Policy response research brief: Trade-offs and co-benefits for on-farm climate adaptation choices

Summary

The Maximising UK Adaptation to Climate Change (MACC) Hub works across the UK to implement and build crucial evidence on the efficacy of adaptation policy and interventions. The Hub is led by King's College London and is funded by the Department of Environment, Food and Rural Affairs (Defra) and UK Research and Innovation (UKRI). Through its Policy Response Unit, the Hub is working closely with Defra and other UK government departments to coordinate a series of rapid turnaround research projects that will fill critical knowledge gaps relating to climate change adaptation.

This research brief is one of four that are currently being advertised through the Policy Response Unit. The successful candidate will be based at King's College London and will be mentored by a researcher from the MACC Hub team. They will work closely with the Agri-food Climate Adaptation Team in Defra to assess the trade-offs and co-benefits of a series of proposed adaptation actions within the agricultural sector.

Background

Food production faces risks from climate change and nature loss over the long term. Defra is taking steps to address the impacts of climate change to protect farmers and growers, and to ensure that they can make the best choices to manage climate hazards while maintaining their productivity and therefore improving food security.

The Agri-food Climate Adaptation Team is responsible for developing policy options that will adapt the agri-food system to climate change. The purpose of this work is to feed into the five-year cycle of adaptation action planning (National Adaptation Programme/NAP) required by the Climate Change Act 2008. The fourth NAP (NAP4), due to be published 2028, has been challenged to be more ambitious than its predecessor, published July 2023.

The information gained through this project will feed into policy development that will be used to help farmers and growers cope with the effects of climate change, while also meeting other government objectives.

The information will also increase on-farm resilience if it is possible to anticipate in advance that certain actions will not be supported by the UK government, due to competing objectives. By attaining multiple objectives with single actions, the government will be achieving value for money.

A joint Defra-funded project with the Met Office and ADAS (an agricultural and environmental consultancy) explored how adaptation expertise could be integrated with information on current and future climate hazard frequency to prioritise key adaptations by region and sector, generating supporting materials to encourage farmers to adapt.

One of the outputs of this work included a table of 215 adaptation actions that farmers and growers could take to manage climate hazards. For instance, farmers could graze livestock at night to cope with extreme heat or grow crops under cover to minimise the impact of heavy rainfall. The full list of adaptation actions identified in this work can be found in the annex. The original research can be found at:

- Research to assess resilience measures that support UK agriculture in adapting to drought, extreme heat, and wildfires - SCF0140
- Research to assess resilience measures that support UK agriculture in adapting to changing seasonality and extreme rainfall - SCF0141

Some of these actions would improve farmers' resilience to the effects of climate change but could also increase their overall carbon emissions. For example, a poultry farmer could install more ventilation for housed birds to manage higher temperatures, but this would increase their overall energy consumption. On the other hand, planting trees to increase shade so that grazing livestock can manage extreme heat has benefits for carbon sequestration and biodiversity. This is a co-benefit of an adaptation action. There is therefore a trade-off between adapting to climate change and meeting other environmental goals. The aim of this project is to explore in more depth these trade-offs and co-benefits, to deliver actionable information about how the adaptation actions available to the agri-food sector intersect with government net zero and land use objectives.

Key responsibilities

The MACC Hub is seeking to recruit a full-time, fixed-term postdoctoral researcher or PhD student with the specific role of carrying out this research. The successful candidate will use a structured search-and-review method to assess each of the adaptation actions listed by the Met Office/ADAS project and identify any other key trade-offs and co-benefits. The successful candidate should prioritise analysing the interactions of each of these 215 adaptations with the government's net zero and land use objectives (including demands for using the land for other purposes, such as housing). The next priority is to understand the implications for other policy goals, such as biodiversity, domestic food production and food security.

