JOB DESCRIPTION

Vacancy Ref: A811

Job Title:	Senior Research Associate Soil Nutrient Biogeochemist	**Present Grade:** 7 (P)
Department/College:	LEC	
Directly responsible to:	Professor PM Haygarth	
Supervisory responsibility for:	Technical Biogeochemist TBS	

Other contacts

Internal:
Professor Hao Zhang
External:
Drs Marc Stutter, Tim George and Charlie Shand (JHI) and Dr Martin Blackwell (Rothamsted)

Major Duties:

BBSRC Grant: Exploiting root exudation of organic acids and phytases to enhance plant utilisation of soil phosphorus

Hypothesis: Cropping systems with roots exuding both organic acid anions and phytase can facilitate more sustainable agricultural production by accessing soil organic P forms.

We have an exciting vacancy for a Post-Doctoral Research Associate to join a team at Lancaster University (Haygarth, Zhang), collaborating with The James Hutton Institute, Scotland (Stutter, George, Shand) and Rothamsted Research, North Wyke (Blackwell). This PDRA will be based at Lancaster but will play a key role interfacing between other team members around the country. The PDRA will be required to carry out an experimental programme where plants must be grown hydroponically, in pots and in rhizotrons, and will also be required to conduct analysis of soil and plant components using HPLC and DGT. Both of these techniques are highly specialised 'bespoke' procedures for organic phosphorus that will require a high level of specialist analytical skills. These cutting edge experiments are not standard and involve use of novel procedures including manipulation of enzymes and use of resin strips. The technique of DGT requires optimisation for low molecular weight organic anions and its deployment and analysis to obtain 2D images using ICPMS laser ablation is very challenging and has only been achieved in 2 laboratories worldwide to date (it was pioneered in Lancaster). The PDRA will be expected to support the sample preparation for ^{31}P NMR analysis, undertake the general geochemical modelling work and the 3D modelling which will be necessary to interpret the DGT data. The PDRA will also assist Phil Haygarth in managing the team and in delivering some aspects of the pathways to impact, including organization of workshops and establishment of an internet-based Soil Phosphorus Forum.