Innovate UK

Results of Competition: Agri-Tech Catalyst - Industrial Research - Round 4
Competition Code: 1501_CRD2_SAF_AGCATIR4

Total available funding for this competition was £9.5M from BIS Industrial Strategy, DFID and BBSRC

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Mondelez UK R&D Ltd Tree Global Ghana Ltd Cocoa Research Institute of Ghana	Cocoa Farm of the Future	£2,218,531	£856,906
Project description - provided by applicants			
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.			

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British Polythene Ltd Haygrove Ltd Berry Gardens Growers Ltd Finlays (Horticulture) Kenya Ltd A. Schulman Inc Ltd University of Reading University of Lincoln East Malling Research Ltd NIAB	Third Generation Polyethylene Greenhouse Cladding Materials	£1,536,799	£1,003,393

Project description - provided by applicants
The global market for horticultural greenhouse films is £1.4bn per annum and is forecast to grow by6% p.a. until at least 2020. BPI sales of horticulture greenhouse materials are in the order of £21mp.a.; this represents a global market share of 1.6%. The BPI target growth is 15% per annum for the 5years post project, on this basis BPI will see sales growth of £37m over the year 5 period (afterdeducting general market growth). On this basis, the BPI global market share would increase to 2.1%by the end of the period. This is a modest market share growth expectation. Assuming a project costof £1.4m this would represents a sales to project cost gearing ratio of 26:1. Sales are likely to besignificant as the sector is now highly commoditised and the novel materials will deliver clear andsubstantial benefits to growers, including yield (c. +10%) and crop quality increases, as well thepotential to reduce manual labour (reduced ventilation of fruit tunnels via IR reflection). Any means toreduce the reliance on manual labour will be a significant benefit to growers. A significant benefit ofdriving yield and quality via greenhouse films is that the environmental impacts are almost entirelypassive; in fact increasing yield per unit area can reduce environmental impacts as fewer chemicalsare required per unit area, and a lower tonnage of film per unit of production. There will also behighly significant benefits to Schulmans in terms of master batch sales. Haygrove Tunnels will benefitin terms of the added value from film and novel tunnel sales. As well as production benefits, BerryGardens and Finlay's will benefit from having a 3 year lead on the development of novel technologywhich could underpin greenhouse productions systems for a considerable time in the future. Theremay be significant opportunities to extend patent developments into other industrial sectors, there isconsiderable interest in IR reflective materials for building heat control (reducing air conditioningloads).

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Terravesta Assured Energy Crops Ltd Bell Brothers Nurseries Ltd Edwards Farm Machinery Ltd Aberystwyth University Nutriss Ltd CERES	MUST: Miscanthus Upscaling Technology	£1,832,942	£1,278,692
Project description - provided by applicants			
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.			

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Greengage Lighting Ltd University of Cambridge Cramasie Ltd 2 Sisters Food Group Ltd Campden BRI (Chipping Campden) Ltd T. L. R. Ltd Hudson & Sanders Ltd	BirdEase: An integrated diagnostic system for bacterial detection in poultry farms	£1,094,192	£698,405

Project description - provided by applicants

There is increasing pressure within the poultry industry to improve biosecurity measures & cleanliness inprimary production; advanced diagnostics for early disease detection are high on the agenda. Inresponse to this specific industry need, this project will develop an integrated on-farm early-warningbacterial sensing system for Intensive Poultry Production Systems, targeting key foodborne diseasepathogens prevalent in poultry meat: Campylobacter, E.coli & Salmonella. The proposed innovationintegrating sample collection, chemical-free enrichment, acousto-optic detection & seamless userpresentation, is enabled only by the inter-disciplinary convergence of leading agri-scientists & engineerswith poultry producers & industry informers. The overarching objective is to enable earlier decisionmaking by producers to instigate preventative control measures that minimise downstream cross-contamination, thereby decreasing foodborne disease incidence within the supply chain.

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Scalloptech Ltd Portland Oystermen Ltd	Aquaculture of the Great Scallop: Field tests for rope-growing techniques	£124,453	£56,003
Project description - provided by applicants			
The project concerns field testing of rope growing methods for aquaculture of the great scallop in theUK. The project will test variables affecting productivity of rope growing techniques in order to (i) provethat it is a viable mode of production for large scale commercial application; (ii) demonstrate theadvantages of rope growing over current scallop aquaculture practices; and (iii) to optimise methodolgyfor 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 suchmethods.			

