

Results of competition: Agri-Tech Catalyst - Early stage - round 4

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Selex ES; SOYL	Feasibility study to develop technology for predicting wheat yield	£460,085	£207,037
Project description - provided by applicants			
<p>The collaborative project between Selex ES and SOYL will test the feasibility of developing new technology for predicting wheat yield using a wide range of data including; remotely sensed information describing the crop and soil. The project is highly innovative as it seeks to produce the first commercially viable yield prediction service that not only predicts yield, but also to identify the key factors expected to limit yields. New applications for remote sensing technologies will be developed and innovative techniques for integrating a wide range of data types will be employed. The ultimate goal of this initiative is to produce a decision support tool that enables more efficient operating practices for a wide range of clients within the wheat industry.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
University of Nottingham; Dunbia; Farm Wizard	Development and validation of a system for automatic detection of lameness in sheep	£391,906	£242,492
Project description - provided by applicants			
<p>This project seeks to address the challenge of sheep lameness, a predominant cause of both poor productive and reproductive performance on sheep farms costing industry around £80 Million /yr. Lameness control relies on early detection and treatment of lame sheep yet there are no suitable /optimal tools for lameness detection. The project proposes to develop and test validity of a system for automatic lameness detection in sheep.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
GALVmed; CTTBD (Malawi); Arecor Ltd	Vaccine Diluent Improvement for ECF-ITM	£267,697	£195,678
Project description - provided by applicants			
<p>This project represents a unique opportunity to translate British technology and expertise from the human health sector into livestock disease control in the developing world context. The project focuses on East Coast Fever (ECF), a major constraint on small-holder cattle production in East, Central and Southern Africa. An effective vaccine, ECF-ITM, currently exists for the disease but it has a number of important drawbacks that affects its use in the field. This project will trial the use of novel formulations as a replacement for the ECF-ITM vaccine diluent. Success in the project will deliver important ECF-ITM vaccine product enhancements, notably vaccine stability. This will afford far greater mobility and flexibility to ECF vaccinators resulting in an estimated 300,000 additional cattle being effectively immunised per year. This will be a notable development in the sustainable intensification of small-holder cattle production in the region.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Rothamsted Research; Seed-Co Ltd	Aphid resistant wheat for the smallholder farmer in Africa	£237,723	£94,932
Project description - provided by applicants			
<p>Seed-Co are the largest seed company in Africa, operating in 13 countries in Eastern, Central, Western and Southern Africa and have developed varieties suitable for different environmental conditions as well as for the smallholder farmer, therefore any pest resistance traits will benefit farmers in Africa and further afield. Smallholder farmers face difficult challenges in protecting their crops against pests and diseases in these countries. Aphid pests can cause severe damage and yield losses to wheat. This project will identify wheat lines which show resistance to aphids, which can be bred into wheat varieties suitable to be grown in rain-fed, low-potential environments, thereby safeguarding the yield of smallholder farmers and reducing the reliance on expensive and environmentally unfriendly pesticides. By doing this we hope to contribute to the food and income security of the African smallholder farmer.