

To cite this output:

Winter, M, *et al* (2014) Processes of Technical Change in British Agriculture: Innovation in the Farming of South West England, 1935-1985

ESRC End of Award Report, RES-062-23-1831. Swindon: ESRC.



## ESRC End of Award Report

### For awards ending on or after 1 November 2009

This End of Award Report should be completed and submitted using the **grant reference** as the email subject, to [reportsofficer@esrc.ac.uk](mailto:reportsofficer@esrc.ac.uk) on or before the due date.

The final instalment of the grant will not be paid until an End of Award Report is completed in full and accepted by ESRC.

Grant holders whose End of Award Report is overdue or incomplete will not be eligible for further ESRC funding until the Report is accepted. We reserve the right to recover a sum of the expenditure incurred on the grant if the End of Award Report is overdue. (Please see the ESRC Research Funding Guide for details.)

Please refer to the Guidance notes when completing this End of Award Report.

<b>Grant Reference</b>	<b>RES-062-23-1831</b>		
<b>Grant Title</b>	<b>Processes of Technical Change in British Agriculture: Innovation in the Farming of South West England, 1935-1985</b>		
<b>Grant Start Date</b>	01 Nov 2009	<b>Total Amount</b>	£463,350.11
<b>Grant End Date</b>	31 May 2013	<b>Expended:</b>	
<b>Grant Holding Institution</b>	University of Exeter		
<b>Grant Holder</b>	Professor Michael Winter		
<b>Grant Holder's Contact Details</b>	<b>Address</b>	<b>Email</b>	
	CRPR, Amory Building, University of Exeter Exeter EX4 4RJ	d.m.winter@ex.ac.uk	
		<b>Telephone</b>	01392 723837
<b>Co-Investigators (as per project application):</b>	<b>Institution</b>		
Dr Paul Brassley	University of Exeter		
Dr David Harvey	University of Exeter		
Dr Matt Lobley	University of Exeter		

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## I. Non-technical summary

Please provide below a project summary written in non-technical language. The summary may be used by us to publicise your work and should explain the aims and findings of the project. [Max 250 words]

The post-war period witnessed a rapid expansion of agricultural production in Britain. Through the use of detailed sets of farm accounts for the period supplemented by oral history interviews, this research has sought to uncover the drivers of change during this period, focusing on south west England. While many farms increased their acreage a little, most farms specialised by the 1980s, reducing cereals and fodder roots and often dispensing entirely with pigs and poultry. In *dairy farming*, there were significant increases in the milk produced per cow, per acre, and per farm. As would be expected, we found that most farms changed from the traditional South Devons and Shorthorns to Friesians, often with increased use of artificial insemination, and more purchased feeds and fertilisers. Less obviously, we found that many farmers did not aspire to achieve any great expertise in grass varieties and summer grazing management, although most eventually changed, albeit at varying times, to a winter regime that abandoned fodder roots and hay in favour of silage. The MMB's move to bulk milk collection in the late 1960s / early 1970s often produced an accompanying investment in milking parlours, cubicles, and slurry handling.

Technical changes such as these were promoted not only by the availability of capital grants but also by the farmers' integration into the *knowledge network* that grew dramatically after 1945 and linked agricultural scientists through advisers and various media to farmers, and we investigated both the development of this network and farmers' reactions to it.

## 2. Project overview

### a) Objectives

Please state the aims and objectives of your project as outlined in your proposal to us. [Max 200 words]

1. To produce a fine-grained survey of agricultural change in general, and technical change in particular, through *identifying how and when outputs changed on a sample of farms over the period 1935 – 1985*.
2. To use FMS fieldbooks to provide detailed information on inputs in order to shed light on *how and when changes on individual farms were brought about*. Were they, for example, produced by increasing inputs of feedstuffs, fertilizers, labour, machinery, and capital, or by using new varieties, pesticides and breeds? To what extent, and when, did crop and livestock yields change? Were the yield changes produced by using new varieties and breeds? When, and to what extent, were pesticides used, and how rapidly did the use of artificial insemination spread? What new enterprises were introduced?
3. To examine, through oral history interviews, what motivated farmers to *adopt innovations and change their farming methods*? To what extent did the goals and

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objectives of farmers change? What affected their attitudes to investments, costs and innovations? Did they respond to changes promoted by MAFF and its advisers, marketing boards, ancillary industries, and the media? What were the links between farmers and sales staff, civil servants, advisers, and others providing technical and financial information?

