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SID 5 Research Project Final Report

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1. Defra Project code	<input type="text" value="RE0117"/>
2. Project title	<input type="text" value="Impacts of organic farming on the rural economy in England"/>
3. Contractor organisation(s)	<input type="text" value="Centre for Rural Research
University of Exeter
Lafrowda House
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Exeter"/>
4. Total Defra project costs	<input type="text" value="£ 136,608"/>
5. Project: start date	<input type="text" value="01 May 2003"/>
end date	<input type="text" value="30 April 2005"/>

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Executive Summary

7. The executive summary must not exceed 2 sides in total of A4 and should be understandable to the intelligent non-scientist. It should cover the main objectives, methods and findings of the research, together with any other significant events and options for new work.

Introduction

Organic farming has achieved a high profile in recent years. Although the 1,636 registered organic farmers in England account for less than 3% of the farm population, the market for organic produce is estimated to be worth some £1.2 billion. It has been argued that the growth in demand and supply of organic produce offers environmental benefits, health benefits and also benefits to the rural economy through stimulating employment and providing a basis for rural development. Against this background, the research on which this report is based sought to address the question of whether organic farming provides an additional benefit to the rural economy over and above that of conventional agriculture.

The main objectives were to:

1. Review current state of knowledge of wider socio-economic impacts of organic farming through a review of literature and input of stakeholders via a panel of experts seminar.
2. Examine differences in the socio-economic footprint between organic and conventional farming in terms of pattern of sales and input purchases, quantity and 'quality' of labour inputs, integration with local socio-economic networks, contribution to tourism and rural development.
3. Examine differences in socio-economic footprint between different types of organic and conventional farms (following the approach outlined under Objective 2).
4. Develop policy implications in consultation with DEFRA and other stakeholders.

In order to explore these issues a postal survey was conducted in 2004 of 655 organic and non-organic farmers in England and this was supplemented by in-depth face-to-face interviews with 22 farmers and stakeholders in three study areas in South West, Eastern and Northern England.

For the purposes of the project, the definition of organic farming was based on certified compliance although it is recognised that organic farming can be much more than this. Additionally, by defining organic farming, remaining farms have been classified as non-organic although in reality non-organic farms exist on a spectrum of farming systems, some of which are 'near-organic'. In terms of identifying and understanding benefits to the economy, the concept of a 'socio-economic footprint' has been developed to illustrate and measure the impact of different types of farm in terms of their economic activities, accessing of grant aid, connectedness to and participation in the local community. This is a much broader perspective than a traditional economic analysis and, as a consequence, the results of the research may be more complex.

Impacts and characteristics

Respondents to the survey spent a total of £65m in purchases (excluding labour) for their businesses and generated £90.5m in sales. At an aggregate level, organic farms spent less on purchases and generated a lower volume of sales. The organic sample was slightly smaller (302 compared to 353 non-organic farms) and when the value of sales is standardised and expressed on a per hectare basis, organic farms out-perform non-organic farms (generating average sales of £2,837 per ha compared to £1,953 per ha for non-organic farms). That said, it is increasingly recognised that in terms of economic impacts and rural development potential it is not just aggregate values that are important but also how closely businesses are linked to their local economies, so that the money spent is retained in the local economy and supports other businesses and individuals. This can be thought of as 'economic connectivity' and was explored through an analysis of the spatial pattern of sales and purchasing behaviour.

In terms of both sales and purchases organic farms are not significantly more connected to the local economy. For example, on organic farms 29% of the total value of purchases and 19% of sales are made within ten miles of the farm compared to 27% and 27% respectively for non-organic farms. The definition of 'local' is clearly open to interpretation and if it is widened to encompass the county within which a farm business is located then a total of 72% of purchases and 57% of sales on organic farms were made 'locally' compared to 65% and 56% for non-organic farms. On the basis of this measure of economic impact and connectivity there is little difference between organic and non-organic farms.

