

## Understanding key innovations in global agriculture

This placement within the Farming Science Evidence and Analysis team at Defra offers an opportunity to directly inform agricultural policy in the UK, by investigating global trends in innovation within the sector. The evidence from the OECD countries<sup>1</sup> and wider economic evidence suggests that innovation is key to rising productivity growth. Furthermore, the OECD evidence clearly suggests that innovation and the rate at which innovation is disseminated is critical in raising agricultural productivity.

This project seeks to identify innovations which are likely to have a significant impact on future productivity growth in arable, dairy, horticulture, livestock and poultry sectors, and where these could be translatable to the UK. The work will learn from global leaders in agricultural production, and the innovations which have underpinned their productivity growth.

### **The project includes three different work packages (WP):**

- **WP1: Linking historic innovations to past productivity growth**  
Identify the global producers who are leading the world in terms of productivity in specific agricultural sectors and sub-sectors. The work should identify which have witnessed most productivity growth in terms of output per unit (e.g. litres per cow, kg per bird, tonnes per ha etc.) over the last 50 years. This data should then be interrogated to identify which specific innovations have been most crucial to productivity growth in each sector over the 40 year period? Are there any sectors which have seen more innovations than others? Do these innovations link to growth of output per unit and is this link quantifiable?
- **WP2: Rate of dissemination of innovation**  
Investigate the rate at which different innovations (identified in WP1) infiltrated or were taken up by 20%, 50%, 70% and 80% of practitioners within a given sector. Was the rate of uptake similar for all sectors? If the rate of uptake varied between sectors or innovations with a given sector, then, (a) what was the cause of such variations? And (b) what were the barriers/bottlenecks that slowed down the uptake of innovations?
- **WP3: Identifying key innovations to increase productivity growth in future**  
Identify the key innovations which have the greatest potential to have a significant impact on increasing productivity within each sector (arable, dairy, horticulture, livestock and poultry) in the UK and consider:
  - a) Whether the factors which influenced uptake of innovation in the past have the same relevance now?
  - b) How will future macro-economic and geopolitical trends and developments influence innovation?
  - c) What other factors will influence the uptake of innovations in agriculture?
  - d) How can the uptake of each of these key innovations can be increased within the respective sector?
  - e) Whether these specific international innovations could work well in the UK or whether there are barriers?
  - f) Could any agriculture sectors experience “innovation saturation”? If so, have some sectors become closer to “innovation saturation” than others (i.e. are there any agricultural sectors in which the potential for growth with further innovation is reaching diminishing returns?).

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<sup>1</sup> OECD (2011), Fostering Productivity and Competitiveness in Agriculture, OECD Publishing.  
<http://dx.doi.org/10.1787/9789264166820-en>

## **Main deliverables**

- Produce an in-depth review of relevant literature (and research in progress), liaising closely with international partners. Some international travel may be required as part of the project in order to develop the most relevant networks within the research community and interrogate the latest, unpublished or grey literature.
- Provide a briefing note for policy colleagues.
- Present final report to policy/evidence audience.

## **Experience and skills**

- The project would suit an early stage post-doctoral researcher with strong knowledge of trends of innovation within the agricultural industry, engineering, or environmental sciences and excellent analytical and communication skills.
- Experience in economics would be desirable.
- In addition to the placement itself, input and supervision from a senior academic to support development and delivery of the project is highly desirable. We will therefore expect applicants to have identified and acquired the time commitment of an appropriate senior UCL-based expert, prior to submitting their application (supporting academic time will be funded as part of the placement).

## **About the team**

Defra's Farming Science Evidence and Analysis team is an interdisciplinary team comprising of life scientists, economists, statisticians, social scientists and data experts, who ensure that scientific evidence is used to inform farming and agricultural policymakers. Most of the team is based in Defra's London office in Marsham Street – with some colleagues based in York and Bristol. Successful applicants will have opportunities to liaise with farming policy teams and gain an in-depth understanding of the policymaking process.

## **Funding**

- UCL has funding available through the HEIF Knowledge Exchange Fund to support research staff and students who would be interested in undertaking a placement, up to a threshold of £15,000 and subject to eligibility and certain conditions. Placement funding is not confirmed in advance and must be applied for through a competitive process once the candidate for the placement has been chosen. For more information on placement funding please contact Katherine Welch.
- Defra funding is available should the placement be extended beyond the initial four month period.
- Defra will provide funding to cover the cost of supporting senior academic time, anticipated to be at around 1 day/week for the duration of the project
- Funding may be available to cover any necessary travel as part of the delivery of the project

## **Location**

The placement will be primarily hosted at the Defra offices in central London. Some overseas travel may be required as part of the project

## **Duration**

The placement is for an initial period of 4 months with a possible extension to 6 months, starting as soon as possible.

### **Eligibility**

Policy placements are open to registered UCL staff and PhD students in the CRS portion of their programme. Candidates must be in a position to return to UCL for a period of six months following the placement to be eligible to apply. To discuss your eligibility to apply please contact Katherine Welch.

### **To apply**

Please email Katherine Welch ([k.welch@ucl.ac.uk](mailto:k.welch@ucl.ac.uk)) with:

- a cover letter explaining your suitability for the placement (max 1 page)
- a summary of how you would design and undertake the project (max 1 page)
- a short CV
- Letter of support from academic supervisor outlining their contribution to the project (max 1 page)