

PhD Opportunity

Fruit Fly Performance

Closing Date: Expressions of interest close at midnight on **Friday 15 January 2016**

A PhD opportunity exists on a project investigating ecological and sexual performance of Queensland fruit fly (*Bactrocera tryoni*; Tephritidae) ('Q-fly'). Supervision will be by Dr Polychronis Rempoulakis and Prof Phil Taylor of Macquarie University's Department of Biological Sciences (<http://bio.mq.edu.au/>) and Dr. Solomon Balagawi of New South Wales Department of Primary Industries (Manager of Q-fly mass-rearing facilities at the Elizabeth Macarthur Agriculture Institute, Menangle, NSW) (<http://www.dpi.nsw.gov.au/>).

This project is part of a \$20.5 million multi-institution 'SIT Plus' collaboration that aims to develop a detailed understanding of Q-fly biology as a foundation for effective, environmentally benign and sustainable management practises to combat this major pest, and especially to develop the Sterile Insect Technique (SIT). In SIT, millions of sterile male flies are mass-reared and released to disrupt reproduction of wild populations by inducing reproductive failure. Ecological and sexual performance of released flies is key to the success of SIT.

This project will use a series of established and novel tests to (a) identify factors affecting the performance of wild type, mass-reared and sterilized Q-flies and (b) mitigate the effects of stressful handling procedures. A set of new tests and techniques will be devised and applied under both the laboratory scale and mass production conditions. These tests will be undertaken to ensure that mass rearing and handling of Q-flies reared for SIT is designed in such a way that maintains the highest possible performance in the field. Performance assays developed and verified in this project will provide the basis for quality management in mass rearing facilities and will also provide a basis for experimental investigations of fruit fly physiology and behaviour.

Research partners in this Horticulture Innovation Australia research program include Macquarie University, Commonwealth Scientific and Industrial Research Organisation (CSIRO), New South Wales Department of Primary Industries (NSW DPI), South Australia Research Development Institution (SARDI) and New Zealand Institute for Plant & Food Research (PFR). Collectively, these institutions bring vast expertise and research capacity to this research program, and maintain a highly collaborative research culture. Accordingly, this project will be very well supported in terms of supervision, collaborative opportunities, facilities and funding.



The successful candidate will be based primarily at Macquarie University, where there is a large research community of Academics, Research Fellows and Research Students working on diverse aspects of Q-fly behaviour, ecology, physiology, and genomics. Macquarie University is home to the *Biosecurity Futures Research Centre* and the *Australian Research Council Industrial Transformation Training Centre for Fruit Fly Biosecurity Innovation*. Macquarie University is set in a park-like campus just 20 minutes from the centre of Sydney, next to Lane Cove National Park. A train station on campus ensures easy transport to the city centre and across the region.

This scholarship is available to eligible candidates to undertake either:

- Research Training Pathway (RTP/iRTP) Masters of Research (MRes) Year 2 followed by a Macquarie University Research Excellence Scholarship (MQRES/iMQRES) for a 3 year PhD. This is referred to as an MRes/PhD 'bundle offer'.

OR

- Direct entry into a 3 year PhD program.

The value and tenure of the scholarship is:

- \$30,849 pa (2016 rate, subject to indexation, tax free) for up to four years for an MRes/PhD bundle offer or for 3 years for direct entry to PhD. This includes an MQRES stipend of \$25,849 pa plus a scholarship 'top up' of \$5,000 pa.
- International candidates successful for these scholarships are also awarded a tuition fee scholarship covering tuition fees at Macquarie University for up to four years.

To be eligible for a scholarship, applicants are expected to have a record of excellent academic performance and preferably additional relevant research experience and/or peer-reviewed research activity, awards and/or prizes in line with the University's scholarship rating guidelines. Refer to the [Rating Scholarship Applicants](#) section for more information about these guidelines.

Students on scholarships are not obliged to contribute to teaching, but may do so to supplement their income if desired. In addition to substantial financial resources to draw on for research, several generous schemes are available to fund travel to visit overseas laboratories or to attend overseas conferences.

Enquiries are welcome, and interested applicants are encouraged to make initial informal contact before applying. Interested applicants should email a letter of interest, academic transcripts, curriculum vitae and the names and contact information of three referees to Dr Polychronis (Polychronis.Rempoulakis@mq.edu.au).

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