Job Description & Person Specification

Section 1
Role Overview

Job title:	Research Assistant or Research Fellow in Digital Agriculture
Vacancy reference:	4254
School/Professional Service Unit:	School of Water, Energy and Environment Centre for Soils, Agrifood, and Biosciences
Job type:	Full time Fixed Term Contract for 40 months
Hours of work:	37 hours per week, normally worked Monday to Friday. Flexible working will be considered.
Salary details:	**Research Assistant** – range £26,860 to £30,513 per annum with potential progression to £37,701 per annum **Research Fellow** – range £35,559 to £39,434 per annum with potential progression to £48,855 per annum
Line Manager:	Professor Paul Burgess, Professor of Sustainable Agriculture and Agroforestry
Start date:	As soon as Possible
Closing date for applications:	02 November 2022

Section 2
About Cranfield University

As the UK's only exclusively postgraduate university, Cranfield's world-class expertise, large-scale facilities and unrivalled industry partnerships is creating leaders in technology and management globally. Cranfield's distinctive expertise is in our deep understanding of technology and management and how these work together to benefit the world.

Find out more about Cranfield, our history, and our rankings and awards here.

What we value

Our shared, stated values help to define who we are and underpin everything we do: Ambition; Impact; Respect; and Community. Find out more here.

We aim to create and maintain a culture in which everyone can work and study together and realise their full potential. We are a Disability Confident Employer and proud members of the Stonewall Diversity Champions Programme. We are also committed to actively exploring flexible working options for each role. Find out more about our key commitments to Equality, Diversity and Inclusion and Flexible Working here.

Section 3
About School of Water, Energy and Environment

Cranfield's research and educational excellence in water, energy and environment is recognised internationally and is brought together in the School of Water, Energy and Environment. There are currently 203 FTE staff working in the School. The School hosts the three associated core research and education 'Themes' which in turn host a number of world-class centres and institutes. The Themes – Water, Energy and Power, and Environment and Agrifood – define their own research challenges and educational missions, with the Directors of Theme working closely with the Pro-Vice-Chancellor SWEE.

Water: Cranfield Water Science Institute has a proud reputation for its research on the science, engineering and management of water. Our lives and livelihoods are dependent on the natural and engineered water cycles. Accordingly, research and skills development in water treatment and management have never been more vital. Cranfield's research in these areas is applied and industry-focused, and we have been driving innovation for over 40 years.
Learn more about Water

Energy and Power: Cranfield's expertise in energy and power covers a wide range of potential energy solutions, from our ongoing relationship with oil and gas, to our developing reliance on renewable energy from the world around us. The changing energy landscape presents exciting opportunities and the potential for the UK to lead in new technologies and services related to low carbon energy and power generation.
Learn more about Energy and Power

Environment and Agrifood: Recognised by industry, government and academia for our research, academics from Environment and Agrifood have built an international reputation for research and education, providing the solutions to build a more resilient future. We work with

international and domestic agriculture and food companies, environment agencies, NGOs, and policy makers to ensure our research benefits all in society.

[Learn more about Environment and Agrifood](#)

About the Centre for Soils, Agrifood, and Bioscience

The Centre for Soil, Agrifood and Biosciences (SABS) seeks to grow as a world-class research centre dedicated to understanding soil, plant, and microbial systems, with the aim of tackling global food and environmental challenges. We have internationally-recognised expertise across both domestic and international food supply chains, from soil science to postharvest quality. Our work is truly global, reaching across Europe, Sub-Saharan Africa, South America and SE Asia, working with agribusiness and governments to address the challenges of environmental sustainability and food security.

