

Insects for the masses - breeding super black soldier flies at scale for sustainable food production



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Secondary Supervisors: Professor Dean Jerry, Professor Ron White

PhD (International/Domestic). Applicants will need to apply for a [JCU competitive Research Scholarship](#) and should be familiar with the [Higher Degree by Research Requirements](#).

Project summary

These PhD projects (two available) are part of an ARC funded Linkage project aiming to address the current challenges impeding the industrial scale-up of Australian Black Soldier Fly (BSF) farming across diverse feed waste substrates by generating critical on-farm knowledge. This project expects to generate fundamental knowledge in commercial BSF breeding designs whilst also developing and testing new animal evaluation technologies (ie, genetic & spectroscopy) through interdisciplinary approaches that will accelerate industry productivity. Expected outcomes of this project include the long-term growth and competitive advantage of the Australian insect farming industry, as well as promoting the benefits of a circular economy through bioconversion of organic waste into commercially viable products.

PhD Project 1 - This PhD project will specifically investigate the genetic makeup of both wild Australian BSFs and farmed BSFs with specific focus on family/population diversity and optimisation of on-farm breeding program designs. This PhD project is suited to those with a background (or strong determination to advance) in population genetics and breeding program designs.

PhD Project 2 - This PhD project will specifically investigate the establishment and validation of Near Infra-Red (NIR) methodology for rapid BSF larvae chemical composition analyses as a non-invasive semi-automated farm product quality evaluation tool. This PhD project is suited to those with a background (or strong determination to advance) in NIR spectroscopy and AI/machine learning.

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