| JOB DESCRIPTION | |
|---|---|
| **SPECIFIC JOB TITLE** | Postdoctoral Research Scientist — Agricultural Sustainability Database |
| **LEVEL/BAND** | D |
| **JOB FAMILY** | Science |
| **GENERIC ROLE TITLE** | Postdoctoral Research Scientist |
| **CONTRACT TYPE** | Fixed term (12 months) |
| **HOURS** | 37 |
| **REPORTS TO** | Research Scientist, Sustainable Agriculture Sciences — North Wyke |
| **DEPARTMENT** | Sustainable Agriculture Sciences — North Wyke |
| **LOCATION** | North Wyke |
| **DATE** | August 2021 |

## OVERVIEW OF ROLE/JOB PURPOSE

We are seeking a highly qualified postdoctoral research scientist specialised in sustainability assessment of agricultural production systems. The position will run for 12 months and be based at the institute's North Wyke site in Devon, England.

With a clear and urgent need to transform our farming systems to make them more resource-efficient, less polluting and more resilient to external shocks, the value of agricultural experimental data is greater than ever. Established in 1843, Rothamsted Research is the world's longest-running agricultural research institute with a wealth of information that can be utilised to determine what food we should grow where and how to achieve the oft-conflicting goals of food security, environmental/ecological sustainability and vibrant rural communities. Our Broadbalk arable rotation trial, for example, has continuously been running for 178 years, providing an invaluable evidence base for soil carbon dynamics, a major determinant of climate change impacts of agriculture.

Working as part of the Digital Rothamsted Initiative aiming to extract the untapped value of data resources and archived samples owned by the institute, the post holder will be responsible for standardisation of soil, agronomic, livestock, environmental/ecological and agribusiness data across multiple long-term trials being carried out at multiple sites in England (Bedfordshire, Hertfordshire, Suffolk and Devon) so that the performance of each treatment becomes comparable across trial boundaries. Using this unified database, the post holder will then lead a systematic appraisal of a diverse range of farming systems under Rothamsted's portfolio, including the Long-term Experiments (LTEs), the Large Scale Rotation Experiment (LSRE) and the North Wyke Farm Platform (NWFP), with the view to identify dominating (consistently superior) and dominated (consistently inferior) farming practices through a trade-off analysis. Finally, the post holder will collate life cycle inventory information associated with each production system and transfer them to HESTIA, a global open-access platform for agri-food life cycle assessment (LCA) data managed by the University of Oxford, to facilitate secondary use of project outputs. The Oxford Martin School will provide technical expertise for this component of work as an external project partner.

The primary duties of this position are summarised below. The post holder is expected to carry out all tasks listed here and any others reasonably requested by the line manager or the institute. While this position is primarily desk-based, occasional visits to the experimental sites may be required in order to evaluate the quality of the database as well as to assist the wider goals of the research team. When this is necessary, the post holder must be able to travel flexibly within reasonable limits.

| MAIN DUTIES OF ROLE | | | |
|---|---|---|---|
| **Generic Outputs** | **Weight** | **Description of Outputs** | **Description of Job Specific Duties** |
| **SCIENTIFIC RESEARCH** | 40% | Undertake scientific research (data collection) within predetermined scopes | • Review the latest scientific literature to inform the project team<br>• Design a database structure that suits the overarching project goals<br>• Develop rules and protocols for data standardisation<br>• Collate data from the predetermined list of field experiments to build a unified database<br>• Ensure data quality and replicability |
| **ANALYSIS AND PUBLICATION** | 30% | Analyse data and publish findings in scientific journals | • Analyse data using appropriate statistical methods<br>• Interpret the results of data analysis<br>• Propose and coordinate follow-up data collection and/or collation as required<br>• Write and publish scientific articles in internationally reputable journals |
| **WORKING WITH OTEHRS** | 10% | Participate in internal networks and work with external organisations | • Contribute to project management through meeting attendance and report writing<br>• Liaise with external project partners to ensure smooth transfers of data and information |
| **KNOWLEDGE EXCHANGE AND OUTREACH** | 5% | Work with people and businesses outside the scientific community | • Communicate research findings to end-users, industrial stakeholders, policymakers and media, both orally and in written formats<br>• Contribute to public engagement events organised by the project team, the institute and external partners |
| **FINANCIAL MANAGEMENT** | 5% | Acquire and manage fund for scientific research | • Contribute to project finance management through meeting attendance and report writing<br>• Ensure lawful and efficient use of institutional resources |
| **LEADERSHIP AND MANAGEMENT** | 5% | Support peers and oversee work of more junior staff | • Participate in internal scientific exchange activities to mutually enhance knowledge and create a stimulating workplace<br>• Under supervision of the line manager, offer day-to-day guidance to postgraduate and summer students |
| **PROFESSIONAL DEVELOPMENT** | 5% | Plan own development opportunities | • Seek advice, guidance, coaching and/or mentoring from appropriate individuals to improve the quality of outputs and deliverables<br>• Identify and participate in appropriate professional development opportunities to acquire new skills and knowledge<br>• Initiate and sustain professional networks for future opportunities |

