

A fully-funded MSc scholarship in comparative genomics and development of molecular markers for rapid diagnostic of *Thaumatotibia batrachopa* and *T. leucotreta*

Macadamia
Protection
Programme

We invite applications for a full-time **MSc in Genetics** study at the University of Pretoria within the Forestry and Agricultural Biotechnology Institute (FABI).

Study background

Lepidopteran pests are of significant concern to macadamia growers. Results from previous surveys conducted in South African suggests that the composition of species fluctuate over time and may vary between production areas as well as within and between seasons. This variability underscores the need for continuous monitoring. The use of molecular methods remains the most accurate way to identify species, however, requires specialized equipment only available in molecular laboratories. The development of an on-site molecular assay, such as a Loop-mediated Isothermal Amplification (LAMP), could help overcome these limitations. Recently, a LAMP assay was developed for False codling moth (*T. leucotreta*, FCM). The aim of this project is to develop an Macadamia nut borer (*T. batrachopa*, MNB) LAMP assay that can be used alongside the FCM assay. The development of this diagnostic tool is valuable not only for disease diagnostic clinics but can also be implemented at various stages of production, from on-farm to processing and the export chain. Additionally, whole genome comparative analysis will be also conducted to accelerate future research to characterise chemosensory genes, which will improve our understanding of pheromone responses, and guide studies on insecticide resistance, offering targets for insecticide resistance monitoring once insecticide target genes and those involved in metabolic detoxification are identified.

Supervisors

Prof. Gerda Fourie

Dr Riaan Pierneef

Bursary details

A full bursary (incl. tuition costs) for two years

Start date: January 2026

Performance will be reviewed after 12 months

The candidate will be based at the University of Pretoria.

Application requirements

- A BSc Honours degree
- Demonstrated analytical and writing skills
- High attention to detail and self-motivated
- Valid South African driver's license

Please submit your CV, contact information of two references and a cover letter to **Prof. Gerda Fourie** (gerda.fourie@up.ac.za) before **17 November 2025**.