The results of this research largely confirm the results of previous studies in identifying a significant employment dividend associated with organic production. Organic farms accounted for 46% of the sample but 57% of all people employed in the sample. Standardising labour in terms of Full Time Equivalents (FTEs) confirmed that, despite being smaller on average, organic farms employ more FTEs per hectare and per farm than non-organic farms. Moreover, they employ more non-family FTEs compared to their non-organic counterparts and it is only on organic farms that non-family FTEs exceeded family labour inputs. However, while employment is higher on organic farms a much greater proportion is accounted for by casual staff (50% compared to 33% for non-organic farms). This may be a reflection of the farm type

structure of the two sub-samples as horticultural businesses account for a greater proportion of the organic sample (see the short and full reports for full details). Casual employment may offer flexibility to multiple job holding rural workers but by definition does not offer stability and may be associated with lower levels of pay.

While the economic impacts and local economic connectivity of the two farming systems are broadly similar, the operators of the businesses and the way in which individual businesses are configured are significantly different. The people who operate organic farms are typically younger and more highly educated than their non-organic counterparts. On average, organic farmers are 6 years younger than their non-organic counterparts and 51% have a higher education qualification compared to 30% of non-organic farmers. In addition, a significant proportion have entered agriculture as an entirely new 'career' and did not come from a farming family. Many had never farmed in any other way but organically and had no intention of leaving organic farming in the foreseeable future.

It is reasonable to assume that this distinctive group of organic farmers bring with them different skills and aptitudes and possibly also a different attitude to operating a farm business. They are more likely to run diversified enterprises than their non-organic counterparts and those enterprises are much more likely to be orientated away from providing services to the agricultural industry and instead are focused on processing and/or retailing.

Further analysis revealed that farms operating direct sales enterprises have the most distinctive impact in terms of their contribution to rural development. Compared to other organic farmers they were younger, more highly educated and more likely to have diversified. All farms with direct sales recorded a higher value of sales per ha than farms where direct sales were absent but this was even more marked for organic farms. On average organic farms with direct sales generated sales of £4,983/ha compared to £3,249/ha for non-organic farms with direct sales, whilst all farms without direct sales generated sales of £1,654/ha. These farms also support a larger number of jobs as well as providing a more diverse range of employment opportunities.

In addition to the readily quantifiable impacts noted above, the combination of organic production, in particular, with direct sales is associated with less easily quantifiable impacts that nevertheless represent a bonus to rural development and suggest the possibility of having a re-generative role in the community. Key here is the direct relationship with the consumer which often transforms the operation of the farm business in that it requires there to be trust between farmers and their customers. As well as connecting farmers and consumers in a more direct manner, direct sales are frequently associated with improved connections and collaboration between farmers as consumer demand almost always requires farms to act collectively.

These networks of trust can help build broader feelings of reciprocity and solidarity. Consumers can feel that they are supporting and building a form of food production that they find to be superior from an environmental and or health perspective, or just convenient, or a combination of all of these. As a result, they can enter a new set of relationships with those who produce their food. In turn the producers, who are often already acutely aware of their dependency on consumers, can negotiate that relationship face-to-face with their customers. Organic status again acts as a bridge, a social shorthand, that helps customers and producers share a feeling of solidarity before entering into a relationship of relative interdependence. These feelings can be established outside the framework of organic agriculture, but the costs in terms of time and effort will be more considerable. Fellow feeling and mutual dependence strengthen the sense of community. Although the selling of food directly to the customer is not a complete answer to community development, it can make an important contribution.

Implications

The beneficial impacts identified in this research were associated with organic farms which operated a very different business model. Therefore it is recommended that a *business reconfiguration package* is developed to help farmers reconfigure their businesses to supply customers directly. In addition, given the shortage of external private capital in farming it is recommended that possibility of private co-financing to lever in funds from outside the farm sector is explored. A *venture grant scheme* could be facilitated with Defra acting as the broker introducing those willing to share both risk and reward with farmers wanting to reconfigure their businesses. Action should also be taken to recruit dynamic and pioneering farmers into a *network of demonstration farms* where the emphasis is on understanding the process of changing and sustaining the farm business rather than just the farm system. Finally, it is recommended that the concept of developing *organic hubs* is explored through an experimental pilot project. An organic hub would be a single site where organic infrastructure, including advice workers, is located. The hub could provide an organically certified small-scale abattoir, cold-storage unit and warehouse/pack-house facilities. The principle would be to establish a point where infrastructure was available to facilitate the building up of networks of smaller producers selling directly to the customer.