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Russell IPM Ltd; Russell IPM Bangladesh Ltd; Bangabandhu Sheikh Mujibur Rahman Agricultural Uni; East Malling Research; Natural Resources Institute, University of Greenwich	Application of General Repellents against Agricultural Pests	£325,845	£244,301
Project description - provided by applicants			
<p>General semiochemical repellents are widely used for protecting humans and livestock from attacks by arthropod pests in developing and developed countries, but they have been little explored or used for crop protection. The aim of this project is to prove the concept that volatile, repellent chemicals can be used to reduce the damage caused to agricultural crops by a range of insect pests. This could provide a widely-applicable new approach to management of crop pests that reduces the use of conventional pesticides and is compatible with integrated pest management and sustainable agricultural intensification. The approach is applicable in both developed and developing countries. The project will be a collaboration between a UK SME, Russell IPM, two UK research institutes, East Malling Research and the Natural Resources Institute, and an SME, Russell IPM Bangladesh, and university, Bangabandhu Sheikh Mujibur Rahman Agricultural University, in Bangladesh</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Moredun Research Institute; Benchmark Animal Health Ltd.	Pan-specific vaccine to control Streptococcus agalactiae disease in tilapia aquaculture	£352,211	£254,607
Project description - provided by applicants			
<p>As the world population grows and becomes more affluent, an increasing number of people include protein in their diet. Aquaculture is the fastest growing source of animal protein and a major source of income in Asia, South-America and Africa. Tilapia is a popular fish, both with farmers and consumers, but disease can cause massive losses on tilapia farms. Streptococcus agalactiae, which can affect tilapia as well as people, is a major cause of such losses. Currently, antibiotics are commonly used to combat this problem. This is not sustainable because of the risk of antimicrobial resistance. As an alternative, we propose to develop a vaccine that would protect fish from all types of S. agalactiae that affect them. This project brings together scientific expertise in the area of fish disease and vaccine development and commercial expertise in vaccine production and distribution. Jointly, the partners aim to provide the global aquaculture industry with effective and affordable tools for sustainable disease control.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Berry Gardens Growers; Real IPM; East Malling Research; University of Greenwich	Early attractants for the major new fruit pest, <i>Drosophila suzukii</i> ; a 'super lure'.	£211,186	£ 158,498
Project description - provided by applicants			
The UK fruit industry is under continual pressure from the introductions of non-native pests and diseases. This project will aim to better monitoring and time pesticide application against a highly damaging soft and stone fruit pest, <i>Drosophila suzukii</i> . It will achieve this by developing a more species specific attractant for future use in monitoring traps and, eventually, control technologies.			

