Developing Sustainable Livestock Systems through Participatory Farmer Research
Marley, Christina; Powell, Huw; Fychan, Rhun; Crotty, Felicity; McCalman, Heather

Published in: Advances in Animal Biosciences
DOI: 10.1017/S2040470019000013
Publication date: 2019
Developing Sustainable Livestock Systems through Participatory Farmer Research

In pursuit of sustainable farming systems, there is an urgent need to build resilience in agriculture against the dual challenges of climate change and food security. To address this need requires change, adaptation and the implementation of innovation across the industry, using an approach that empowers farmers to develop the practical tools they need to address the current and future challenges facing their businesses.

Linking research to commercial development farms, and developing farmer networks to encourage uptake, an ‘impact model’ has been developed, with an overarching aim of ensuring the continuity of economically-viable livestock systems. A key feature of this ‘impact model’ approach is that the work is industry-led, to ensure it is of direct benefit and has the greatest value to the end-user. Scientific evaluations of innovative strategies that require either: further validation of their efficacy prior to uptake on the commercial farms; or multiple options tested at one site; or more detailed data collection than can be practically achieved on farm (e.g. feed response in individual animals) are then undertaken by the science team linked to the project. Key project messages are disseminated through a farmer-to-farmer dissemination network, with support for open events provided by an agricultural extension team. This parallel approach between industry and research allows the innovation at a farm level to be tested under scientific replication at research sites, providing statistical rigour to validate the innovations tested on farms. The outputs from participatory projects are varied, ranging from farmer-friendly technical case studies, articles on Knowledge-Based Innovation (Marley et al., 2011), publications on the scientific experiments (Crotty et al., 2015; Detheridge et al., 2015; Crotty et al., 2016) through to outputs on the social science aspects of the project (Crotty et al., 2018), thus providing varied routes through which to create impact.

This paper will discuss the approach, the lessons learnt and the benefits of this research approach using examples of participatory farmer projects (e.g. Sustainable Forage Protein (EFBS project), PROSOILplus, SUREROOT) on sustainable livestock systems. This approach has proven to be a method to increase the impact of the science, whilst ensuring that the research conducted is of direct relevance to the end-user and to stakeholders across the agricultural industry.

Acknowledgements
The PROSOILplus project has received funding through the Welsh Government Rural Communities - Rural Development Programme 2014-2020, which is funded by the European Agricultural Fund for Rural Development and the Welsh Government. The EFBS project was funded through a joint initiative between partners: Dalehead Foods Ltd., Dovecot Park, Müller Milk & Ingredients, Coombe Farm, Waitrose, Germinal, Bangor University and Aberystwyth University. The project was funded by the industry partners and co-funded by Innovate UK, the UK’s innovation agency. The SUREROOT project is BBSCR and industry funded science developing improved rooting systems in grasses and clover for sustainable livestock systems and for ecosystem services. We gratefully acknowledge all the farmers involved in our participatory research projects.

References