Project Report to Defra

8. As a guide this report should be no longer than 20 sides of A4. This report is to provide Defra with details of the outputs of the research project for internal purposes; to meet the terms of the contract; and to allow Defra to publish details of the outputs to meet Environmental Information Regulation or Freedom of Information obligations. This short report to Defra does not preclude contractors from also seeking to publish a full, formal scientific report/paper in an appropriate scientific or other journal/publication. Indeed, Defra actively encourages such publications as part of the contract terms. The report to Defra should include:
- the scientific objectives as set out in the contract;
 - the extent to which the objectives set out in the contract have been met;
 - details of methods used and the results obtained, including statistical analysis (if appropriate);
 - a discussion of the results and their reliability;
 - the main implications of the findings;
 - possible future work; and
 - any action resulting from the research (e.g. IP, Knowledge Transfer).

Introduction

Organic farming in the UK has experienced considerable growth in the last two decades. Although the 1,636 registered organic farmers in England account for less than 3% of the farm population, the market for organic produce is estimated to be worth some £1.2 billion or 1.05% of the UK grocery market (Soil Association 2004, 2003). Interest in the organic sector stretches far beyond the apparent rapid growth and buoyancy of the market. Organic farming is promoted on the basis of the multiple benefits it provides; healthier food, improved farmed environment and a contribution to the rural economy (Pretty 2002; Soil Association 2003). To date, it is the environmental impacts of organic farming that have received most research attention and, while some still contest the environmental benefits of organic farming (Colman 2000; Shepherd et al 2003), there is growing consensus that it does indeed offer certain environmental benefits over and above those of conventional agriculture. More recently researchers have turned their attention to the role of organic farming in the rural economy and specifically, the potential for organic farming to contribute to rural development (Pugliese 2001). It is frequently argued that organic farming can promote employment in rural areas (Hird 1997; Midmore and Dirks 2003) and that it can also contribute to rural development, for instance, through the provision of environmental services that underpin rural tourism. Despite these claims, Morris et al (2001) argue that research on the wider "social impacts of organic farming is very limited".

Against this background, the research reported here has sought to explore the hypothesis set out in the original research brief that organic farming provides an additional benefit to the rural economy over and above that of conventional agriculture, defined for the purposes of this project as 'non-organic'. The approach adopted involved tracing the socio-economic footprint of a range of farm business types. The concept of the socio-economic footprint represents a development of earlier research (Errington & Courtney 2000) tracing the economic footprints of small towns. In contrast to conventional economic analysis, the research focused on examining the socio-economic linkages associated with different types of farming such as sales and purchasing patterns but also evidence of social connectivity and embeddedness.

The specific objectives of the project were to:

- Review the current state of knowledge of the wider socio-economic impacts of organic farming.
- Examine differences in the socio-economic footprint between organic and non-organic farming.
- Examine differences in the socio-economic footprint between different types of organic and non-organic farms.
- Develop policy implications and inform future decision making on the support of organic farming.

Defining Organic Farming

The popular or 'lay' definition of organic farming defines it by what it does not do, or what is perceived by consumers not to be present. Commonly it is described as being farming without the use of chemicals, by which many people mean contemporary pesticides, fungicides and herbicides as well as the absence of antibiotics and more recently Genetically Modified (GM) technologies. Since the formation of the UK Register of Organic Food Standards (UKROFS) and the implementation of EU Regulation 2092/91 there has been legal control and oversight of the designation 'organic'. This system instigated a set of standards to which farmers have to conform to in order to be able to describe their farm and its products as organic (Soil Association 1999; Reed 2004). Farms are inspected on an annual basis by approved 'Certifying Agencies', the largest of which is the Soil Association Cert Ltd in England and the Organic Farmers and Growers is second largest. It takes at least two years for a farm to be 'converted' to organic status, a period in which the farm system is moved from a non-organic or conventional one to an organic one. During the conversion period the produce of the farm cannot be described as organic. In 2003 a new body called the Advisory Council on Organic Standards (ACOS) replaced UKROFS although the process of conversion and certification remains the same. As the research presented in this report is concerned with the operation and impacts of the farm business rather than the agronomic practices conducted on the farm, rather than enter into a discussion of the farming system certification has been pragmatically accepted as the basis for being considered organic.