Innovate UK

Results of competition: Agri-Tech Catalyst Industrial - round 4

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Mondelez UK R&D Limited, Tree Global Ghana Limited, Cocoa Research Institute of Ghana	Cocoa Farm of the Future	£2,218,531	£856,906
Project description - provided by applicants			
<p>Without cocoa there is no chocolate and without the next farming generation, there is no cocoa. A vibrant cocoa supply chain is essential for the future of chocolate and - through the Mondelez Cocoa Life sustainability programme - we are leading its transformation. As part of the programme, Mondelez UK R&D Limited is leading a project to transform the way cocoa is grown and dramatically boost farm yields and farmer incomes. By implementing this project in Ghana we are seeking to directly improve farming practices and technologies for the benefit of many thousands of Ghanaian cocoa producers and to ensure that high-quality Ghana cocoa continues to be the foundation ingredient in some of the UK's best loved chocolates, like Cadbury Dairy Milk.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
British Polythene Industries plc, Haygrove Tunnels Ltd, Berry Gardens Ltd, Finlays Horticulture (Kenya) Ltd, A. Schulman Inc Ltd, The University of Reading, The University of Lincoln, East Malling Research	Third Generation Polyethylene Greenhouse Cladding Materials	£1,536,799	£1,003,393
Project description - provided by applicants			
<p>This project will develop a range of novel, third generation, greenhouse film cladding materials. The films will be spectrally modified to drive completely passive benefits to primary greenhouse grower worldwide. We will modify materials to change their UV transmission, the scattering of photosynthetically active radiation and to reflect near infra red heat. The benefits targetted will include yield and quality gains, the reduction of solar heat load and potential reductions in pest incidence. For primary producers the technology is low cost, and small production gains will justify investment in the technology. In terms of film manufactuers the global market for specific greenhouse film is worth c. £1.4bn. However, it has a low level of product differentiation. Thus, innovations within this project have real potential to secure significant sales and export opportunities.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Terravesta Assured Energy Crops, Bell Brothers Nurseries, Edwards Farm Machinery, Abersystwyth University, Nutriss, CERES	MUST: Miscanthus Upscaling Technology	£1,832,942	£1,278,692
Project description - provided by applicants			
<p>The UK needs to reduce CO2 emissions in order to mitigate climate change, and green technologies will also stimulate economic activity. Bioenergy crops provide an alternative to fossil fuels, where wood, straw and other biomass is burnt in power stations, in order to generate electricity. 75% of the biomass we burn is imported. Miscanthus is a plant with a straw-like stem that grows 2-3 metres high in a year, is harvested in spring and grows back from the roots to produce a crop each year. The harvested crop is burnt in power stations. It grows well on land that is not suitable for food crops. The current method for planting Miscanthus is from sections of root dug up from other Miscanthus plants, but this limits how much we can plant each year. Planting Miscanthus seed would allow us to speed up deployment. This project aims to understand how to produce Miscanthus seed, plant and look after it successfully, and harvest it effectively, so we can grow more of the crop in the UK and create a new industry.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Greengage Lighting Ltd, University of Cambridge, Cramasie Ltd, 2 Sisters Food Group, Campden BRI, CASI Everysite (TLR Ltd)	BirdEase: An integrated diagnostic system for bacterial detection in poultry farms	£1,094,192	£698,405
Project description - provided by applicants			
<p>There is increasing pressure within the poultry industry to improve biosecurity measures & cleanliness in primary production; advanced diagnostics for early disease detection are high on the agenda. In response to this specific industry need, this project will develop an integrated on-farm early-warning bacterial sensing system for Intensive Poultry Production Systems, targeting key foodborne disease pathogens prevalent in poultry meat: Campylobacter, E.coli & Salmonella. The proposed innovation integrating sample collection, chemical-free enrichment, acousto-optic detection & seamless user presentation, is enabled only by the inter-disciplinary convergence of leading agri-scientists & engineers with poultry producers & industry informers. The overarching objective is to enable earlier decision making by producers to instigate preventative control measures that minimise downstream cross-contamination, thereby decreasing foodborne disease incidence within the supply chain</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Scaloptech Limited, Portland Oystermen Limited	Aquaculture of the Great Scallop: Field tests for rope- growing techniques	£124,453	£56,003
Project description - provided by applicants			
<p>The project concerns field testing of rope growing methods for aquaculture of the great scallop in the UK. The project will test variables affecting productivity of rope growing techniques in order to (i) prove that it is a viable mode of production for large scale commercial application; (ii) demonstrate the advantages of rope growing over current scallop aquaculture practices; and (iii) to optimise methodology for the implementation of the technique. The output of the project is intended to be data and know-how which will form the basis of a model to generate funding for commercial exploitation of such methods.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
The Scotch Whisky Research Institute, Rothamsted Research, Limagrain UK	Novel low viscosity wheats for distilling	£130,836	£77,371
Project description - provided by applicants			
<p>A new collaboration between industry and academics has been funded which aims to utilise a novel non-GM approach to improve a major UK crop. The project, which involves Rothamsted Research and two industrial partners, The Scotch Whisky Research Institute and Limagrain UK, will run from 2015-2018. A successful outcome will demonstrate the potential to greatly accelerate development of novel varieties of crops for different end uses.</p>			