We anticipate that most of the relevant goals will come from Defra and its agencies, Department for Energy Security and Net Zero (DESNZ), and the Ministry of Housing, Communities and Local Government (MHCLG). However, this list is not exhaustive, and we would welcome approaches that enable as many relevant government department goals as possible to be considered. Defra will provide an overview and key contacts so that the researcher can gather further information.

The adaptation actions listed in the Annex define the scope of this project. The research approach should cross-reference these actions with relevant published government targets and objectives. We expect the agreed approach to combine a structured and systematic approach to desk research (e.g. by using a rapid evidence assessment methodology) and consultation, but welcome suggestions from candidates as to how they would approach the work.

In the early stages of the contract, the successful candidate will propose and agree with Defra the key government objectives to be addressed in the research, along with an initial set of criteria that are considered to be in and out of scope. For example, while the UK is committed to international collaborative targets, such as the Convention on Biological Diversity (CBD), the effect of adaptation actions on multinational collaborative goals under the CBD should be considered to be out of scope. However, where the UK has committed a target for its own individual action (such as under the UK Biodiversity Framework 2024), this can be considered to be in scope. This is an indicative example; similar screening should be applied to any other international goals of which the UK is part.

The adaptation actions identified by the Met Office and ADAS project are provided in a spreadsheet format. The main output of the research should constitute a revised spreadsheet that identifies key trade-offs and co-benefits for each action, with respect to the types of policy goals outlined above – specifically, net zero, land use objectives, biodiversity, domestic food production and food security, as well as any other goals identified by the research. An annex of supporting information should list the government objectives and targets which have been cross-referenced. The annex should identify and explain any objectives that were not considered or were deemed inappropriate for this work. The audience for this spreadsheet would be cross-government policy officials.

The successful candidate will be required to convert the findings into a policy brief and blog post, and will also be expected to present the results in the MACC webinar series and at national conferences. Any outputs will be open access and available to the public, published on the MACC Hub website as part of its working paper series. Subject to policy review and approval, the results may also be published in peer-reviewed literature. However, any government goals or objectives which are provided to inform the research but are not yet made public must not be included in a publicly accessible output.

The successful candidate will be recruited through the King's Talent Bank for approximately 80 days at Grade 6 (Research Associate / postdoctoral level). The candidate will work closely with the Agri-food Climate Adaptation Team, and will receive ongoing mentorship, including fortnightly check-ins, with a senior researcher through the MACC Hub. While the majority of the research will be carried out remotely, the successful candidate will be expected to travel to London periodically for in-person meetings and training.

The research will take place between August and November 2025. A timeline will be finalised and confirmed with the successful candidate at the start of the contract, and can be adjusted for part-time or flexible working arrangements. Failure to meet confirmed milestones without prior agreement may result in the contract being terminated.

Application process

To apply, please provide the following information in no more than five pages (see also the assessment criteria below):

- A description, using the STAR method where possible, of how you meet the essential and desirable criteria (2 pages)
- A proposed timeline and working pattern (1 page)
- A CV (2 pages)

The submission deadline is 08:00 BST on Monday 14 July. Applications should be submitted by email to MACCFlexiblefund@kcl.ac.uk with "Application for Agricultural Trade Offs research project" in the subject line. Candidates will be informed of the outcome by w/c Monday 28 July 2025, with the expectation that the successful candidate will be in role by Monday 11 August 2025.

Please email any questions or queries to MACCFlexiblefund@kcl.ac.uk

Evaluation criteria

Applications will be evaluated using the following criteria:

Essential criteria

- Currently working on a PhD, or holding a PhD, in a relevant field within the UK, or has equivalent relevant experience
- Experience of conducting literature reviews and/or desk-based research
- Proven experience of producing high-quality outputs to short deadlines
- Ability to tailor outputs and findings to non-academic audiences

Desirable criteria

- Familiarity with rapid evidence assessment methodologies
- An understanding of the policy environment in which the research is situated
- Previous experience of conducting policy-relevant or transdisciplinary research