Rural economies and rural development

For most purposes the term 'rural economy' is a shorthand way of considering a range of 'economies' rather than discussing a discrete, unified and homogenous economy (Winter and Rushbrook 2003). These various economies may share similar characteristics but may also be quite different in terms of economic linkages with the wider economy and reliance on different sectors, for instance. For the purposes of this report both the spatial aspects of rural economies and the linkages associated with economic activity are considered important in promoting rural development. The shift in rural policy towards more of a territorial focus and the growing policy emphasis on regional and local sustainable economic development is associated with the development of research addressing interactions within 'local' economies. Writers such as Courtney and Errington (2000) have considered local economic linkages although the renewed focus on the local economy extends beyond traditional concerns with economic multipliers and has witnessed a resurgence of interest in the importance of clusters, networks and innovation (Winter and Rushbrook 2003). Analysis of purchase and sales links provides a method of exploring the extent to which farms (or indeed, any business) of different types are connected to local economies. There are a number of ways in which the concept of economic connectivity can be approached. Earlier studies of economic linkages (e.g. Curran and Blackburn 1994) focused on the proportions of sales and purchases by businesses within certain localities whereas Errington et al (Errington and Courtney 2000; Courtney and Errington 2000) extended that approach to include the monetary values of sales and purchases.

Research interest in rural economies inevitably promotes discussion of 'rural development', although as van der Ploeg and colleagues concede: "Any critical discussion of these issues must begin with the acknowledgement that, as yet, we have no comprehensive definition of rural development" (van der Ploeg et al 2000:391). Sotte argues that rural development "means providing non agricultural functions and employment in rural areas, fostering exchanges between sectors and territories, and thus breaking both isolation and mono-functional agricultural specialisation" (Sotte 2002:12). Errington on the other hand,

adopts a less overtly anti-agriculture definition arguing that rural development involves “premeditated changes in human activity which seek to use resources within the rural arena to increase human well-being” (Errington 2002:11). In this sense, rural development is about more than promoting employment and generating income.

The potential contribution of organic farming to rural development

While it is true that a universally accepted and comprehensive definition of rural development does not exist it is nevertheless possible to identify some of the factors and processes associated with rural development. Before considering the characteristics of rural development it is important at this stage to distinguish between broad based development within the economy as a whole and rural development closely connected to farming. Whilst the rural economy is certainly much wider than agriculture alone, this study is principally concerned with farm businesses and allied enterprises. Thus, we do not consider directly the role of other businesses in the rural economy. To that end the perspective advanced here is one of ‘farm centred’ rural development, which places farmers and farm businesses as central actors in the process of rural development. This is not to claim that they are the most important, or only actors, but rather for a number of reasons that they are well placed to deliver rural development.

Despite some debate about the definition and nature of rural development and the role of farms within it, farmers clearly can and do play a role, shaping the environmental context and often providing the location for rural development through diversification. In the case of organic farming in particular, although considerable research effort has been devoted to exploring the farm level impact of conversion to organic production, there has been very little investigation of the contribution of organic farming to rural economies and the rural development process. Nevertheless, from the limited body of research that has been carried out and the much more expansive literature on rural development, it is possible to identify a range of ways in which organic farming can contribute to rural economies. These are summarised in Table 1 and explored in depth in the main report.

