Institution: University of Nottingham

Unit of Assessment: 6; Agriculture, Veterinary and Food Science

Title of case study: Improving Farm Business Performance using Farm Business Survey on-line Benchmarking

1. Summary of the impact

Research from the University Nottingham (UoN) has identified the importance of agricultural business management in improving business performance. UoN-led work enhanced the on-line Farm Business Survey (SBS) Business Benchmarking service, supported by bespoke knowledge transfer and exchange activities. Analysis from the 2011/12 FBS shows that 15% of farmers "frequently benchmark at whole farm level" achieving an average Farm Business Income (FBI) of £128,900 in contrast to £63,000 for the 85% of farmers that do not benchmark. FBS Farm Business Benchmarking is the only free-to-use, non-data commitment, service that offers both national and international benchmarking options to the agricultural industry.

2. Underpinning research

Key researchers:

Dr Paul Wilson, Associate Professor in Management and Economics (1995-); Director Rural Business Research Unit (2006-); Chief Executive, Rural Business Research (2009-).

Dr Stephen Ramsden, Associate Professor in Management and Economics (1993-); Director University Farm (2006-).

Measuring and explaining variation in farm business and crop and animal enterprise performance and efficiency of resource use, has been a major research topic at UoN for over a decade. This research has sought to explain the impact of management ability in farm and enterprise performance. This has generated highly cited articles (Wilson *et a*l., 1998; Wilson *et al*., 2001) due to the research methodological developments that have defined constituent parts of 'managerial ability', demonstrated robust data collation techniques associated with these elements and quantified the impact of individual managerial actions and abilities on performance. The outputs from this research have demonstrated both the wide variation in performance that exists and also the need to enhance business management skills and activities in order to improve business performance. Established by Dr Wilson following appointment to UoN in 1995, the efficiency and business performance research group has undertaken analysis of the in key sectors through the underpinning projects listed below:

1) 1996: Measuring Technical Efficiency and the Influence of Management in UK Potato Production: PI Dr P Wilson; CI Dr S Ramsden. Funder: UoN - £8k. Publications – Wilson *et al*. (1998). *Demonstrated the relatively high average efficiency within the sector and identified that larger farms, operated by younger producers who are more aware of current technology and management techniques achieve greater levels of technical efficiency.*
2) 1997-1998: Analysing the Impact of R&D and Technology Transfer in Cereal Production: PI Dr P Wilson. Funder: Home-Grown Cereals Authority - £30k. Publications - Wilson *et al*. (2001). *Concluded that producers who seek information and have strong environmental and profit objectives achieve greater levels of efficiency, crucially linking environmental, profit and information seeking behaviours and attitudes as positive efficiency drivers.*
3) 1999-2002 and 2001: Special Study on the Economics of Potato Production *and* Economic Efficiency in Maincrop Potato Production: PI Dr P Wilson. Funder: Defra - £75k (in part commissioned by Prime Minister's Input Task Force). Publications: Wilson and Robertson (2001). *Identified the importance of market price and investing managerial time to securing contractual marketing arrangements as a driver of profit in potato production.*
4) 2009-2011: Assessment and Analysis of Farmer Segmentation and Business Performance. PI Dr P Wilson. Funder: Defra - £42k. Publications: Wilson *et al*. (2013). *Farm businesses self-categorised as "modern family businesses" have characteristics focused around business development and financial management and achieved significantly greater farm business incomes than other segmentation groups.*
5) 2010: Influence of Management and Labour on Dairy Performance: PI Dr P Wilson: Funder: Agricultural Manpower Society: £2k. Publications: Wilson (2011a). *Demonstrated that dairy*

producers who undertake regular business benchmarking achieve significantly greater profit levels; variations in milk price accounted for 12% of variation in profit in dairying.

6) 2010: Milk Selling Arrangements in England: PI Dr P Wilson. Funder: Defra - £18k. Publications: Wilson (2011b). *Managers who have sought and been awarded dedicated milk contracts with retailers achieved significantly greater milk prices; supermarket contracts incentivise benchmarking by dairy farmers to seek continued improvements in efficiency in the supply chain*.

The evidence from these analyses demonstrated the link between business management practices and higher business performance, identifying the need for improved business management activity in order to enhance the profitability, competitiveness and sustainability of UK agriculture. Moreover, the outputs from 1-3 inclusive have been communicated to numerous farmer discussion group meetings that have highlighted the variation in farm performance, the rationale for undertaking business benchmarking activities and the mechanisms by which farmers can utilise the free-to-access FBS on-line benchmarking tool. In addition, findings 1-3 have informed the significant developments to the FBS on-line Benchmarking tool by highlighting key performance indicators (KPI) identified through these research outputs and presenting data in formats which facilitate ease of individual KPI comparison with data from both "average" and "high" performing businesses. Moreover, interest in the area of agricultural performance has recently increased within UK Government as Government seeks to further understand and support areas of on-farm activity that lead to enhanced business management performance. Most recently, the University of Nottingham has led a Defra-funded project seeking to identify factors associated with high farm business performance.