## **b) Project Changes**

Please describe any changes made to the original aims and objectives, and confirm that these were agreed with us. Please also detail any changes to the grant holder's institutional affiliation, project staffing or funding. *[Max 200 words]*

No changes were made to the original aims, although the emphasis on arable farming was reduced as the limitations to the sample became apparent.

## **c) Methodology**

Please describe the methodology that you employed in the project. Please also note any ethical issues that arose during the course of the work, the effects of this and any action taken. *[Max 500 words]*

Two archival repositories were used in this project: the National Archives at Kew and the University of Exeter archives.

The work on the Exeter archives was concerned with the collection of Farm Management Survey fieldbooks. Data on outputs, inputs and capital items were entered from farms that had remained in the survey for a significant period – generally over 20 years – and these were then processed to provide estimates of changes over time in output in relation to various inputs, the level of specialisation, use of machinery etc. The analysis of the total dataset provided 4,978 individual annual entries of information covering 168 different farm holdings (a mean of 29.6 years per farm) spread over Devon, Cornwall and Dorset.

On the basis of this analysis some farms were selected for further analysis. This involved using the available field books for the farm to write an individual farm history, using more qualitative data that could be found in the fieldbooks but less easily computerised or quantified, and a further subset of these farms was selected for interview, in cases where the farmer remained alive, was identifiable, and contactable.

The interviews were usually carried out by two members of the research team, recorded, and transcribed. In order to comply with ethical requirements, this process was discussed with the Project Advisory Committee before it was started, and the Committee's approval for the process obtained. In addition, each interviewee was given the option of remaining entirely anonymous, having the family name but not the address used in any subsequent discussion, or of being identified by name and address. Interviewees were given information on how to contact the research team and asked to sign a form (of which they retained a copy) recording the level of identification to which they had agreed. This protocol was discussed and agreed by the University Ethics Committee. In material published so far all

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farms have been identified only by their FMS code number.

Archival work at the National Archives at Kew was largely concerned with work on the origins of the Farm Management Survey, on locating comparative material produced by the County Agricultural Executive Committees in the 1950s, and on knowledge networks, i.e. agricultural research, advice, education, and other means of the transmission of information.

#### d) Project Findings

Please summarise the findings of the project, referring where appropriate to outputs recorded on the ESRC website. Any future research plans should also be identified. [Max 500 words]

The objectives of the project have been met by analysing the FMS fieldbooks, taking advantage of the advice of the Advisory committee, and conducting oral history interviews.

It rapidly became clear that to make sense of the information available in our principal source, the FMS fieldbooks, it was desirable to investigate the **origins** of the Survey. This investigation (which resulted in an article in *Agricultural History Review*), based largely on data from the National Archives, revealed that the sample of farms to which we have access was not a random sample across all farm types, but was specifically restricted to specialist dairy or mainly dairy farms in Devon, Cornwall and Dorset. The important implication of this was that an early project aspiration to compare technical changes in grassland and arable farms had to be dropped. Conversely, it also meant that we were in a much better position to investigate changes in dairy farming, the principal farming type in the far south-western counties, through the analysis of 4,987 fieldbooks and carrying out oral history interviews with 28 farmers.

These investigations revealed interesting changes in the **structure** of farming. While many farms increased their acreage a little (but only a few increased dramatically), most farms specialised by the 1980s, eliminating small areas of cereals and fodder roots, and often dispensing entirely with the pigs and poultry that most had in the 1950s. During this period, many tenanted farms were also sold off to their occupiers.

In **dairy farming**, there were significant increases in the milk produced per cow, per acre, and per farm between the 1940s and 1980s. As would be expected, we found that most farms changed from the traditional South Devons and Shorthorns to Friesians, often with increased use of artificial insemination, and more purchased feeds and fertilisers. Less obviously, we found that many farmers did not aspire to achieve any great expertise in grass varieties and summer grazing management, although most eventually changed, albeit at varying times, to a winter regime that abandoned fodder roots and hay in favour of silage. The MMB's move to bulk milk collection in the late 1960s / early 1970s often produced an accompanying investment in milking parlours, cubicles, and slurry handling.

