

JOB DESCRIPTION

SPECIFIC JOB TITLE	Postdoctoral Researcher – Grazing Systems and Methane Emissions
GENERIC ROLE TITLE	POSTDOCTORAL RESEARCH SCIENTIST
LEVEL/GRADE	D
JOB FAMILY	SCIENCE
CONTRACT TYPE	Fixed term 4 years with potential extension up until 31 st March 2028
HOURS	37 hours per week
REPORTS TO	Senior Research Scientist
DEPARTMENT	Net Zero & Resilient Farming
LOCATION	North Wyke
DATE	May 2023

OVERVIEW OF ROLE/JOB PURPOSE

Overview: Grazing ruminant livestock systems play a key role in providing nutritious and healthy food for the society while delivering further ecosystems services (e.g., carbon sequestration). Grazing strategies influences the distribution and cycling of nutrients within the system often leading to improved soil nutrients availability by enhancing soil microbial activity and rhizosphere processes that can support crop and livestock nutrition. Grazing can therefore have large impacts on the health of grazing systems. However, grazing systems need to be managed to ensure negative environmental impacts (e.g., greenhouse gas emissions) are reduced, contributing to the Net Zero goal. Thus, UK agroecosystems must maximise natural co-benefits for society when delivering sufficient, high-quality produce. The vision for Growing Health (GH) programme, one of the new Rothamsted Research's Institute Strategic Programmes and which this role will deliver to, is to support the delivery of healthier UK agroecosystems. GH will develop and expand 'One Health' values to better understand trade-offs and co-benefits of improved crop health, soil health, and agroecosystem health and function, at multiple scales. One of the areas of research of this programme is aimed at elucidating how grazing management affects nutrients availability and flows in grazing ruminant livestock systems.

Job specification: Rothamsted Research is seeking a postdoctoral scientist with a PhD in Animal Science, Ruminant Nutrition, Agricultural Science, or closely related field for a four-year position. The successful candidate will work, as part of a team of researchers and technicians, with cattle and sheep herds at Rothamsted Research, North Wyke to measure and compare relevant key performance indicators, such as animal performance and behaviour, enteric methane emissions, animal health and welfare, pasture productivity and quality, and wider environmental impacts on soil, air and water from a variety of grazing strategies. This role will also imply measuring and modelling of enteric methane emissions from beef cattle and sheep during the winter housing period on the North Wyke Farm Platform and the Orr Small Ruminant Facility, using C-Lock GreenFeed instruments. Also, the successful candidate will develop the methodology for emission measurements during the grazing period, potentially using the same GreenFeed instruments or by setting up the SF₆ gas tracer technique. The candidate will also collate and correlate emission data with diet quality variables and predicted dry matter intake.

As a member of Rothamsted Research's Grazing Systems research team that strives to promote economic, social and environmental sustainability of ruminant production systems in the UK and beyond, demonstrated willingness to make their research relevant to real-world agricultural producers is key. Experience of measuring methane emissions and setting up experiments with ruminant livestock, including animal handling, are essential. A track record of publishing in peer-reviewed scientific journals and the ability to clearly communicate in English, verbally and in writing, are also essential skills.

The role holder is expected to carry out the duties listed below, and any other duties reasonably required by the line manager or Institute, commensurate with the grade and level of responsibility for this post. The post will require staying away overnight (occasional) for business travel.

