

# DST-NRF Centre of Excellence in Plant Health Biotechnology (CPHB)

## MSc and PhD bursary opportunities

The CPHB is a research programme in the Forestry and Agricultural Research Institute (FABI) that is funded by the South African Department of Science and Innovation (DSI) and the National Research Foundation (NRF). The core vision of the CPHB is to promote the health of socioeconomically important plant species through the use of biotechnology. To accomplish this, CPHB projects typically consider the pathogens and pests associated with plantation species and agricultural crops. The programme is also committed to inclusive postgraduate education and human capital development. In doing so, the Centre's activities are closely aligned with the priorities identified in South Africa's National Development Plan 2030, the African Union's Agenda 2063 and the United Nation's Sustainable Development Goals.

The CPHB invites postgraduate students in any of the following disciplines to join FABI; microbiology, entomology, genetics, bioinformatics, botany, genomics, plant pathology, plant breeding, plant production, agricultural extension ecology, biostatistics, biochemistry and chemistry. Potential research projects include one or more aspects of the following topics.

- Anthropogenic climate change and the chemical interactions among plantation/agricultural species, insects and fungi
- Asymmetric impacts of climate change on plant hosts, symbionts, pests and their natural enemies
- CRISPR-based gene editing in fungi and insects for functional analysis and population management
- Cross-kingdom sRNA trafficking in pathogenic plant-fungal interactions
- Development of high-throughput detection and quantification methods for microbial pathogens
- Diversity, population genetics and taxonomy of selected forestry insect pests.
- Feeding South Africa: Understanding how plant development will respond to a changing environment and how this might affect grain yield
- Genomics, transcriptomics and proteomics for characterising diversity – from molecular to species levels in insect pests and fungal pathogens
- Impact of climate change on fungal pathogens and insect pests of forest trees
- Management and control of pests and pathogens of selected tree/crop species
- Molecular basis of reproductive biology of fungal pathogens and insect pests
- Molecular basis of vegetative compatibility in fungal pathogens
- Precision biological control of insect pests of important crop/tree species
- Visualizing the microbial universe and their interactions inside healthy and diseased plant tissues

### Eligibility and bursary values

- South African graduates who intend to do an MSc must hold or be close to completing a BSc Hons degree (or equivalent). Those who intend to do a PhD must hold or be close to completing an MSc degree. In both instances, a mark of at least 60% must have obtained or be expect.
- Preferred applicants are those whose appointment would contribute towards achieving demographic representation in the CPHB.
- The value of the bursaries are up to R 108 000 for MSc and up to R 127 000 for PhD (all project running costs are covered from other sources).

### How to apply

Applicants should email their detailed CV, copy of their South African ID and full academic record to [heidi.roos@fabi.up.ac.za](mailto:heidi.roos@fabi.up.ac.za)

Note that preference will be given applications received before 10 December 2020.