project is also building agronomy knowledge, expanding local farming capacity through extension activities and AgTech adoptions, and sharing data for informed decision making. The region is well placed to develop, with water security, deep and well-structured soils, combined with sunshine and warm temperatures that provide ideal growing conditions, particularly for crops such as cotton and maize. Grain and fodder crops can be used to intensify nearby beef production, with several cattle stations in close proximity of the ORIA, and established pulses like chickpea and mungbean providing a disease break and additional nutrients when rotating crops. If efficiency increased by 30%, the local industry could grow upwards of \$6 million per annum over the next 15 years.

### research focus

- ➔ Investigate nitrogen management in cotton for yield and emissions, assessing environmental, productivity and profitability data.
- ➔ Identify complimentary crop rotations of grain and fodder to reduce reliance on a monoculture, caused by pest and disease build up or reduced soil functionality.
- ➔ Attempt to move away from a single year/single issue mentality and investigate metrics for integrated farming systems.
- ➔ Build local agronomy and production expertise, including through the funded PhD student.
- ➔ Incorporate AgTech into farming systems that address issues found through field trials and engagement.



Cotton seed



Mungbean



Maize (corn)



Chickpea

### expected outcomes



Build local capacity in AgTech to enhance broadacre cropping in the ORIA.

Improved data for growers to support farming system decisions to optimise economic and environmental outcomes.



Enhanced regional capacity through extension activities, field days, knowledge sharing, and PhD research for industry development.



Nitrogen efficiencies in irrigated agriculture could improve by 30%, reducing the carbon footprint by >50%.

Achieve nitrogen efficiency in maize - current research suggests 30% is quite achievable.

### project partners

The University of Queensland  
WA Dept. Primary Industries and Regional Development  
NACRA - Northern Australia Crop Research Alliance  
SwarmFarm - Advance Agricultural Systems

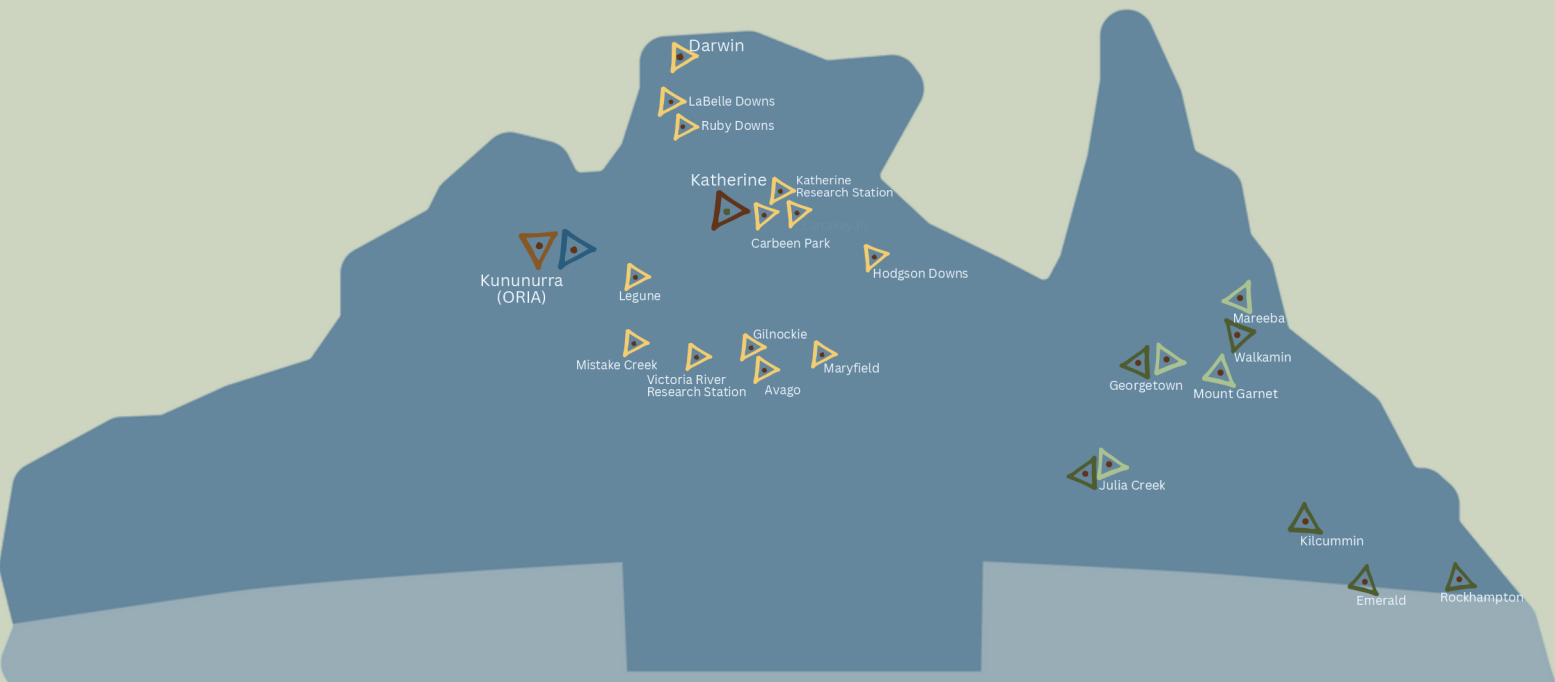


The Cooperative Research Centre for Developing Northern Australia (CRCNA) is delivering industry-led research and development collaborations to enable the sustainable economic growth of Northern Australia. CRCNA funding helps to de-risk investment through new technologies, products and services which address industry issues specific to the north.

Cotton, Grains, Cattle runs for 4 years, and has over 30 collaborators who are committed to building producer, agronomy and research capacity across Northern Australia.

CRCNA invests in agricultural research and development to support:

- sustainable tropical production
- innovative supply chain solutions
- new technologies, models and systems
- climate resilience and nature positive development.



## COTTON, GRAINS, CATTLE Project locations

- Crops for Cattle (NT)
- Fundamentals of cropping systems (NT)
- Sustainable systems for crop diversification (ORIA)
- Cropping enabled cattle production (WA)
- Extension capacity of cropping-systems (NQ)
- CGC farming systems (NQ)

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