

Technology Strategy Board

Driving Innovation



Engineering solutions to enhance agri-food production

COMPETITION FOR COLLABORATIVE R&D FUNDING

JULY 2013



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Summary

The Technology Strategy Board, together with the Department for Environment, Food and Rural Affairs (Defra), the Biotechnology and Biological Sciences Research Council (BBSRC), and Scottish Government, is offering up to £13m for businesses to develop engineering solutions across the agri-food supply chain.

This competition will draw on all facets of engineering science to advance the sustainable intensification of primary agriculture, and raise product quality and process efficiency in food manufacturing. We are particularly keen to encourage engagement with sectors such as space, ICT and electronics sensors & photonics, which may not have fully recognised opportunities that exist for applying technologies throughout the agri-food supply chain.

Project proposals must be business-led and collaborative. We are primarily seeking to fund industrial research, with a business partner attracting 50% public funding for their project costs (60% for SMEs). We expect most projects to range in size from £500k to £1.5m, with the maximum total project size being around £2m. We may consider larger projects, but applicants should discuss these with us before making an application.

The CR&D competition is a two-stage process and opens on **23 September 2013**. The deadline for submitting expressions of interest is at noon on **6 November 2013**.

Background

It is widely recognised that the world's agricultural systems must increase productivity if they are to meet the food requirements of a global population predicted to grow from around 7bn today to 8.3bn by 2030. The UK population is expected to rise from 61m to 70m over the same period.

At the same time, greater affluence among consumers in emerging economies is driving demand for meat and dairy products. The World Bank estimates that global meat production has to increase by 85% and cereal production by 50% to meet food demands in 2030 (*Food and Agriculture Organization of the United Nations, 2008*). This will require better productivity from the crop and livestock sectors and increased process efficiency across the food industry.

The UK is a net importer of many foods and also substantial quantities of feed for meat and dairy production. Improving production efficiency throughout the agri-food supply chain will reduce the UK's reliance on food and feed imports and mitigate threats to security of supply, with consequent price spikes, from the combined effects of climate change and rising global demand.

The Technology Strategy Board launched the Sustainable Agriculture and Food Innovation Platform (SAF-IP) in October 2009. The SAF-IP helps UK businesses to develop innovative technologies, production systems and supply chain solutions to address these challenges and increase the productivity of the UK agri-food sector while reducing its potential environmental impact. Working closely with Defra, the BBSRC and Scottish Government, the SAF-IP will have committed more than £90m to relevant projects in the five years to 2014.

Challenge

Achieving the sustainable intensification of agriculture – increasing yields without adversely affecting the environment or having to cultivate more land – represents a cross-disciplinary challenge. Precision agriculture provides opportunities to increase agricultural productivity through more accurate and efficient crop and livestock production systems. Employing engineering solutions to increase

precision and efficiency in the food processing and retail environment can also help to improve the economic and environmental sustainability of food production to the point of purchase, even reducing waste in the home.

Much of the UK engineering base for agriculture has become fragmented over past decades, with engineering businesses importing technologies rather than maximising the UK's R&D and manufacturing capabilities. Applying technologies such as satellite positioning systems and remote sensing devices can enhance decision-making in the field to increase yields and improve precision and efficiency in crop and livestock systems.

With real-time monitoring, these technologies can optimise the delivery of inputs such as fertilisers, crop protection products and irrigation, so reducing the cost and potential environmental impact of agricultural production. In this context we are particularly keen to help companies in the space, ICT and electronics, sensors & photonics sectors establish new collaborations with the agricultural community. Engineering technologies such as automation or robotics can also increase product quality, enhance manufacturing efficiency and reduce waste in the food sector.

This competition provides opportunities for UK businesses to develop innovative technologies, equipment, hardware and software that can be used to increase efficiency, reduce waste and cut emissions throughout the agri-food supply chain.

Scope

The scope of this competition includes the application of engineering solutions from primary production to the food processing and manufacturing environment. Proposals can include software engineering and information technologies, where they represent an essential component of an engineering project.



Projects that address non-food crops or the engineering of biological systems are out of scope.

We are seeking to attract business-led projects which will:

- enhance efficiency in use of resources in crop, livestock (including aquaculture) and food processing environments
- maximise marketable yield and profit potential
- minimise potentially negative environmental impacts associated with food production.

