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Project Specification - REVISED

SLURRY STORAGE ON SCOTTISH FARMS – A FEASIBILITY STUDY

Introduction

ClimateXChange[1] wishes to commission a feasibility study of the potential for promoting best practice for slurry storage as a tool to reduce greenhouse gas emissions in the Scottish livestock industry.

Background

Agriculture contributes just under one-quarter of Scotland's greenhouse gas emissions (GHG) and is the third-largest emitting sector behind energy and transport.

The Scottish Government has set statutory targets for the reduction of GHG emissions in Scotland through the Climate Change (Scotland) Act 2009. Planning for how these targets will be met are produced periodically, with the most recent report on proposals and policies being published in the draft Climate Change Plan in January 2017.

GHG emissions are inherent in all food production, and Scottish Government has prioritised the reduction of emissions from the use and storage of manure and slurry for action (CCP 14.2 - Policy outcome 4, 138). Specifically, they want to explore how emission might be reduced from slurry storage (CCP Table 14-13, 147).

Project Aim

In 2016 ClimateXChange published a *review of options for reducing GHG emissions via cattle slurry management in Scotland*. This concluded that while there were definite benefits to be gained from slurry storage options (including emissions reduction), significant challenges remain and further evidence is required.

The aim of this project is to assess the relative value of slurry storage options within the wider livestock management system and determine, which approach has greatest potential.

This will be achieved through an assessment of available evidence, through analysis of the strengths, weaknesses, opportunities and threats for the use of different forms of storage and a comparative analysis of the results. It will be framed around the total slurry management process in terms of both current farm business practice and market ready technological solutions.

[1] For more information on ClimateXChange, the Scottish Government-funded Centre of Expertise on Climate Change, see www.climatexchange.org.uk

Project Scope

It is expected that the study will take a cross-sectoral and inter-disciplinary approach. It will assess the slurry storage as part of the total system of slurry management (from cow to soil) in terms of GHG emissions reduction, and consider farm business management practice as well as the current research evidence base. It should address the following specific issues:

1. An overview of the available evidence for GHG emissions at different stages of slurry production from excreta to soil, including housing, flow process, covered/ uncovered slurry stores, transfer and spreading.
2. A SWOT analysis of market ready storage technologies, including
    a. GHG emissions reduction and risk of emissions 'swapping' (where there is a risk of reduction in one area leading to an increase elsewhere)
    b. Installation and management costs (including staff time)
    c. Skill requirements for operation and maintenance
    d. Implications of water management and dilution
    e. Implications for nutrient value as a fertiliser (compared to inorganic fertiliser application)
    f. Comparative analysis of scale for deployment
    g. Regulatory environment – challenges and potential incentives
    h. Applicability to different farm systems
3. Business receptiveness – what would incentivise – and what would prevent – farm businesses adopting these measures, including business practice, business perception/ behaviours and economic and financial risk
4. An overview of slurry as part of the wider farm system (i.e., evidence for slurry storage and spreading as an organic fertiliser with co-benefits for soil health and displacement of inorganic fertiliser application).

It is expected that the successful tender will include an inter-disciplinary project team that can demonstrate professional experience of business practice, technology and economics at a farm scale in Scotland. We recognise this project has the potential to cover extensive detail, and will require agreement of boundaries and input assumptions at any early stage.

Outputs

This project is commissioned on behalf of the Agriculture and Rural Development Division of the Scottish Government and presentation of the results should be suitable for use by policy specialists and industry stakeholders who are not expert in this scientific field.