Exploring impacts: Postal survey methodology and sample selection

In order to explore the socio-economic impacts of organic and non-organic farms a self-completion postal questionnaire was designed to capture a range of information about farm business characteristics, patterns of sales and purchases (the value and location of transactions), diversification activities, respondent demographic characteristics, embeddedness and participation in the local community and the extent to which formal and informal networks play an important role in the farm business (see Appendix 1 of main report). The sample was drawn by DEFRA’s census branch and was stratified by geographic area (see Figure 1) and farm type. The total sample comprised 1684 farm businesses in England, of which 684 were registered organic. The postal survey ran from early March to mid-May 2004 and achieved an overall response rate of 43%, of which 4% were discarded as they had been insufficiently completed. The aggregate response rate however, varies considerably between the organic and non-organic sub-samples with a 44% (302) response rate for organic farms and 35% (353) for non-organic farms. These response rates compare favourably with those recorded by other recent postal surveys focussed on organic farming as well as those concerned with farming in general¹. Regionally, response rates were strikingly similar with both Devon and the Eastern region recording a response rate of 46% for organic farms, while the northern region was lower at 39%. For non-organic farms the response rate varied between 35% and 36%².

The farm

Respondents to the postal survey managed an agricultural area of 98,000 ha, of which 44,000 ha were in the hands of the operators of organic farms. Average (mean) farm size in the sample was 155 ha (median = 68 ha) although organic farms in the survey were smaller on average. Data on the distribution of organic farms by size and type is not readily available so it is not possible to compare the farm size and type characteristics of the sample with the organic population in the study regions or the national organic population. However, a recent survey by the OF&G and data from Soil Association registration lists provides some basis for comparison and, in turn, an estimate of non-response bias. As Table 2 illustrates, on this basis the farm survey has captured a relatively representative cross-section of organic farms of different sizes although it appears that larger organic farms are slightly over-represented. As Table 3 shows, the survey achieved a good cross section of the main farm types (see Appendix 2 of the main report for regional distribution). However, without census data on the farm type distribution of organic farms it is not possible to determine if the sample is representative of the type of organic farms in the geographical areas that constitute the sample.

The farmer and farm household

Turning to the respondents themselves, a range of personal and demographic data points to some significant differences between the people who operate organic farms and their conventional counterparts. For example, the mean age of organic farmers in the sample is 50 compared to 56 for non-organic farmers³. There are far fewer organic farmers aged 65 or over and a greater proportion of young (<45) organic farmers compared to their non-organic counterparts. Perhaps partly as a

¹ The OF&G (Organic Farmers and Growers 2004) surveyed 4,000 organic farmers, achieving a response rate of 29%, while ADAS (ADAS 2003) surveyed 13,000 farmers and received a poor response rate of 14% of which 98 respondents were organic farmers.

² Given the relatively small number of organic farms in the Eastern and Northern regions, a regional analysis of the results is presented in appendix 2.

³ The difference between the mean age of organic and non-organic farmers is significant using t-test.

result of the markedly different age structure of organic farmers, they are also significantly more likely to have achieved a higher education qualification compared to non-organic farmers (51% and 30% respectively).

Table 1: Features of rural development

Feature of Rural Development	Farm Aspects and Examples
Employment	Employment of the farm family Other employees in the farm business Employment created off the farm
Generating and retaining value in the rural economy	High value products On-farm processing On-farm retailing Co-operative processing/selling Diversification
Skills, knowledge and networks	Fostering of innovation Specific product knowledge New networks Human capital
Community	Solidarity Social capital Social networks Vibrant community life
Environmental goods	A high quality farm environment Aesthetic aspects of landscape

Figure 1: Map of study areas



Source: Centre for Rural Research

Table 2: Farm size distribution: farm survey data compared to OF&G and SA data

Farm Type	Farm survey respondents	Farm survey respondents	Farm survey respondents	Survey respondents OF&G 2004 ^a	Soil Association registration list 2004 ^b
	Organic	Non-organic	All farms	Organic	Organic
Less than 20 ha	21.6	27.4	24.7	19	29.1
Between 20 - 49 ha	17.6	14.3	15.8	20.2	22.1
Between 50- 99 ha	23.6	19.0	21.2	23.4	20.8
Between 100 - 199 ha	17.9	17.9	17.9	20.3	13.9
200 ha or Over	19.3	21.4	20.4	17.1	14.1
Total	100.0%	100.0%	100.0%	100.0%	100.0%
N =	302	353	655	n/a	n/a

Source: Farm survey; Soil Association 2003; Organic Farmers and Growers 2004

a: analysis of data from the OF&G 2004 survey.

b: analysis of data taken from the Soil Association registration list.