The scope is relatively wide and will include the application of engineering technologies relevant to all food crop and livestock production systems, including aquaculture. Examples relevant to primary production may include, but are not limited to:

- all mechanised equipment for crop establishment, harvest and storage
- versatile application equipment for seeds, fertilisers and crop protection products
- soil and water management, including efficient irrigation or application technologies
- advances in crop mapping and recording equipment
- biotic and abiotic stress monitoring/assessment technologies in crop systems
- health and wellbeing monitoring/assessment technologies in livestock systems
- engineering solutions for pest and disease control
- crop storage and post-harvest quality control of raw materials
- animal feed manufacture, storage and use
- livestock handling and management equipment including housing and monitoring technologies – using physical and 'virtual' solutions

- integrated approaches to increase system compatibility
- all relevant precision agriculture technologies.

Examples relevant to the food processing and manufacturing environment may include, but are not limited to:

- process intensification
- robotics and automation
- the scaling-down of processes for distributed manufacture/ late customisation of products
- low-energy and/ or low-water processes
- optimisation of cutting/ slicing and data return to improve production efficiency
- wet processing/ late stage processing
- storage, distribution and retail technologies.

Funding allocation and project details

We have allocated up to £13m to fund CR&D projects that are within the scope of this competition.

We are primarily seeking to fund industrial research, with a business partner attracting 50% public funding for their project costs (60% for SMEs). We are inviting projects that range in size from £300k to £2m, although we anticipate that most projects will exceed £500k in total costs. Larger projects may be considered, but any project above £2m needs to be discussed with us before an application is made.

Projects must be business-led and collaborative. They can involve business-to-science or business-to-business collaborations. Academics can apply only as a partner in a consortium, and their costs must be no greater than 30% of the total project costs, meaning that at least 70% of the project costs will be incurred by the business partner(s).

Looking for partners to work on your project? Go to **_connect** (<https://connect.innovateuk.org/home>) to find collaborators and networks.

CR&D projects should typically last no more than three years (up to five years in exceptional cases and by prior agreement). Applicants must establish relationships with appropriate experts, such as crop and livestock specialists, farmers, academics, and manufacturers of electronic sensors and photonics systems, to ensure that project proposals are in scope and any resulting product or service is fit for purpose. These experts can be consortium members, sub-contractors or advisers.

Applications are assessed on individual merit by an independent panel of experts. We may apply a portfolio approach across the different subject areas that this competition covers, subject to applications reaching the required quality threshold.

The final number of projects to be funded is flexible, depending on the size of projects, the final percentage of funding and the overall co-funding available. Full definitions of eligible research categories can be found in the *Guidance for Applicants*; for this competition we expect that most applications will focus on industrial research.

To find out whether your business fits the EU definition of an SME, see: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm.

NB the funding rules for projects changed in September 2012. For general guidance on how projects are now funded see: <http://www.innovateuk.org/-/funding-rules>



Application process

This CR&D competition is a two-stage process, in which applicants must first submit an expression of interest, before shortlisted candidates are invited to submit a full written application.

The competition opens on **23 September 2013**, and applicants must register by noon on **30 October 2013**. The deadline for expressions of interest is noon on **6 November 2013**.

Further information is available in our *Guidance for Applicants* (see the Competitions section of our website, at www.innovateuk.org). A briefing webinar will be held on **1 October 2013** to highlight the main features of the competition and explain the application process. **Applicants are strongly recommended to take part.**

The Biosciences, Electronics Sensors and Photonics, and Environmental Sustainability Knowledge Transfer Networks will be providing further information and support

Key dates

Competition opens	23 September 2013
Applicant briefing day	1 October 2013
Registration deadline	Noon on 30 October 2013
Deadline for expressions of interest	Noon on 6 November 2013
Stage 2 opens for applications	25 November 2013
Deadline for Stage 2 applications	Noon on 15 January 2014
Applicants informed of Stage 2 results	28 February 2014

for this competition, as well as offering assistance with consortium-building workshops. See <https://ktn.innovateuk.org> for further information.

Note that ALL deadlines are at noon

More information

To apply for this competition you must first register with us. You can do this by going to the web page for this competition at **www.innovateuk.org** under Competitions. When you register you will get access to all the supporting information you need to read before you apply, including the *Guidance for Applicants* and the application form.

Competition Helpline:
0300 321 4357

Email:
competitions@innovateuk.org

Publicity

As part of the application process all applicants are asked to submit a public description of the project. This should adequately describe the project but not disclose any information that may impact on intellectual property, is confidential or commercially sensitive. The titles of successful projects, names of organisations, amounts awarded and the public description will be published once the award is confirmed as final. Information about unsuccessful project applications will remain confidential and will not be made public. E-mail pressoffice@tsb.gov.uk with any queries.

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

Collaborative research and development is part of the Government's Solutions for Business portfolio.

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