

Position Title	Research Associate
Classification	Level A
School/Division	UWA School of Agriculture and Environment
Supervisor Title	Research Fellow
Supervisor Position Number	319335
Position Number	320869

Your work area

The UWA School of Agriculture and Environment is located in one of the world's biodiversity hotspots. Surrounded by a wealth of agricultural, natural and mining resources, our location allows us to produce innovative research with worldwide application.

Our teaching and research benefit from a network of national and international collaborators, and our strong industry and government links are producing change in agricultural and environmental management, regional development, and urban policy and planning. We have a strong track record in PhD supervision and external research grant success. The Australian Research Council rated Agricultural Science at UWA as 'above world standards' and Environmental Science at UWA as 'well above world standards' during the most recent Excellence in Research Australia assessment.

Reporting structure

Reports to: Research Fellow

Your role

As the appointee you will be a member of the UWA School of Agriculture and Environment and UWA Institute of Agriculture. Working under the supervision of Dr Bede Mickan and Emeritus Professor Lynette Abbott you will conduct high-quality research, communicate research outcomes to stakeholders, and contribute to deliverables in accordance with research grant requirements, including academic publications.

You will contribute to the delivery of soil biology and nutrient cycling components within the project "*Soil biological mechanisms underpinning the effects of biological amendments on soil health, productivity and resilience*". This project is a multidisciplinary project being led by The University of Western Australia, and funded by the [Australian Department of Agriculture, Fisheries and Forestry](#) (previously 'Department of Agriculture, Water and the Environment').

Specifically, you will conduct research on Activity "*Baseline investigation of soil bacterial and fungal responses to nutrient sources derived from waste technologies as complements to chemical fertilisers.*"

Background

Biological amendments are claimed to help improve soil health and crop performance by complementing chemical fertilisers and enhancing soil resilience beyond overcoming nutrient constraints. In this Soil Science Challenge project, a multi-disciplinary team of scientists will characterise the underlying soil biological mechanisms associated with the soil physical and chemical processes that contribute to soil health. Better understanding these processes will

enable transferability of knowledge of soil biological fertility across a spectrum of biological inputs that complement chemical fertilisers. The project will identify principles of effective and economic combinations of biological and chemical fertilisers and determine the underlying mechanisms involved.

Your key responsibilities

Investigate soil bacteria, and nutrient cycling responses to organo-mineral fertilisers

Conduct glasshouse plant growth responses to various rates of organo-mineral fertilisers

Conduct field evaluation of organo-mineral fertilisers

Integrate understanding of the potential impacts of soil biological amendments and their co-application with chemical fertilisers on nutrient cycling pathways and soil health

Present research results to internal and external scientific and government audiences

Communicate research outcomes through project reports and publications in high quality refereed journals

Other duties as directed

Your specific work capabilities (selection criteria)

PhD qualification (or near completion) in Soil Science, or Molecular Ecology

Demonstrated proficiency in a select range of computing skills including molecular DNA analysis using bioinformatic software (QIIME, or Mothur) of bacteria and fungi sequence data, and generating *in-silico* functional gene prediction (PICRUSt2, Tax4fun, etc), followed by expertise in ecological statistics and analysis (using R or Python), and preferably structural equation modelling

Ability to code in the R or Python environments

Demonstrated independent research skills, as evidenced by relevant publications and/or scientific reports

Experience in running soil incubations, plant growth experiments in the glasshouse, as well as experience with basic soil chemistry analysis, soil DNA extraction and preferably barcoded PCR preparations of DNA libraries ready for sequencing

Demonstrated knowledge of molecular ecology in relation to soil nutrient cycling

Highly developed and effective interpersonal and written and verbal communication skills

Ability to work independently, show initiative, problem solve and work collaboratively as part of a diverse team

Special requirements (selection criteria)

There are no special requirements

Compliance

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including:

The University's Code of Conduct hr.uwa.edu.au/policies/policies/conduct/code/conduct

Inclusion and Diversity web.uwa.edu.au/inclusion-diversity

Safety, health and wellbeing safety.uwa.edu.au/