IMPACT EVALUATION

Hyacinth harvesting and processing

Project: A.7.2122009
Integrating nutrient, waste and energy streams in agriculture development through hyacinth harvest and processing (Making Water Work program)

Research program:
7 - Informing policy development

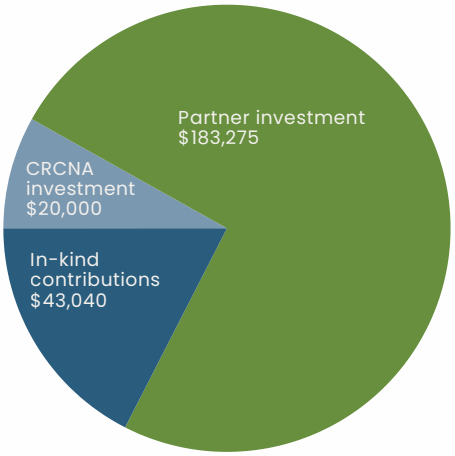
Project timeframe:
2023 to 2025

Partners:

- FBA
- Rockhampton Regional Council
- Qld Dept Primary Industries

Project location:
Lower Fitzroy catchment, Rockhampton region, Central Queensland

Project return on investments:



Return on investment to date has been a 11.32 times return on the CRCNA's investment of $20,000.

Jobs created:

0.1 FTE years during the 2 year project, including harvesting.

Project summary:
As part of the Making Water Work Program, the Hyacinth Recovery and Reuse Pilot investigated the feasibility of mechanically harvesting water hyacinth from the Fitzroy River system in Central Queensland and repurposing it into beneficial products including mulch, stockfeed and biochar.

A total of 528 tonnes of hyacinth were removed from Murray Lagoon and redistributed for agricultural use and scientific testing. Trials were conducted across macadamia, lychee and grazing systems to assess soil microbial impacts.

Results showed hyacinth mulch enhanced nutrient cycling traits and increased beneficial microbial diversity in several contexts. Stockfeed testing demonstrated nutritional equivalency to common hay types, indicating potential as a viable feed alternative. The project also identified logistical constraints, harvest hotspots and future scale-up opportunities.

While not immediately profit-generating, the pilot demonstrated environmental, social and emerging commercial benefits, including nutrient removal from waterways, reduced reliance on herbicides, improved agricultural inputs and potential circular economy pathways for northern Australia.

Hyacinth removal, Rockhampton

Project impacts to date:

Increases in production:

- 528 tonnes of hyacinth harvested and redistributed for agricultural and scientific use.
- Up to 350 tonnes were delivered as mulch to macadamia and lychee orchards. 100–150 tonnes provided for council tree planting mulch and 60 tonnes used in controlled soil trials.
- Demonstrated improvements in soil microbial function in the production systems trialled.
- Assessment of the stockfeed nutritional equivalency to common hay varieties, showing protein equivalence via DPI lab analysis.

New investment facilitated:

- Advance Rockhampton, Sunwater and the Department of Primary Industries are now considering pathways on how to progress an ongoing harvest operation to offset current hyacinth treatment costs and to provide circularised benefits.

Reduced costs:

- Potential reduction in annual spray costs.
- Reduced irrigation pump replacement costs.
- Reduced event-related hyacinth clearance costs for rowing and recreation.
- Reduced environmental compliance risks associated with spraying.
- Commercial opportunity to convert a weed into a livestock feed source.

FBA, Braden Mitchell, measuring hyacinth depth in Murray Lagoon, Rockhampton

Projected impacts beyond 2026:

- Spray teams can be upskilled and reassigned to a harvesting team and possible team expansion.
- Stockfeed production can increase jobs at the local stockfeed factory.
- High cost, locally produced feed supplement will help circularise the economy in the lower Fitzroy.
- Once majority of the sources are cleared and as other feasible options are discovered, targeted approaches to hyacinth farming (via permanent and bio-secure hyacinth fields) could lead to more industrial water quality treatment and higher and more consistent yields to supply various industries with stock to generate stockfeed, pallets for energy production or pyrolysis plants, Biochar, mulch and compost.

Access full project details and reports: crcna.com.au/projects/making-water-work-integrating-nutrient-waste-and-energy-streams-agriculture-development-through-hyacinth-harvest-and-processing/

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