The outputs will comprise:

1) A project report, written in plain English and following the CXC style guide[2], not exceeding 20 pages. It should comprise:
   a) an executive summary of no more than two pages, detailing the aim of the project, the value to a policy audience and the key findings
   b) a full report of the project, to include:
      i) An assessment of the value of slurry storage within the slurry management process, and a comparative analysis of available technologies in terms of GHG emissions in the context of practical application in Scottish farm business practice
      ii) Conclusions on value (is it worth it?) and applicability (which technologies work best in which circumstances?)
      iii) Appendices [to include methodology, detailed results, and reference to source material]

Project Timetable

Milestone	Completed by (date)
Project kick-off meeting, to confirm • Assumptions, boundaries and constraints for system analysis • Storage technologies to be considered • Understanding of outputs • Timetable	18 August 2017
Report on progress – with secretariat	fortnightly
Submission of draft report	10 November 2017
Steering group meeting (to explore analysis and draft decision tree)	27 November 2017
Submission of final report	22 December 2017

Project steering group

A small group, likely to include leading researchers, ClimateXChange representatives and other stakeholders, will meet with the successful bidder for project kick-off and provide feedback on draft outputs prior to finalisation.

The successful contractor will be expected to participate in at least 2 meetings (project kick off meeting and steering group at draft stage).

Day-to-day communication will be between the review team (the contractor) and CXC's project manager Sarah Govan (Sarah.Govan@ed.ac.uk) and will involve short catch-up phone calls either fortnightly or as agreed.

[2] http://www.climatexchange.org.uk/files/6214/6539/3614/CXC_report_writing_guide_2016_v2.docx.pdf

Award criteria

1.	Technical Criteria	Weight	Descriptor
2.	Understanding the research specification and the policy environment	20%	The proposal should include an introduction which demonstrates a clear understanding of the research requirements. This should include an understanding of the policy environment and the supporting role of research; the cross-sectoral nature of the project; the need for this research; the research aim; and how the proposal will address this need.
3.	Research methodology	20%	The proposal should demonstrate a high quality and workable research methodology, including how the evidence will be identified, reviewed and assessed, which will address the research objectives and produce the outputs in the timescales required. It should explain the suitability, robustness and limitations of the proposed methodology. It should detail proposed constraints, assumptions and project boundaries to ensure delivery within scope.
4.	Staff resource	15%	The proposal should • provide details of individual staff members who will work on this project and demonstrate how they will meet the project requirements, specifically: - general research experience and expertise; - specific experience & expertise in the evidence review topic; - experience and expertise in inter-disciplinary team-working to produce a coherent output • provide a commitment that named staff members will be available to work on the contract if the bid is successful. • set out the management arrangements for the project.
5.	Communication and report writing	20%	The proposal should describe the approach to writing the issues paper, which will be published on the ClimateXChange website. It should detail who will take lead responsibility for report-writing and overall report quality. It should provide examples of previously published literature or evidence reviews in which they have been involved.
6.	Quality control and assurance	15%	The proposal should provide details of quality assurance procedures to demonstrate how the contract will be continuously delivered to a high standard. It should specifically address issues of quality control at different stages of the project, including evidence gathering, analysis and report writing. It should include a timetable for delivery of tasks, project milestones and allocation of staff and staff time against each task, covering the duration of the contract.
7.	Risk	10%	The proposal should provide a risk assessment matrix detailing any risks identified in relation to the delivery of this contract, and proposed mitigation measures to minimise their probability and impact.

Submitting a proposal

Please send a brief work plan responding to the award criteria above and with deadlines, CVs for the proposed delivery team, applicable day rates, relevant research experience and the number of persondays' work proposed. Proposals need to be submitted to lee.callaghan@ed.ac.uk and cc'd to Sarah.Govan@ed.ac.uk for evaluation **by noon on Monday 24 July 2017**. Please contact Sarah Govan (Sarah.Govan@ed.ac.uk /0131 651 4322 if you would like clarification of any of the above.

The costs of proposals for this project are expected to be in the range of £20,000 (including VAT). However, ClimateXChange would welcome proposals for less than this amount. We welcome consortium bids.

You should highlight any potential conflicts of interest in your proposal. For queries about what may constitute a potential conflict of interest, please contact Sarah.Govan@ed.ac.uk

CXC Secretariat

23 June 2017