3. References to the research

The research outputs described in Section 2 above include peer-reviewed articles in leading international and national agricultural economics and farm management journals (*Land Use Policy, Journal of Agricultural Sciences, Agricultural Economics, Journal of Agricultural Economics, Farm Management, Journal of Farm Management*). Key references relating to the above research programmes are listed below:

a) Wilson, P., Hadley, D, Ramsden, S. and Kaltsas, I. (1998). Measuring and Explaining Technical Efficiency in UK Potato Production. *Journal of Agricultural Economics*, **49 (3)**, 294-305. http://onlinelibrary.wiley.com/doi/10.1111/j.1477-9552.1998.tb01273.x/pdf

b) Wilson, P., Hadley, D. and Asby, C. (2001). The Influence of Management Characteristics on the Technical Efficiency of Wheat Farmers in Eastern England, *Agricultural Economics*, **24 (3)**, 329-338. DOI: 10.1016/S0169-5150(00)00076-1

c) Wilson, P. and Robertson, P. (2001). Economic Efficiency in Maincrop Potato Production in England and Wales, *Farm Management*, **11 (3)**, 163-176. Available on request.

d) Wilson, P., Harpur, N. and Darling R. (2013). Explaining Variation in Farm and Farm Business Performance in Respect to Farmer Segmentation Analysis: Implications for Land Use Policies. *Land Use Policy,* **30(1)**, 147-156. http://dx.doi.org/10.1016/j.landusepol.2012.03.006

e) Wilson, P. (2011a). Decomposing Variation in Dairy Profitability: The Impact of Output, Inputs, Prices, Labour and Management, *The Journal of Agricultural Science,* **149**, 507-517. http://dx.doi.org/10.1017/S0021859610001176.

f) Wilson, P. (2011b). Determinants of the Farm Gate Price of Milk: Quantifying the Impact of Milk Contract and Selling Arrangements, *Journal of Farm Management*, **14 (3)**, 211-23. Available on request.

4. Details of the impact

UK agriculture is characterised by a large number of independent businesses with individual management decisions and actions impacting upon their physical and financial performance. As noted in section 2, research at UoN has examined potato, cereal, dairy and whole farm performance with outputs published in peer-reviewed journals, plus reports and presentations to Government. This efficiency and business performance research has identified the importance and influence of business management practices on resource use and profitability. Assisting the agricultural industry to improve resource use efficiency through enhanced business management

practices is now encapsulated within the FBS research programme, led by UoN (PI 2004 onwards). A major output of the annual FBS research programme is the free-to-use on-line farm business benchmarking service (**Source 1**). This tool draws on independently collected and analysed contemporary data from the FBS across England. In 2010 this on-line data tool was substantially and significantly enhanced by the Nottingham-led FBS research consortium. This facilitated user interface interactions and encompassed UK and EU benchmarking options in addition to offering different levels of "ease of access" to users wishing to access data at varying levels of analytical detail. As shown in Figure 1, the uptake of the tool, as assessed by web visits, has increased substantially since 2008. The tool allows users (farmers, consultants) to benchmark their own business and enterprise performance against industry 'average' and 'high' performers. This commitment to improve the fortunes of agriculture has been welcomed by the British Institute of Agricultural Consultants (BIAC): "*Relevant 'benchmarking' provides the basis for sound decision making and BIAC, who represent the views of independent consultants throughout the UK, sees the Farm Business Benchmarking Online as another tool for this work*" (**Source 2**).

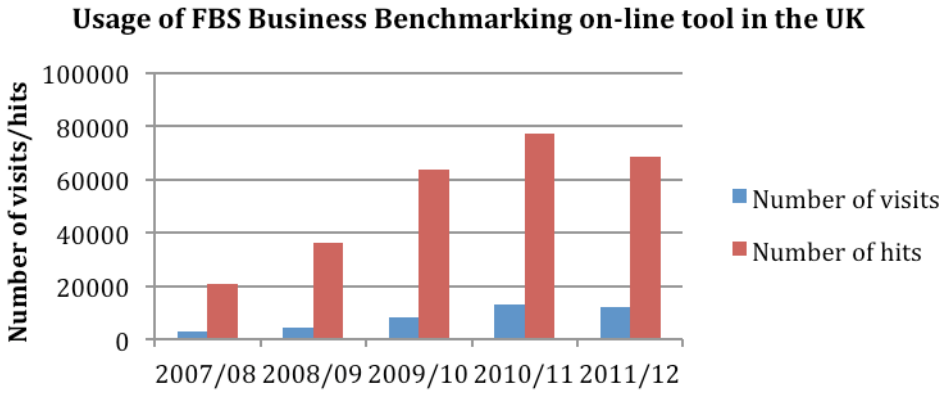

Figure 1. Web counter records showing increased usage of the FBS Business Benchmarking tool in the UK from 2007/08 to 2011/12.