MAIN DUTIES OF ROLE

Generic Outputs	Weighting	Description of Outputs	Description of Job Specific Duties
UNDERTAKING THE RESEARCH	40%	Conducting research experiments within predetermined scope including the collation, preparation and testing of data using existing or new approaches	<ul style="list-style-type: none"> • Coordinate with collaborating partners on their research requirements • Conduct studies of related literature and research to support the design and implementation of projects • Prepare research outline stating rationale, hypothesis, experimental layout, statistical design (via advice from RRes Statisticians), timetable of activities and parameters / observations to be measured/recorded • Plan and implement routine experiment(s) to support the project goals/research objectives • Contribute to the development of techniques, models and methods
ANALYSIS, PRESENTATION AND PUBLICATION	30%	Interpreting research findings and contributing to the writing and publication of findings in scientific journals and/or via presentations	<ul style="list-style-type: none"> • Consolidate, verify and analyse collected data using appropriate statistical tools, methods and packages • Ensure maintenance and version control of data collated; validate that database/dataset is current and assess the need/scope for further investigation • Interpret the outcome of the data analyses/research findings based on defined objective of the study and related literature review, and draw conclusions from the research studies • Disseminate research findings and establish a national reputation through participation in national conferences, exhibitions etc. • Write, or contribute to manuscripts/write-ups for annual reports, web-based content and publications in good-quality, peer reviewed journals • Develop standard operating procedures (where applicable)
FUNDING AND FINANCIAL MANAGEMENT	5%	Contributing to research proposals and writing of bids, winning fellowship funding etc.	<ul style="list-style-type: none"> • Identify sources of funding and contribute to proposals to BBSRC and other bodies, either by providing information or as a researcher co-investigator • Where applicable, locate and target appropriate fellowship opportunities • Ensure efficient use of available resources
WORKING WITH OTHERS	10%	Participating in internal networks and developing entrepreneurial links with external organisations	<ul style="list-style-type: none"> • Build internal contacts and participate in internal networks to exchange information and form relationships for future projects • Begin to develop entrepreneurial links with external organisations or stakeholders within own research area to identify potential sources of funds or opportunities for collaboration
LEADERSHIP AND MANAGEMENT	5%	Supporting peers and overseeing work of more junior staff	<ul style="list-style-type: none"> • Have sole responsibility for managing a project where applicable • Where applicable, be involved in the day-to-day guidance and development of Scientific Technicians, PhD and summer students, and visiting workers • Support the learning of others when involved in teaching activities or demonstrating other research activities • Adhere to health and safety procedures affecting self and others at all times
KNOWLEDGE EXCHANGE, COMMERCIAL-	5%	Contributing to discussions with stakeholders within	<ul style="list-style-type: none"> • Contribute to the delivery of policies, intellectual property or commercialisation

ISATION AND OUTREACH		own research area, the delivery of professional training, presentation of research to end-users, public engagement and commercialisation activities etc.	<ul style="list-style-type: none"> • Present research to end-users (e.g. farmers, agronomists), at national meetings or occasional international conferences • Contribute to public engagement activities (e.g. open days, schools etc.) • Draft training material using readily available published information (e.g. protocols, methodology) and/or act as a training resource for the department/research group
CONTINUING PROFESSIONAL DEVELOPMENT	5%	Proactive planning of own development opportunities which serve to broaden existing knowledge base and skillset	<ul style="list-style-type: none"> • Formulate a clear idea on how your career may develop and start to undertake appropriate development activities to acquire new skills beyond those of the role-holder's specialism • Seek advice, guidance, coaching or mentoring from appropriate individuals • Initiate and sustain networks and relationships that may present opportunities for development and/or future employment • Seek appropriate opportunities to enhance employability, including positions outside job family and/or the Institute, and seek to gain broader experience
Competencies		Stage 2	<ul style="list-style-type: none"> • See Appendix

* 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** (certificated checked by interview panel)

PERSON SPECIFICATION AND SHORTLISTING CRITERIA*

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REPORTS TO	Jordana Rivero
DEPARTMENT	Net Zero & Resilient Farming
LOCATION	North Wyke

EDUCATION/QUALIFICATIONS		Essential	Desirable	How Tested? **
1.	A PhD/doctoral degree in Animal Science, Ruminant Nutrition, Agricultural Science, or closely related field	✓		AF
2.	MSc in Animal Science, Ruminant Nutrition or closely related field		✓	AF
EXPERIENCE/KNOWLEDGE/SKILLS		Essential	Desirable	How Tested? **
1.	Experience of measuring methane emissions (e.g., SF ₆ , GreenFeed)	✓		AF, IV
2.	Experience in setting up experiments with ruminant livestock, including animal handling	✓		AF, IV
3.	A track record of publishing in peer-reviewed scientific journals	✓		AF
4.	Ability to clearly communicate in English, verbally and in writing, material of a specialist or highly technical nature	✓		AF, IV, Test
5.	Experience with preparing equipment and setting up experiments using SF ₆ gas tracer technique.		✓	IV
6.	Numerate with experience of data processing and analysis including use of statistical techniques		✓	AF, IV
7.	Demonstrated understanding of UK beef cattle and/or sheep and grazing livestock systems		✓	IV

8.	Experience/knowledge in pasture productivity measurements and/or monitoring		✓	AF, IV
9.	Up-to-date knowledge of the importance of and processes leading to GHG emissions from ruminant livestock production		✓	AF, IV, Test
BEHAVIOURS/COMPETENCIES				How Tested? **
1.	Strategic Thinking: Draws on experience when undertaking duties of role			IV
2.	Creativity and Innovation: Responds positively to change; identifies and tries out different approaches			IV
3.	Productive Relationships: Is a good team player			IV
GENUINE OCCUPATIONAL REQUIREMENTS		Essential	Desirable	How Tested? **
1.	Full driving licence	✓		AF
2.	Ability to undertake independent physical work in the field/lab	✓		AF

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