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The Scotch Whisky Research Institute Rothamsted Research Ltd Limagrain UK Ltd	Novel low viscosity wheats for distilling	£130,836	£77,371
Project description - provided by applicants			
A new collaboration beween 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 twoindustrial partners, The Scotch Whisky Research Institute and Limagrain UK, will run from 2015-2018. Asuccessful outcome will demonstrate the potential to greatly accelerate development of novel varietiesof crops for different end uses.			

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The National Lobster Hatchery University of Exeter West Country Mussels of Fowey Centre for Environment, Fisheries & Aquaculture Science (CEFAS) Falmouth University	Lobster Grower 2 - Assessing the technical, economic and environmental potential for a novel candidate aquaculture species.	£2,926,280	£2,049,058
Project description - provided by applicants			
Support from the Agri-tech catalyst has been secured for a 36 month project, addressing fundamentalfood security challenges by examining novel angles to expand aquaculture; to include a species notcurrently exploited, the European Lobster. This species commands the highest value (by volume) of anyspecies 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 containersspecifically designed for the species, developed in an early stage project, to assess performance anddevelop holistic application of SBCC systems. The project will run a pilot scale lobster farm to gatherpractical, operational, environmental, biological, engineering, economic and social data that can be usedto develop an essential tool to encourage and inform future investment. The consortium will be led bythe National Lobster Hatchery and consists of two SME's, two HEI's and a Government Agency.			

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Germinal Holdings Ltd Aberystwyth University	Application of innovative plant breeding and phenotyping technologies to reduce the nutrient requirement of forages and improve livestock production efficiency	£1,158,252	£813,885
Project description - provided by applicants			
A major challenge facing the UK livestock centre is the need to fulfill the increasing demand for meatand milk products whilst reducing the environmental impact of production. This project will applyinnovative plant genetics and breeding approaches to the development of improved varieties ofperennial ryegrass and white clover with increased nutrient use efficiency (NUE) delivery environmentaland economic benefits to primary producers and wider society. It will also deliver commercial return tothe seed company germional Holdings Ltd., who will market the improved varieties. The project will usethe National Plant Phenotyping Centre in Aberystwyth as a bridge between studies in flowing solutionculture and in the field and to develop high throuput technologies for the effective screening of newplant varieties with improved NUE in the glasshouse and in the field.			

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British Limousin Cattle Society Ltd 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			
Fertile suckler beef cows and low calf mortality are essential for profitable beef production systems. Toimprove cow fertility and calf survival national data will be used to develop genomic breeding values forfertility and survival. Genomic selection is a novel breeding tool which increases the rate of geneticimprovement for traits that have traditionally been difficult to improve, like fertility and survival. As aresult the overall efficiency of the UK beef industry can be improved as cows will be more fertile andproduce more calves in their lifetime and more calves will survive. This will increase production, but justas important do it in a sustainable way that ultimately will reduce the greenhouse gas emissions per kgbeef produced. This project is innovative as beef genomics is still in its infancy and there are currently nobreeding tools available for the genetic improvement of survival.			

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Syngenta Ltd AGCO Ltd AGCO Zambia Ltd University of Southampton Aberystwyth University	Benchmark Scenario Planning in Primary Production: Creating Sustainable Change	£919,750	£584,086

Project description - provided by applicants

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.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.

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Tropical Animal Genetics Private Ltd University of Edinburgh	Building Genomic Breeding Pyramids For Indian Cattle	£2,682,769	£1,912,144
Project description - provided by applicants			
The objective is to increase the incomes of resource-poor, including landless, dairy farmers in India byestablishing a process of continuing genetic gain. This will be achieved by developing a breeding pyramidto offer routinely to farmers first-cross heifers between Holstein and Sahiwal. This will be achievedthrough two innovations: the first, to establish specialist producers of heifer calves produced followingembryo 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 willcapture in a sustainable structure the hybrid vigor in productivity of the crossbred in both yield andfitness for the production environment. The direct benefits will obtained by the women of thehousehold as they are typically responsible for the dairying activity and receive the income from it. Inaddition the scheme will diversify the sector and secure the indigenous breed resources.			

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