| PERSON SPECIFICATION AND SELECTION CRITERIA* | |
|---|---|
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| | **EDUCATION/QUALIFICATIONS** | Essential | Desirable | How Tested?** |
|---|---|---|---|---|
| 1. | A PhD in agricultural science or a closely related field, either awarded or to be awarded within six months from the deadline for this application; in the latter case the thesis must have already been submitted for examination (supporting document required) | ✓ | | Cert |
| | **EXPERIENCE/KNOWLEDGE/SKILLS** | Essential | Desirable | How Tested? |
| 1. | Professional knowledge in agricultural production systems in the UK | ✓ | | AF, IV |
| 2. | Professional knowledge in food consumption patterns in the UK | ✓ | | AF, IV |
| 3. | Genuine interest and professional knowledge in agricultural sustainability | ✓ | | AF, IV |
| 4. | Ability to conduct automated or semi-automated data collation, as clearly evidenced by scientific publications or supporting documents | ✓ | | AF, Test |
| 5. | Good understanding of statistical theory and competency in statistical software, as clearly evidenced by scientific publications or supporting documents | ✓ | | AF, Test |
| 6. | Ability to work as a team player, as supported by references | ✓ | | AF, IV |
| 7. | Excellent communication skills in English, both spoken and written, as or at the level equivalent to a native speaker | ✓ | | AF, IV, Cert |
| 8. | Professional knowledge in agribusiness analysis | | ✓ | AF, IV |
| 9. | Professional knowledge in life cycle assessment (LCA) | | ✓ | AF, IV |
| 10. | Professional knowledge in relational database systems | | ✓ | AF, IV |
| 11. | A strong track record of scientific publications | | ✓ | AF |

| BEHAVIOURS/ATTITUDES | | How Tested? |
|---|---|---|
| 1. | **Drive for Quality**: Makes incremental improvements to processes | IV |
| 2. | **Strategic Thinking**: Draws on experience when undertaking duties of role | IV |
| 3. | **Creativity and Innovation**: Responds positively to change, and identifies and tries out different approaches | IV |
| 4. | **Developing Self and Others**: Formalises development needs for self and participates in learning activities to enhance performance | IV |
| 5. | **Professional Conduct**: Demonstrates an understanding of others' perspectives | IV |
| 6. | **Productive Relationships**: Is a good team player | IV |
| 7. | **Effective Communication**: Communicates to a wide audience in an accurate and timely manner | IV |

| GENUINE OCCUPATIONAL REQUIREMENTS | | Essential | Desirable | How Tested? |
|---|---|---|---|---|
| 1. | Ability and willingness to travel flexibly, potentially during unsociable hours (within reasonable limits), to fulfil requirements for agricultural experiments | ✓ | | AF |

* Minimum requirements of the post and how they will be assessed

** Evidence of criteria will be established from: **AF** (application form), **IV** (interview), **Test** (skills test/prepared question/ presentation), **Cert** (certificate checked by interview panel)