Technical changes such as these were promoted not only by the availability of capital grants but also by the farmers' integration into the **knowledge network** that grew dramatically

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after 1945 and linked agricultural scientists through advisers and various media to farmers, and we investigated both the development of this network and farmers' reactions to it.

The preliminary **conclusions** resulting from this work are that many dairy farms went through the same technical changes but with significant time differences; that the availability of cheap energy kept down variable costs; that capital grants were a more significant element of government policy than price guarantees, while inflation also promoted investment; and that government promotion of research and the dissemination of its results was a major factor in technical change.

### **e) Contributions to wider ESRC initiatives (eg Research Programmes or Networks)**

If your project was part of a wider ESRC initiative, please describe your contributions to the initiative's objectives and activities and note any effect on your project resulting from participation. *[Max. 200 words]*

## **3. Early and anticipated impacts**

### **a) Summary of Impacts to date**

Please summarise any impacts of the project to date, referring where appropriate to associated outputs recorded on the Research Outcomes System (ROS). This should include both scientific impacts (relevant to the academic community) and economic and societal impacts (relevant to broader society). The impact can be relevant to any organisation, community or individual. *[Max. 400 words]*

Our strategy has been to maximise impact through giving exposure to the research throughout the project in ways that have allowed us to benefit from feedback. To date the project has resulted in over 20 international, national and local conference or seminar presentations to a mixture of academic and non-academic audiences, as listed on the ROS. Our dissemination venues have ranged from European conferences in Ghent, Bern and Prague to the University of the Third Age in one small Devon town and local history society presentations in Devon villages.

One published paper is also listed on ROS:

Brassley, P. Harvey, D. Loble, M. and Winter, M. (2013) Accounting for agriculture: the origins of the Farm Management Survey, *Agricultural History Review*. 61 (1), 135-153.

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### **b) Anticipated/Potential Future Impacts**

Please outline any anticipated or potential impacts (scientific or economic and societal) that you believe your project might have in future. *[Max. 200 words]*

The project team is currently working on a research monograph from the project provisionally entitled ***The Real Agricultural Revolution: Technology, the State and Social Change in the Post-War Transformation of Farming.***

We anticipate the text will be completed by the end of 2013 with publication in 2014.

We will continue to promote the outcomes of the project through conference and related dissemination including to non-academic audiences, such as local history societies).

You will be asked to complete an ESRC Impact Report 12 months after the end date of your award. The Impact Report will ask for details of any impacts that have arisen since the completion of the End of Award Report.

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## 4. Declarations

Please ensure that sections A, B and C below are completed and signed by the appropriate individuals. The End of Award Report will not be accepted unless all sections are signed. Please note hard copies are **not** required; electronic signatures are accepted and should be used.

### A: To be completed by Grant Holder

Please read the following statements. Tick **one** statement under ii) and iii), then sign with an electronic signature at the end of the section (this should be an image of your actual signature).

#### i) The Project

This Report is an accurate overview of the project, its findings and impacts. All co-investigators named in the proposal to ESRC or appointed subsequently have seen and approved the Report.	<input checked="" type="checkbox"/>
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#### ii) Submissions to the Research Outcomes System (ROS)

Output and impact information has been submitted to the Research Outcomes System. Details of any future outputs and impacts will be submitted as soon as they become available.	<input checked="" type="checkbox"/>
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**or**

This grant has not yet produced any outputs or impacts. Details of any future outputs and impacts will be submitted to the Research Outcomes System as soon as they become available.	<input type="checkbox"/>
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#### iii) Submission of Data

Data arising from this grant have been offered for deposit with the UK Data Service.	<input checked="" type="checkbox"/>
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**or**

Data that were anticipated in the grant proposal have not been produced and the UK Data Service has been notified.	<input type="checkbox"/>
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**or**

No datasets were proposed or produced from this grant.	<input type="checkbox"/>
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