Innovate UK

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The National Lobster Hatchery, University of Exeter, Westcountry Mussels, CEFAS, Falmouth University	Lobster Grower 2 - Assessing the technical, economic and environmental potential for a novel candiadate	£2,926,280	£2,049,058
Project description - provided by applicants			
<p>Support from the Agri-tech catalyst has been secured for a 36 month project, addressing fundamental food security challenges by examining novel angles to expand aquaculture; to include a species not currently exploited, the European Lobster. This species commands the highest value (by volume) of any species landed in the UK and exhibits a significant supply deficit. Sea based culture, in containers (SBCC) exhibits the potential for a low carbon form of rearing with no feed costs. The project will use containers specifically designed for the species, developed in an early stage project, to assess performance and develop holistic application of SBCC systems. The project will run a pilot scale lobster farm to gather practical, operational, environmental, biological, engineering, economic and social data that can be used to develop an essential tool to encourage and inform future investment. The consortium will be led by the National Lobster Hatchery and consists of two SME's, two HEI's and a Government Agency.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Crop: Plant Breeding and Genomics, Aberystwyth University	Germinal Holdings	£1,158,252	£813,885
Project description - provided by applicants			
<p>A major challenge facing the UK livestock centre is the need to fulfill the increasing demand for meat and milk products whilst reducing the environmental impact of production. This project will apply innovative plant genetics and breeding approaches to the development of improved varieties of perennial ryegrass and white clover with increased nutrient use efficiency (NUE) delivery environmental and economic benefits to primary producers and wider society. It will also deliver commercial return to the seed company germinal Holdings Ltd., who will market the improved varieties. The project will use the National Plant Phenotyping Centre in Aberystwyth as a bridge between studies in flowing solution culture and in the field and to develop high throuput technologies for the effective screening of new plant varieties with improved NUE in the glasshouse and in the field.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
British Limousin Cattle Society Ltd (BLCS) Scotland's Rural College (SRUC)	Improving female fertility and calf survival in the UK beef industry	£189,261	£130,967
Project description - provided by applicants			
<p>Fertile suckler beef cows and low calf mortality are essential for profitable beef production systems. To improve cow fertility and calf survival national data will be used to develop genomic breeding values for fertility and survival. Genomic selection is a novel breeding tool which increases the rate of genetic improvement for traits that have traditionally been difficult to improve, like fertility and survival. As a result the overall efficiency of the UK beef industry can be improved as cows will be more fertile and produce more calves in their lifetime and more calves will survive. This will increase production, but just as important do it in a sustainable way that ultimately will reduce the greenhouse gas emissions per kg beef produced. This project is innovative as beef genomics is still in its infancy and there are currently no breeding tools available for the genetic improvement of survival.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Syngenta, AGCO Limited, AGCO Zambia Limited, University of Southampton, University of Aberystwyth	Benchmark Scenario Planning in Primary Production: Creating Sustainable Change	£919,750	£584,086
Project description - provided by applicants			
<p>Across the world we face growing issues of food security and nutrition. Agri-science is one of the eight great technologies where the UK can link research strength to practical application to farming practices and the food industry.</p> <p>This project focuses on improving outcomes in primary production, and hence food security, by using advanced technologies to facilitate efficiency benchmarking for both productivity and environmental performance. The hypothesis we will investigate is that historic data patterns can be used to support farmers' decision making, a positive impact on global food security in a sustainable way. High resolution data measurements will be evaluated in large scale and smallholder agriculture at locations in Zambia and the UK. Syngenta, AGCO, the University of Aberystwyth and the University of Southampton are working with other academic and international development organisations to deliver the project.</p>			

Innovate UK

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Tropical Animal Genetics Private Limited (TAG) University of Edinburgh	Building Genomic Breeding Pyramids For Indian Cattle	£2,682,769	£1,912,144
Project description - provided by applicants			
<p>The objective is to increase the incomes of resource-poor, including landless, dairy farmers in India by establishing a process of continuing genetic gain. This will be achieved by developing a breeding pyramid to offer routinely to farmers first-cross heifers between Holstein and Sahiwal. This will be achieved through two innovations: the first, to establish specialist producers of heifer calves produced following embryo transfer; the second, to use DNA technology to establish reciprocal recurrent genomic selection (RRGS) for both Holstein and Sahiwal parents to maximize the productivity of the crossbred. This will capture in a sustainable structure the hybrid vigor in productivity of the crossbred in both yield and fitness for the production environment. The direct benefits will be obtained by the women of the household as they are typically responsible for the dairying activity and receive the income from it. In addition the scheme will diversify the sector and secure the indigenous breed resources.</p>			