We have in-depth strength in agricultural production systems and modelling (Crop-Soil-Water Systems Group) and in fundamental soil biophysics, biology and chemistry (Soil Systems Group). The Centre also has plant and microbial scientists who focus on understanding rhizosphere processes and root trait genetics (Plant Molecular Genetics Group), and we host world-leading groups in postharvest biology (Plant Science Laboratory) and in food safety related to mycotoxins and microbiological spoilage (Applied Mycology Group). A Bioinfomatics group uses genomics and gene discovery in plants and fungi, and machine learning to predict fresh produce shelf life, and development of soil management information systems. We work closely with the Cranfield Environment Centre to deliver multidisciplinary research, consultation and postgraduate teaching.

[Learn more about the Centre for Soils, Agrifood, and Bioscience](#)

Organisational chart
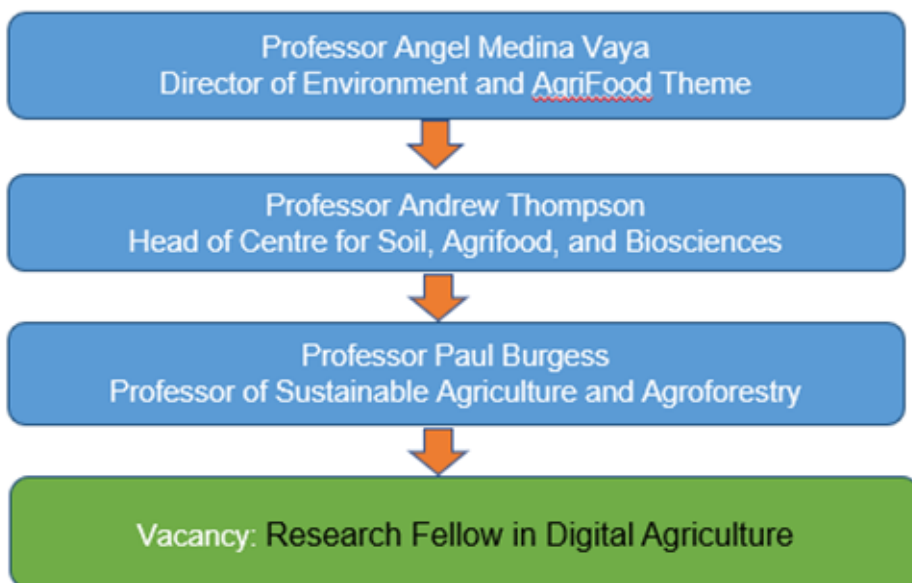
Section 4
Job Details

Job Purpose

Professor Paul Burgess, working with Dr Anil Graves (also of Cranfield University), is leading the Cranfield component of a four year EU project called DIGITAF, which has the full name: "Digital Tools to help agroforestry meet climate, biodiversity and farming sustainability goals: linking field and cloud". The EU Horizon Europe programme is funding the main body of the project and the Cranfield University component, due to Brexit, is being funded by UKRI UK Innovate through the Horizon Europe Guarantee.

The four year project started on 1 July 2022 and is led by Dr Marie Gosme from INRAe, based at Montpellier in France. This job is for a 40 month post within the contract. The aim of the DIGITAF project is to scale up and promote beneficial agroforestry in Europe by developing digital tools which can support farmers, policy makers, and actors in the supply chain to account for and capitalise on the benefits of agroforestry.

The principal roles of the Research Fellow within the project relate to work-packages 3, 2, 4, and 1 of the DIGITAF project.

Work-package 3 focuses on the development and use of accounting tools to describe agroforestry benefits in agroforestry value chains. The successful applicant will support Paul Burgess, who is leading this work-package. Working with partners from across Europe, and a focus on six living laboratories (in Belgium, the UK, the Czech Republic, Italy, Finland, and Germany) and a case study site in Spain. It is anticipated that the Research Assistant/Fellow will spend 24 of the 40 months on this activity. The primary task of the Research Assistant/Fellow will be to develop and use a tool to predict the effect of integrating trees on farms in terms of soil health, and to review methods for enhancing the value of agroforestry products and services in the value chain. The Research Assistant/Fellow will also work with staff from the Sant'Anna School of Advanced Studies in Pisa, Italy to map the flow of products and services from agroforestry from the six living labs, and the German Agroforestry Federation (DeFAF) to develop a map of European agroforestry. The Research Assistant/Fellow will work with a PhD student from the University of Gent in Belgium to develop a biodiversity indicator for agroforestry, and with staff from the European Forest Institute on tools to predict the effect of agroforestry on net greenhouse gas emissions and agroforestry.

