

## Teagasc Post Doctoral Research Fellow Level 1/2 Specification

<b>Post Title</b>	<b>Teagasc Post-Doctoral Research Fellow Level 1 (PD1) / Level 2 (PD2)</b>
<b>HR Reference</b>	PD1/2/MASTER/AY/0519
<b>Research Area</b>	Animal Breeding and Environment
<b>Eligibility</b>	<p>PhD in a relevant discipline with up to 3 years' (max.) relevant experience.</p> <p>The combined duration of this contract combined with any other PD1 contracts must not exceed 6 years in total. Not permitted to have longer than 3 years as PD1 and 3 years as PD2.</p>
<b>Project Title</b>	MASTER: Understanding the rumen microbiome to develop strategies for enhancing nutrient utilisation from feed and reduce the environmental footprint of agriculture.
<b>Current Project End Date</b>	01/01/23
<b>Post Duration</b>	<p>The indicative duration of 38 months, but not exceeding the above project end date, subject to contract.</p> <p>A panel may be formed from which future similar vacancies may be filled.</p>
<b>Location</b>	Teagasc, Animal and Bioscience Department, Animal & Grassland Research and Innovation Centre, Mellows Campus, Athenry, Co. Galway.
<b>Reports to</b>	Project Leader and/or other nominated manager as maybe identified from time to time.
<b>Training Rate</b>	<p>Appointment will be at the minimum point of the Post Doctoral Level 1 (PD1) scale (€35,678).</p> <p>Increments will be awarded annually* on the PD1 scale for the first 3 years (36 months) subject to performance and completion of the prescribed training plan.</p> <p>Appointees will progress to the first point of the PD2 scale (€40,662) in year 4 with increments awarded annually* on the first point of the PD2 scale subject to performance and completion of the prescribed training plan for the balance of the contract.</p> <p>The current PD1 and PD2 scales are as follows:  PD1: €35,678(min.); €37,757; €39,529 (max.)  PD2: €40,662 (min.); €41,827; €43,029 (max.)</p> <p>Note: Exceptional circumstances may apply for candidates with current or previous service in the public sector. *Remuneration and the annual cycle for the payment of increments may be adjusted from time to time in line with Government policy.</p>
<b>Basic Function of the post:</b>	The successful candidate will be responsible for the management and implementation of a multidisciplinary collaborative project funded via Horizon 2020 (LC-SFS-03-2018) called 'MASTER' ('Microbiome applications for sustainable food systems through technologies and enterprises'). The Post-Doctoral Research Fellow

will be recruited onto work package 3 of the project which focuses on the rumen microbiome and its role in improving animal production and reducing environmental impact through its manipulation.

Duties will include responsibility for liaising with research staff both in Teagasc and the Irish Cattle Breeding Federation, international collaborators, postgraduate students, and farmers. Other duties include the collection of biological samples, collation of methane from beef cattle and sheep, feed efficiency and other performance data, collection of rumen digesta, laboratory based microbiome analyses, in vitro and in vivo biological assays, genotyping and association studies, bioinformatics, statistical analysis and scientific report and manuscript writing. The successful candidate will also be involved with postgraduate student supervision and mentoring as well as dissemination of project results to the various stakeholders involved.

### **Background:**

The Teagasc post-doctoral programme provides training and development opportunities for early career scientists that enhances their experience of learning and equips them with the necessary skills for the next stage of their chosen career in research.

Ruminant production is responsible for ~ 9% of anthropogenic CO<sub>2</sub> emission and 37% of methane emissions. Release of methane results in 6-12% less energy being available to the animal. Ruminants also contribute towards NO<sub>2</sub> within the environment, a persistent gas in the atmosphere which has 296 times more warming potential than CO<sub>2</sub>. Recent advances in next generation sequencing technology have allowed a far deeper understanding of the rumen microbiome and it has become clear that it is possible to beneficially manipulate the rumen microbiome through host genomics and breeding, and through dietary interventions. MASTER aims to 1) establish the relationship between the bovine and ovine genome and microbiome (and develop new host genome chips accordingly); 2) improve the production benefits of methane-inhibiting compounds while retaining their methane mitigating capabilities; 3) develop and recommend early life dietary interventions to 'program' the composition of the rumen microbiome in adult life; and 4) be able to predict animal phenotype from rumen and/or (more easily accessed) buccal microbiome biomarkers, all with the aim of improving ruminant production, reducing environmental impact and ensuring the availability of healthy nutritious products for the consumers. This proposal is consistent with SHARP and Food Wise 2025.

The successful candidate will be based at the Animal and Grassland Research and Innovation Centre, Mellows Campus, Teagasc Athenry, Co. Galway. While most of the research programme will be conducted on-site working with sheep, conducting methane, feed intake and growth measurements, collecting biological samples such as saliva and rumen fluid, and recording other performance data, some work will be conducted on beef cattle herds at the Irish Cattle Breeding Federation performance testing station in Tully, Enfield, Co. Kildare. Tasks will involve liaising with laboratory staff, conducting genomics-based sample preparation for microbial profiling, rumen metagenomics, host animal genotyping analysis, association studies, data collation, bioinformatics and statistical analysis. The Post-Doctoral Researcher may also liaise with international collaborators and have the opportunity to travel to acquire lab-based or bioinformatics and other skills as required. The successful candidate will also be integrally involved in postgraduate student supervision, preparation of progress reports as well as peer reviewed scientific manuscripts.