Table 3: Farm type distribution: farm survey data and DEFRA census data compared

Farm Type	Farm survey respondents	Farm survey respondents	Farm survey respondents	DEFRA census
	Organic	Non-organic	All farms	All farms
Arable cropping	7.6	19.8	14.2	22.3
Horticulture	9.3	2.8	5.8	3.8
Dairy	10.3	9.6	9.9	7.4
Lowland cattle and sheep	14.6	15.0	14.8	16.9
Pigs and Poultry	4.6	1.1	2.7	4.5
LFA cattle and sheep	12.6	13.6	13.1	12.1
Mixed	34.4	18.4	25.8	5.9
Other farm type	6.6	19.5	13.6	27.1
	100.0%	100.0%	100.0%	100.0%
N =	302	353	655	

Source: Farm Survey, DEFRA census 2003

Many farmers succeed to and eventually inherit their farm while many also 'inherit' the occupation of farming but farm away from the core family farm. Three quarters of the sample operated *established family farms*⁴ and managed 90% of the total farmed area captured by the survey (of this, 52% was in non-organic production and 38% in organic production). Family occupancy of the current farm or local farmland was often long term, with 22% of the sample tracing their family's occupancy of the farm to 1900 or earlier. The operators of organic farms however, were less likely to have such long farming connections in the area and 44% were the first generation of their family to farm the current farm compared to 37% of non-organic farmers. In other words, organic farmers were more likely to be new entrants. Given the greater importance of new entrants among the organic sub-sample, it is not surprising to discover that organic farmers are also more likely to have previously worked outside of farming (60% compared to 48% of non-organic farmers⁵).

A further dimension of the distinctive socio-economic characteristics of organic farmers themselves is revealed through a series of proxy indicators of the degree to which respondents can be said to be embedded in their local community and locality. The postal questionnaire employed three proxy measures of embeddedness: distance from place of birth, distance from majority of close family and distance from majority of close friends. Analysis of this data revealed a consistent picture indicating that, on the basis of these measures, the operators of organic farms are less embedded in their local community than their non-organic counterparts. For example, 49% were born either on their current farm or within ten miles compared to 64% of non-organic farmers. Similarly, 28% described most of their close family as living over 100 miles away compared to 18% of non-organic farmers. While a similar proportion of organic and non-organic farmers reported that most of their close friends live within 10 miles of their farm, in relative terms organic farmers were more likely to have most of their close friends living at least 100 miles away. These results are also consistent with the emerging picture of at least a significant proportion of organic farmers being new entrants who had previously worked outside of agriculture and who have frequently moved a considerable distance from the roots of their kinship networks. The results do not mean that organic farmers are less involved in social networks, rather they suggest that they may be embedded in networks which are less 'local' and perhaps less geographical (e.g. virtual/mediated networks).

⁴ Established family farms are defined as those operated by at least the second generation of the family to farm, either operating the original family farm or farming in the immediate area of the first family farm.

⁵ The association between organic/non-organic status and having previously worked outside of farming is significant using Chi Square test.

The farm survey also collected a number of different types of data that can be used as proxy indicators for various elements of social capital. Despite the differences revealed so far between organic and non-organic farmers, as Table 4 indicates, there is virtually no difference in terms of their participation in a range of formal and informal industry and community groups and activities. The only statistically significant difference relates to membership of an environmental organisation. This finding should be treated with some caution as many of the organic farmers may have considered their membership of an organic certification body to be membership of an environmental group.

The farm business

The distinctiveness of organic farmers is also reflected in the characteristics and organisation of their businesses (see table 5). Organic farms are more likely to have diversified into a range of additional activities although compared to their non-organic counterparts they are significantly less likely to have diversified into the provision of agricultural services (9.6% compared to 18.4% of non-organic farms). Organic farmers, on the other hand, are more likely to have established trading and on-farm processing enterprises, providing the opportunity to capture added value and to develop closer connections with customers. In this way their diversification activities can be argued to be more sustainable, with potentially higher levels of additionality to the local economy and society. Twenty-one per cent of organic farms in the sample operate a trading enterprise compared to just 5% of non-organic farms. Not only does diversification on organic farms appear to be taking these businesses along a different development trajectory, they are also more likely to be involved in multiple diversification (23.2% compared to 15.3% of non-organic farms).

