Developing Sustainable Livestock Systems through Participatory Farmer Research

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Developing Sustainable Livestock Systems through Participatory Farmer Research

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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.

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