This is a research focused training role, the primary purpose of which is to provide early career scientists with the opportunity to develop their research skills and competencies. The PD Fellow will, while working in conjunction with senior research staff, gain insight and experience into a variety of areas including the processes of project and budgetary management, publishing in peer-reviewed

academic journals, writing grant applications, and attracting external funding; the development of active collaboration with relevant national and international research communities; the development of communication and presentation skills, leadership and management skills, and overall career development.

Modules will be conducted under the supervision and direction of the (Project Leader) or other designated manager in conjunction with the Head of Department.

The final 2 months of this programme will be at the Post-Doctoral Research Fellow Level 2 (PD2).

This advanced research focused training role provides experienced post-doctoral researchers with the opportunity to build on their prior experience and is supported by a modular training programme, which will include modules of relevance to enhance their development of specific knowledge and research skills, professionalism and communication skills, leadership and management skills, and overall career development.

Modules will be conducted under the supervision and direction of the (Project Leader) or other designated manager in conjunction with the Head of Department.

### **Duties & Responsibilities specific to this project:**

- Collect biological samples (saliva, blood and rumen contents) and conduct and be responsible for detailed methane, nitrous oxide, and nutritional measurements on sheep and manage all aspects of the agreed research programme on these animals.
- Develop and conduct rumen metagenomics based laboratory procedures and liaise with laboratory staff in collaborating institutions (i.e. Teagasc and Irish Cattle Breeding Federation) to ensure effective collaborative data analysis.
- Conduct genotyping, bioinformatics and statistical analysis of genomic data, assess putative DNA-based biomarkers associated with feed efficiency and greenhouse gas emissions in cattle.
- Manage and be responsible for direction of the postgraduate student, technical staff, protocol review, and collaboration with research staff.

### **Additional Duties & Responsibilities:**

- Interpret research findings and prepare scientific and popular press publications.
- Disseminate research findings to a variety of audiences as appropriate.
- Assist Teagasc in meeting the commitments of the Quality Customer Service Charter and action plan.
- Comply with all relevant Teagasc policies and procedures.
- Actively participate in the Teagasc Post Doctoral Fellowship programme and review processes, and to undertake all Post Doctoral fellowship training and associated duties as agreed in the Training & Development Plan.
- Fully co-operate with the provisions made for ensuring the health, safety and welfare of themselves, fellow staff and non-Teagasc staff and co-operate with management in enabling Teagasc to comply with legal obligations. This includes full compliance with the responsibilities outlined in the Safety Statement.
- Take up additional duties as may arise or as assigned by management.

### Person Specification

This section outlines the qualifications, skills, knowledge and/or experience that the successful candidate would be required to demonstrate for successful discharge of the responsibilities of the post. Applications will be assessed on how well candidates satisfy these criteria.

#### Essential

- PhD in Molecular Biology and/or Animal Science.
- Relevant research experience not to exceed 3 years' post-PhD.
- Demonstrated research and technical expertise in molecular biology related sciences.
- Evidence of research activity (publications, conference presentations, awards) and future scholarly output (working papers, research proposals etc.).
- Excellent project management, analytical, report writing and data analysis skills.
- An ability to collaborate with team members and PhD students to help build research knowledge and skill and to guide professional development.
- Excellent communication skills (oral, written, presentation) with an ability to enable effective knowledge and technology transfer.
- Ability to generate new ideas, unique concepts, models and solutions.
- Candidates must satisfy and continue to satisfy during employment with Teagasc, legal requirements to drive unaccompanied on Irish public roads.

#### Desirable

- Knowledge of rumen microbiology, genetics/genomics and bioinformatics.
- Experience of organising and conducting ruminant-based research projects.
- Knowledge of Animal Nutrition and Physiology.
- Experience in setting own research agenda.
- Evidence of teamwork and collaboration with relevant partners.

### Further Information for Candidates

Candidates can access a Fellowship Programme Application form for this post on the Teagasc website at <https://www.teagasc.ie/about/opportunities/post-doctoral-opportunities/>. Teagasc do not accept Curriculum Vitae as an application for a position. In order to apply for a post the relevant application form must be completed in order to be considered.

Completed application forms should be TYPED, saved in PDF format and submitted by email to [teagascjobs@clark.ie](mailto:teagascjobs@clark.ie) no later than **12 noon on Thursday 20<sup>th</sup> June 2019**. Applications received after this time will not be considered.

Teagasc is an equal opportunities employer. As part of Teagasc Gender and Diversity strategies, Teagasc welcomes a balanced pool of applicants. Canvassing will disqualify.

The details contained above are subject to change without notice.