Work-package 2 is focused on optimising agroforestry design and management: tools for practitioners and farm advisors. Cranfield University has developed and used two bio-economic modelling tools, called Yield-SAFE and Farm-SAFE, to predict the effect of agroforestry practices on agricultural yields and tree growth (relative to crop-only or tree-only systems) and financial outputs. The Research Assistant/Fellow will work with Paul Burgess and Anil Graves to describe the bio-physical and financial effects of agroforestry practices across the six living lab sites. It is anticipated that the Research Assistant/Fellow will spend 8 of the 40 months on this activity.

Work-package 4 focuses on bringing interactions between actors using living labs and a common agroforestry toolbox (6 months). One of the six living labs for the project is the Marston Vale area in Bedfordshire. The Research Assistant/Fellow will work with about five farmers in the area, and other local stakeholders, to promote the beneficial integration of trees on farms. It is anticipated that the Research Assistant/Fellow will spend 6 of the 40 months on this activity.

Work-package 1 focuses on providing tools for policy makers to strengthen agroforestry and carbon farming practices. Regen Farmer ApS, an organisation based in Denmark, will be developing a tool

which can describe the effect of including landscape features within farm management plans. Working with a Portuguese organisation, MVARC, the Research Assistant/Fellow with support from Paul Burgess and Anil Graves, will help support the environmental, economic and carbon impact analysis. It is anticipated that the Research Assistant/Fellow will spend 2 of the 40 months on this activity.

Key Deliverables

	Description of Deliverables	% of time
1	Development and use of digital tools to predict the effect of agroforestry on soil health, biodiversity and GHGs, and how these effects can be accounted for in the value chain (Work-package 3)	60%
2	Biophysical and financial modeling of agroforestry practises at the six living lab sites (Work-package 2)	20%
3	Implementation of a living lab to investigate the effect of increased tree cover on about five farms in Bedfordshire (Work-package 4)	15%
4	Supporting the economic and environmental analysis of incorporating landscape features, such as individual trees, on farms (Work-package 1)	5%

Please be advised that the percentages allocated for the key deliverables may be adapted to take into account the needs of the School or University.

Section 5
Am I suited to this role?

Criteria	Essential	Desirable
Education / Qualifications	• PhD focused on agricultural and/or forestry systems, agricultural economics, life cycle assessment, or systems modelling	• BSc and/or MSc or equivalent qualifications and experience focused on agricultural or environmental sciences or computer modelling.
Experience	• Experience of developing and using computer models of systems • Experience of using Microsoft Excel-based models • Peer-reviewed journal publication record; personal 'drive' to produce high quality manuscripts, with others.	• Presentation at national or international conferences • Experience of working with stakeholder groups
Knowledge	• Knowledge of agroforestry farming systems • Understanding of cost-benefit analysis	• Understanding of European agricultural systems
Skills / Aptitudes	• Very good project and time management skills, providing outputs on time and to high quality • Very good oral and written communication skills • Excellent technical writing skills in English • Very good team-working and inter-personal skills	• Proven ability to undertake original research • Qualified to drive
Values	• Ability to demonstrate our values: Ambition, Impact, Respect and Community.	
Other	• High degree of personal motivation and the ability to work with minimal supervision. • Dedicated/flexible approach to work. • Delivery and solution focused • Creative, research driven. • Willing to take personal responsibility for meeting School and University objectives. • Confidence in dealing with people in a variety of situations.	

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