Explaining the importance of benchmarking to farmers, Dr Wilson has presented research findings to more than 25 farmer groups encompassing arable, cereals, beef, sheep and poultry farmers (e.g. farmer discussion or retailer supply groups), and most recently at bespoke workshops held (spring 2011 and 2012) across England demonstrating the FBS Farm Business Benchmarking tool (**Source 3**). Moreover, the on-line tool is additionally publicised via hard copy information publications, by email alerts direct to the site (**Source 1**), via links on Government websites (**Source 4**) and search engines. Web counter records demonstrate growing usage of the FBS Business Benchmarking tool (Figure 1) since 2008, flowing from enhanced user-interface of the on-line tool and the outreach activities promoting the use of FBS Farm Business Benchmarking.

Evidence from Defra's Farm Business Survey (FBS) (**Source 1**) indicates a large variation in the physical and financial performance achieved by individual farm businesses. Moreover, while average performance differs between farm types, variation across individual businesses within particular farm types is substantial (Defra, 2011a) (**Source 5**). Hence, whilst some farm businesses achieve considerable economic profits, others accrue large financial losses. Specifically, variation in managerial factors accounts for a substantial proportion of variation in business performance (Defra report, 2011b) (**Source 6**): Farmers who undertake benchmarking achieve greater business results; **Source 7** (Defra report, 2012) *notes "those using benchmarking had significantly higher farm business performance*". Agricultural business benchmarking has developed over the last 15 years to become an important component of successful agricultural business management. Defined by Seabrook (Nottingham, 1972-2006), business benchmarking comprises of measurement, comparison, identification, analysis and implementation. For individual farmers, using the benchmarking tool leads to identification of issues which require further investigation and business adaptation; for example, FBS Benchmarking has led to major business improvements, summarised by one farmer as: *"[Because of Benchmarking] I have gone into close collaboration with a neighbour in machinery optimisation. This has made a big difference to our accounts. The survey results have given us tenants and the landlord the confidence that we're doing a good job*" (**Source 8**).

While other benchmarking services exist in the UK agricultural sector, the FBS Business Benchmarking service represents the only free-to-use, non-(data) commitment service which offers both whole-farm and enterprise analysis alongside UK and EU Benchmarking options across 27 EU member states, providing both **national and international** business benchmarking; users from the UK, continental Europe, USA and Australasia have accessed this service. FBS data (2011/12) demonstrates that 15% of English farmers "frequently undertake whole farm level business benchmarking" achieving an average (FBI) of £128,900, which is statistically significantly greater than the average £63,000 FBI for farm businesses that do not benchmark. Nationally (England) the 15% of 60,000 farm businesses which benchmark therefore achieve an aggregate FBI £592m greater than they would accrue if they achieved an FBI in line with those that do not benchmark. FBS Farm Business Benchmarking represents one of the main industry benchmarking tools in contemporary use.

5. Sources to corroborate the impact

1. Farm Business Survey http://www.farmbusinesssurvey.co.uk/index.html. *On-line data delivery site of FBS Business Benchmarking (PI: Wilson)*
2. Chief Executive, BIAC (British Institute of Agricultural Consultants) http://archive.defra.gov.uk/foodfarm/farmmanage/advice/documents/benchmark-online.pdf. *Providing corroboration for the importance of the FBS research programme and the on-line benchmarking knowledge exchange tool*
3. Rural Business Research workshop http://www.farmbusinesssurvey.co.uk/workshops/ *FBS workshop website outlining activities in Spring 2011 and 2012.* 2012.
4. Defra Farm Business and Financial Planning (http://www.businesslink.gov.uk/bdotg/action/detail?itemId=1083571557&type=RESOURCES) *Demonstrating medium of outreach backed by Government departments*.
5. Defra (2011a). Farm Business Income by Farm Type in England, 27th October 2011. (http://webarchive.nationalarchives.gov.uk/20130123162956/http:/www.defra.gov.uk/statistics/files/defra-stats-fbs-farm-business-income-111027.pdf) *Detailing the variation within farm types driven in part by variation in managerial factors*
6. Defra report (2011b). Cereals Farms: Economic Performance and Links with Environmental Performance. (http://webarchive.nationalarchives.gov.uk/20130315143000/http:/www.defra.gov.uk/statistics/files/defra-stats-foodfarm-environ-obs-research-arable-cereals-110505.pdf) *Corroborating the impact of managerial activities and outcomes on cereal farm economic performance.*
7. Defra report (2012), Grazing Livestock Farms: Economic Performance and Links with Environmental Performance (http://webarchive.nationalarchives.gov.uk/20130123162956/http:/www.defra.gov.uk/statistics/files/defra-stats-foodfarm-environ-obs-research-cattle-grazingrep-120308.pdf) *Corroborating the impact of managerial activities and outcomes the economic performance of livestock farms.*
8. Stockless Organic Farmer, Norfolk (Farming Link, Defra publication [now archived] – e-copy or article with quote to be supplied by HEI). *Arable farmer corroborating the enhanced benefits and impact that FBS benchmarking has had on his business.* 2010.