Innovate UK

Results of Competition: Newton Brazil 2015
Competition Code: 1509_LP2_UK_NEWTBRAZ

Total available funding for this competition was £2M from Innovate UK

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
Ymgynghorwyr Lisk & Jones Cyf Sentomol Ltd Hockley International Ltd Rainbow Professional Ltd Bangor University University of Greenwich East Malling Research	Reduced pesticide contamination of groundwater	£399,259	£311,357

Project description - provided by applicants

Contamination of water supplies due to pesticide run-off is a major problem in Brazil. This is particularly severein cotton-growing areas because of the large amounts of pesticide used against insect pests such as the bollweevil. Furthermore, the cost of pesticides required has lead to a halving of the area of cotton grown with aconsequent loss of income for farmers, particularly in the poorer North East of the country. This project bringstogether UK and Brazilian commercial and academic partners with the aim of developing a lure-and-killtechnology for control of boll weevil and other pests. This contains a pheromone to attract specifically thetarget pest and a low loading of insecticide or biopesticide to kill it. The devices will be constructed of novelbiodegradable polymers so that they are simple and cheap to manufacture and deploy and do not need to becollected in at the end of the season. The devices will be field tested in Brazil and registered by the Brazilianpartners. Their use should greatly reduce the amount of insecticide applied to cotton and give reducedcontamination of groundwater, better and cheaper pest control and improved livelihoods for cotton growers.

Note: you can see all Innovate UK-funded projects here
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Oxford Lasers Ltd	LASTEC-Laser surface texturing of compressor's mechanical components: Increasing energy efficiency by improved tribological performance	£354,388	£248,072

Project description - provided by applicants

Project LASTEC (Laser Surface Texturing of Compressor's Mechanical Components: Increasing Energy Efficiency by Improved TribologicalPerformance) involves innovation and optimisation of an advanced laser-based manufacturing process aimed at diminishing powerconsumption on refrigeration systems. The project is aligned with the 'Energy' theme of the SENAI-SESI / Innovate UK competition,more specifically, with the topic 'optimization of manufacturing processes to diminish power consumption'. Thus, the project aims atdeveloping a dry, solvent free environmentally friendly, one-step process, using flexible and efficient laser surface texturing forcompressor's mechanical components. This will increase significantly the compressor energy efficiency, reduce its power consumptionand extend its lifespan for countless household and commercial refrigeration systems in Brazil and in the world. The laser-based processis expected to improve the tribological performance of the mechanical components by creating textures capable of reducing the frictioncoefficient (friction forces) between the compressor's mating and reciprocating surfaces. To develop the project, EMBRACO, the globalleader in manufacturing of hermetic compressors, will join forces with the SENAI Innovation Institutes (ISI-Laser, ISI-SM and ISI-Eng.SuperfÃ-cies) as well as Oxford Lasers Ltd, a 40 years old UK based company working on the design and manufacture of custom turnkeylaser micromachining systems for advanced manufacturing and R&D activities.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
KEE Process Ltd De Montfort University	Novel UV-assisted catalytic process for the treatment of Brazil wastewater and reuse	£399,768	£287,768
Project description - provided by applicants			
In 2007, per capita water availability in Brazil reached 43,027 m3 per year, above the world average of 8,209m3 per capita in the same year. However the distribution is very uneven with major Coastal cities such as Riode Janeiro, SÃ£o Paulo and Recife suffer effects of upstream residential and industrial sewage contaminatingfeeder rivers, lakes, and the ocean. In 2000, only 35% of collected wastewater received any treatment. Thisproject is the development and roll-out of a ost effective, low energy UK innovative technology solution towastewater treatment and water reuse to an established Brazilian Wastewater treatment company. Thetechnology to be developed is to add UV assistance to a catalytic mesh oxidation process in a novel reactordesign to degrade recalcitrant pollutants, e.g. surfactants, petrochemicals and pesticides. Environmentallyfriendly hydrogen peroxide is used at room temperature in the process to oxidise pollutants to harmlessbiodegradeable organic acids or carbon dioxide and water. Treatment duration will be optimised to meet therequirements of the specific water reuse.			

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Twincon Ltd University of Sheffield	Re-use of waste tyre fibres in concrete construction	£399,779	£287,819
Project description - provided by applicants			
The Brazilian construction industry consumes about 32,750 tonnes of steel and polymer fibres every year foruse in concrete as a reinforcement or admixture. Meanwhile, an estimated 24,836 tonnes of steel wire andpolymer fibre are recovered annually from end-of-life tyres as by-products of tyre recycling. These materialsare agglomerated with a high rubber content and cannot be reused in their current state and usually end up inlandfill. In the UK, Twincon Ltd in partnership with the University of Sheffield has developed techniques and aunique facility that turns low value tyre wire into a high value product to replace virgin steel fibrereinforcement in concrete. This project aims to transfer and adapt this technology to Brazil, and to undertakeresearch to allow similar techniques to be developed for the reuse of tyre polymer fibre. This project will allowthe adoption of more sustainable construction practices, will impact positively on the environment and on thehealth and safety of workers employed in the tyre recycling industry, significantly reduce the use of virgin rawmaterial and create wealth and jobs for the Brazilian people.			

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Econotherm (UK) Ltd Brunel University London	Erva Mate Drying	£327,684	£258,110
Project description - provided by applicants			
The proposed project will use UK technology to develop equipment to be used by the Brazilin Mate teaindustry. Current practice utilises wood smoke in direct contact with the tea during the drying process. This hasthe potential for contamination of the tea and also exposes the workers to the smoke. The solution beingdeveloped will still use waste products from tea growing to generate the heat, but will use this to heat airwhich will then be used in the drying process, transferring the heat from the smoke to the clean air using heatpipe technology.			

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Entocycle Ltd Cranfield University WWF-UK	Insect Based Protein Production	£398,926	£308,143
Project description - provided by applicants			
This project aims to address the challenges of increasing rates of waste production, high demand for food andgrowing pressures on Brazil's farming land through an innovative efficient recovery of high value compoundsusing Hermetia illucens (Black Soldier Fly). Its objective is to provide a process to transform organic waste intoproteins and lipids which is lean, economically feasible and reproducible at different scales. The technology willbe applied primarily to animal feed with the prospect of expanding into other sectors such as cosmetics, paintsand lubricants. Results of this project will contribute to establishing large scale rearing of H. illucens throughthe development of organic residue processing strategy and sustainable product recovery using closed loopprocesses in 'mild' conditions. The project will combine the knowledge capacity of the UK with practicalexperience and favourable legislative conditions in Brazil to understand the scalability of H. illucens rearing.Knowledge gained will be used to develop the partners' operations and engage further partners includingBrazilian farmers and small businesses, contributing to Brazil's economic development and citizens' welfare.			

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