

# AQIP – Environmentally responsive biocomposite fertilisers

---

**Grant #:** 201700088  
**Total funding:** \$929,149  
**Period:** 17/8/17 – 17/9/2020

This project is funded by the Queensland government through the Advance Queensland Innovation Partnerships program and Manildra group. Our collaborators are in the Advanced Water Management Centre, School of Agriculture and Food Science, the Department of Agriculture and Fisheries and James Cook University.

Nutrient pollution, caused by fertiliser inefficiencies, is a pervasive and ongoing problem that contributes prominently to the decline of the Great Barrier Reef and increased production costs for Queensland farmers. This project aims to deliver a targeted next generation fertiliser for Queensland's expanding agro-technology sector, as a commercial product for local manufacturers. It capitalises on strong industry partnership, expertise in advanced material design and manufacture and IP in materials engineering and crop science. These environmentally responsive fertilisers will be novel and cost-effective formulations based on urea, tailored biopolymers and functional additives, and is a step towards high-yielding, high-efficiency agriculture.

The project will manufacture novel materials, test their performance and characterise their relevant physico-chemical properties along three development streams:

- Develop biodegradable biopolymer based materials that will alter the diffusion rate of fertilizer;
- Develop alumina-silicate based materials that will bind fertilizer and alter its diffusion;
- Develop polymer coatings that will alter the rate of water and fertilizer transport across the coating.

Three research fellows and a large team of leading academics from polymer engineering, water management and crop science work as a part of the project. There are opportunities for postgraduate and undergraduate thesis work and summer scholars to work on the project.

**Contact:** [t.witt@uq.edu.au](mailto:t.witt@uq.edu.au)