PhD Project Advertisement

Project No/title: FBS2026 83 WilliamsM aq / *Promoting positive welfare in extensively and intensively kept sheep*
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Project Details

It is often assumed that the behavioural needs of outdoor sheep are met because of the behavioural freedom that this environment confers. Sheep, however, often choose specific parts of the outdoor environments that facilitate increased feeding and social interaction and reduce time spent alert. This suggests that incorporating aspects of behavioural ecology into the husbandry of outdoor sheep may promote positive welfare states.

Lambs in the UK are routinely kept indoors, and research suggests that 1) this environment can be sub-optimal from a welfare perspective and 2) that environmental enrichment can increase lamb welfare and production performance. Increasing the complexity of the environment, in particular, has been found to promote positive welfare states. The aim of this PhD project is to investigate different enrichment strategies for outdoor and indoor kept sheep in order to promote positive welfare states as measured through standard cognitive and behavioural tests.

Research aims:

1. Assess what elements of enrichment induce positive emotional states in sheep (lambs and ewes) from a psychological and ecological perspective;
2. Design and test outdoor (sheep) and indoor (lamb) enrichment environments;
3. Implement and test enrichment strategies within a practical farm setting.

What you will do: The first stage of the project will involve a systematic review of the behavioural ecology of sheep in order to identify potential strategies of environmental enrichment. These different strategies will then be tested on existing flocks and cohorts of adult and juvenile (lambs) sheep held at Aberystwyth University, using standard behavioural (e.g. reactivity) and cognitive (e.g. judgement bias) tests to assess their impact on the positive welfare state of the animal. Variations of standard cognitive tests will also be explored as part of this investigative process. The final stage of the project will be the formulation and testing of a practical on-farm implementation of the optimal environmental enrichment strategies.

References:

1. Baxter, M., Bailie, C.L., O'Connell, N.E., 2019. Play behaviour, fear responses and activity levels in commercial broiler chickens provided with preferred environmental enrichments. Animal 13, 171-179.
2. Doyle, R.E., Fisher, A.D., Hinch, G.N., Boissy, A., Lee, C., 2010. Release from restraint generates a positive judgement bias in sheep. Applied Animal Behaviour Science 122, 28-34.
3. Munoz, C.A., Campbell, A.J.D., Hemsworth, P.H., Doyle, R.E., 2019. Evaluating the welfare of extensively managed sheep. PLOS ONE 14, e0218603.
4. Oesterwind, S., Nürnberg, G., Puppe, B., Langbein, J., 2016. Impact of structural and cognitive enrichment on the learning performance, behavior and physiology of dwarf goats (Capra aegagrus hircus). Applied Animal Behaviour Science 177, 34-41.

Student profile

Essential for project: A background in agriculture/animal welfare/ animal behaviour/psychology or a related discipline.
Desirable for project: Experience with large animal husbandry and handling. Experience with Matlab and/or Python coding.

Minimum requirements for all FoodBioSystems applicants: An upper 2nd class degree (or equivalent) in a subject relevant to the project. Candidates with a lower class of Bachelors degree, but merit or above at Masters level will also be considered**.** Demonstrable skills in problem-solving, team-working, communication and time management.

Training

Project specific training opportunities: The PhD candidate will be trained specifically in methodologies of cognitive testing specific (e.g. optimism-pessimism paradigm) in large animals but will also be encouraged to learn how to set up and run other cognitive tasks using a purpose built operant system for sheep (e.g. two choice visual discrimination task, stop-signal task). The latter will also involve training in how to use software (including coding) along with hardware integration in order to develop standardised cognitive testing systems for large animals. General training will also be given on experimental design, data handling and statistical techniques for behavioural scientists as part of the Aberystwyth University Doctoral Training Programme and this will be expanded upon by the supervisory team with specific reference to behaviour experiments.

FoodBioSystems training opportunities: Throughout their studentship, all FoodBioSystems doctoral researchers participate in cohort training that covers four key themes: food systems, big data (data analytics and modelling), business, and research fundamentals. All doctoral researchers complete a placement: either project-related with a non-academic (CASE) partner, or unrelated to the project and outside the academic environment (PIPS). Details of training are available on the DTP website: https://research.reading.ac.uk/foodbiosystems/training/.

Project supervision style

For the first 2 months of the project, weekly meetings with all supervisors will be held. From month 3, this will shift to fortnightly meetings with the primary supervisor and monthly meetings with the whole supervisory team. If specific input is needed from a member of the supervisory team other than the primary supervisor, then they will attend one of the fortnightly meetings or meet with the student when required. All supervisors will be available at the student's request to meet outside of the timetabled meetings. The student will be required to minute all meetings and to circulate minutes in a timely fashion to all supervisors so that action points are both accurate and agreed upon. Meetings that include all supervisors will be recorded via Teams. All emails from the student to supervisors will be answered within 48 hrs and feedback from written work will be given within 10 days.

Stipend (Salary)

FoodBioSystems DTP students receive an annual tax-free stipend (salary) that is paid in instalments throughout the year. For 2025/26 this is £20,780 and it will increase slightly each year at rate set by UKRI.

Equity Diversity and Inclusion

The FoodBioSystems DTP is committed to equity, diversity and inclusion (EDI), to building a doctoral researcher (DR) and staff body that reflects the diversity of society, and to encourage applications from under-represented and disadvantaged groups. Our actions to promote diversity and inclusion are detailed on the FoodBioSystems DTP website and include:

- Offering reasonable adjustments at interview for shortlisted candidates who have disclosed a disability or specific learning difference.
- Guaranteed interview and applicant mentoring schemes for applicants, with UK home fees status, from eligible under-represented ethnic groups who also meet academic eligibility criteria and the student profile essential for the project.

These are opt-in processes**.**
Our studentships can be offered to home students on a part-time basis, and studentship end date and stipend payments will be amended to reflect the part-time registration. The minimum registration for DTP funded part-time students is 0.5 FTE (studying an average of 20 hours per week over 8 years). We regret that part time registration is not available to international students due to complexities of visa restrictions.

Funding note

We welcome applications from candidates with Home/ROI fees and international fees status. This studentship is funded by UKRI and covers stipend, fees at Home/ROI rate, and research costs. The host university will not charge UKRI funded international students the difference between Home/ROI fees and international fees.
Costs that must be found from other sources or met by the individual student include: visa fees, healthcare surcharge, relocation costs and guarantor services.

For up to date information on funding eligibility, studentship rates and part-time registration, please visit the FoodBioSystems website.