



EXECUTIVE SUMMARY

Sustainable Agriculture Research and Innovation Club (SARIC)

The Biotechnology and Biological Sciences Research Council (BBSRC), Natural Environment Research Council (NERC) and Economic and Social Sciences Research Council (ESRC), established SARIC in 2014 to encourage increased engagement in the UK research base with the challenges surrounding the sustainability of agriculture.

In partnership with a consortium of leading companies with an interest in agriculture, over £10M will be awarded to enable high quality research and translation activities in UK universities and research institutes. Our investments will enhance the efficiency, productivity and sustainability of the UK crop and livestock sectors.

SARIC was formed following consultation with trade associations, levy boards, policy makers and academia. The discussions identified a need to bring together researchers from the environmental and biological sciences with industry, to translate knowledge for the purpose of progressing towards more sustainable agricultural systems.

Introduction

A rapidly increasing global population, climate change and the competition for dwindling resources are putting global food security under increasing threat. The Research Councils recognise the importance of these challenges for the UK and are committed to working together in partnership through the UK Global Food Security Programme: www.foodsecurity.ac.uk/about.

The agricultural industry has a significant impact upon the UK's economy and environment. The industry has around 150,000 businesses in the UK, which is 6% of the total, and employs 660,000 people.¹ The sector contributes £9.9Bn to UK GDP through production of both livestock and crops. In 2014 the Utilised Agricultural Area was 17.2M hectares, which is 71% of land in the UK.²

SARIC was created as a public-private partnership that will enhance the efficiency, productivity and sustainability of our agricultural systems. The club will enable the UK research base to contribute to the substantial innovation opportunities connected with the sustainable intensification of agriculture. Over five years SARIC will invest in activities in the research base that translate existing knowledge and generate new insights to benefit the UK. The activities will bring together multidisciplinary teams in novel collaborations with expertise from the biological, environmental, economic and social sciences.

¹ [Reference/webpage no longer available – June 2017]

² <https://www.gov.uk/government/statistics/agriculture-in-the-united-kingdom-2014>

SARIC Research Challenges

The club will focus upon two challenges which were identified with the industry membership:

- Resilient and robust crop and livestock production systems
- Predictive capability & modelling for new technologies, tools, products & services

Funding will be delivered in the form of **research translation grants**, which support novel approaches to translating existing research data and knowledge into new tools, technologies and other outcomes that create tangible economic or societal benefits. The partners will also support **research grants** for programmes that will generate new knowledge and fundamental scientific insights which will bring benefits to the entire agricultural supply-chain.

SARIC is managed by BBSRC, NERC and ESRC in conjunction with an external coordinator and a steering group made up of industry and academic representatives.

Benefits of Interacting with the Research Councils and the Research Community

BBSRC, NERC and ESRC have a strong record in managing collaborative research programmes, including the Research Innovation Club mechanism. Companies report a range of significant benefits from their engagement with the Research Councils:

- Capacity to influence research in important strategic areas
- Knowledge on the progress of relevant research projects and early access to results
- Opportunity to work with leading researchers and to build strong relationships with them
- Opportunity to identify the best potential industry recruits
- Guidance on other Research Council activities and funding opportunities
- Promotion of companies through relevant activities, objectives and outputs

For further information please visit the SARIC web pages at: www.bbsrc.ac.uk/saric

SARIC RESEARCH TRANSLATION PORTFOLIO

The first call of SARIC has allocated £1.1M of funding to five research translation grants in 2015.³ A second round allocated £1.7M of funding to seven research projects in 2016.⁴

Detailed project information can be found online by using the NERC reference numbers to search:

- RCUK Gateway to Research: <http://gtr.rcuk.ac.uk/>

Ref No.	Principal Investigator	Research Organisation	Project Title
NE/M01679X/1	Fiona Borthwick	SRUC, James Hutton Institute	Enhancing Innovation in Barley Integrated Disease Management with the application of an innovation systems approach to research translation
NE/M016676/1	Toby Bruce	Rothamsted Research	CROPROTECT: a knowledge exchange system to support UK growers in sustainable crop protection to allow efficient crop production
NE/P007988/1	Alexis Comber	University of Leeds	Real-time predictions of pesticide run-off risk which: multi-scale visualisations of water quality risks and costs
NE/P008011/1	Carol-Anne Duthie	SRUC	Novel animal-mounted sensor technology to improve efficiency and sustainability
NE/P007945/1	Bruce Grieve	University of Manchester	Low-cost fibre optic matting for direct live-mapping of livestock weight to improve feed efficiency. Development, demonstration & imaging integration.
NE/M012794/1	Ruben Sakrabani	Cranfield University	Enhancing nutrient use efficiency from biosolids for a resilient crop production system
NE/P007996/1	Alison Kingston-Smith	Aberystwyth University	Hand Held Technologies for Assessment of Nutrient Digestibility
NE/N012860/1	Elizabeth Stockdale	Newcastle University	Delivering a decision-support framework - soilquality.org.uk
NE/P00797X/1	Peter Urwin	University of Leeds	Development of a PCN population advisory tool that provides robust advice and management
NE/M016714/1	Andrew Whitmore	Rothamsted Research	Biosolids, Yield, Organic amendments in Soil: research to mitigate Leaching and Denitrification: BYOSOLID
NE/M016919/1	Hao Zhang	Lancaster University, Rothamsted Research	Measuring plant available phosphorus to increase crop yields and minimise nutrient leaching
NE/P007902/1	Claire Waterton	Lancaster University	Holistic decision support system for organic slurry storage and treatment techniques for maximum nutrient use efficiencies (SLURRY-MAX)

³ <http://www.nerc.ac.uk/latest/news/nerc/saric/>

⁴ <http://www.nerc.ac.uk/innovation/activities/sustainablefood/saric/>

SARIC RESEARCH PORTFOLIO

The first call of SARIC has allocated £3.8M of funding to six research projects in 2015.⁵ A second round of research projects allocated £1.3M of funding to three research projects in 2016.⁶

It is anticipated that research activity will continue until 2020.

Detailed project information can be found online by using the BBSRC reference numbers to search:

- RCUK Gateway to Research: <http://gtr.rcuk.ac.uk/>
- BBSRC Portfolio Analyser: www.bbsrc.ac.uk/research/grants-search/quicksearch/

Ref No.	Principal Investigator	Research Organisation	Project Title
BB/P004555/1	George Blackburn	Lancaster University	Increasing the resilience of cereal and oilseed rape production to weather damage.
BB/N004302/1	Martin Broadley	University of Nottingham	Magnesium Network (MAG-NET): Integrating Soil-Crop-Animal Pathways to Improve Ruminant Health
BB/N004248/1	Adrian Collins	Rothamsted	Impacts of different vegetation in riparian buffer strips on hydrology and water quality
BB/N004167/1	Julie Gray	Sheffield	Reduced Stomatal Density Wheat: New Prospects for Drought and Pathogen Resistance
BB/P004539/1	Davey Jones	University of Bangor	Real-time in situ sensing of soil nitrogen status to promote enhanced nitrogen use efficiency in agricultural systems
BB/N004205/1	Matthew Paul	Rothamsted	Increasing wheat drought tolerance and recovery throughout the life cycle through regulation of plant growth mechanisms
BB/N004353/1	Chris Reynolds	Reading	Diverse forage mixtures to optimise ruminant animal production, nutrient use efficiency, environmental impact, biodiversity, and resilience
BB/N004345/1	Eileen Wall	SRUC	Future-proofing our breeding goals - Breeding for climate resilience in UK dairy systems
BB/P004628/1	Matthew Williams	Edinburgh	Advanced technologies for efficient crop management: A participatory approach with application at farm scale

⁵ www.bbsrc.ac.uk/news/food-security/2015/150728-pr-science-to-benefit-british-farming/

⁶ www.bbsrc.ac.uk/news/food-security/2016/160825-pr-3m-awarded-to-boost-sustainable-agriculture/