Table 4: Participation in industry and community groups

	Organic respondents	Non-organic respondents	All respondents
NFU member	25.2	22.1	23.5
CLA member	7.0	8.2	7.6
Young Farmers Club	5.0	8.8	7.0
Local Hunt	17.2	15.6	16.3
School Governor	7.9	7.4	7.6
Elected Councillor	16.2	13.0	14.5
Community Village Hall Committee	15.3	11.3	13.1
Parochial Church Council	9.3	8.8	9.0
Political Party	4.6	4.0	4.3
Environmental Group*	15.2	4.2	9.3
Campaigning Group	2.3	2.0	2.1
Sports Club	15.9	15.0	15.4
Other Community Organisations	16.2	21.2	18.9
	100.0%	100.0%	100.0%
N=	302	353	655

Source: Farm Survey

*The association between organic/non-organic status and participation in industry and community group is significant using Chi Squared test.

Table 5: Diversification activities: organic and non-organic farmers compared

Diversification	% of organic respondents	% of non-organic respondents	% of all farms
Agricultural Services*	9.6	18.4	14.4
Accommodation	15.4	15.3	15.3
Recreation/Leisure	7.6	8.8	8.2
Trading Enterprises*	21.2	5.4	12.7
Processing*	15.8	3.5	9.6
Equine Services	7.0	9.9	5.0
Unconventional Crops	6.0	4.2	7.8
Unconventional Livestock	9.9	5.9	9.6
Any diversification*	56.3	46.5	50.8
Multiple diversification*	23.2	15.3	18.9
N=	302	353	655

Source: Farm Survey

* The association between organic/non-organic status and this diversification type is significant using Chi Square test.

The tendency for organic farms to have diversified into trading and/or processing activities is further revealed by analysis of the 'routes to market' employed by organic and non-organic farms in the sample. Direct and local marketing is a much more common feature on organic farms with 39% involved in one or more direct marketing route such as, farm shops, box scheme, farmers' market, supply of local shops, compared to just 13% of non-organic farms. Marketing channels are important because of the implications for local economic impacts. Whilst local marketing may help retain local household incomes, the opportunity cost of this is the potential injection of income into the local economy provided through export earnings (i.e. food sales beyond the 'local' area).

In addition to being more likely to run a diversified business, the operators of organic farms are also more likely to have taken up one or more of a range of rural development payments (excluding organic aid/farming schemes). Sixty-four per cent of organic farms were, or had been, in receipt of rural development funding compared to 49% of non-organic farms. Moreover, organic farms are significantly associated with the multiple uptake of schemes. For example, 15% of organic farmers participated in three or more schemes compared to 9% of non-organic farms. Participation in the Countryside Stewardship Scheme (CSS) is perhaps the most striking difference in terms of uptake between organic and non-organic farms identified by the survey. Thirty-nine per cent of the former and just 13% of the latter are enrolled in CSS⁶. The other notable difference relates to participation in the Rural Enterprise Scheme (RES). Although uptake within the sample is low (6% of all farms), 9% of organic farms have secured RES funding compared to just 3% of non-organic businesses. Clearly, this is linked to the greater likelihood of organic farms to diversify.

Economic impacts: Farm business purchases

Analysis of purchasing links provides a method of exploring the extent to which farms (or indeed, any business) of different types are connected to local economies. In measuring economic connectivity (both in terms of purchases and sales) data was collected on the proportion (by value) of sales/purchases made by a business locally, regionally, nationally, internationally and also the actual value (totals and means) of these economic transactions. Consequently, it is possible to distinguish between businesses that are 'highly connected' in terms of the proportion of their sales and purchases made locally but which nevertheless make a relatively small impact due to low sales and purchase values and business which may be associated with a greater local impact even though their business is orientated towards more distance markets.

A total of 505 respondents (246 organic and 259 non-organic) supplied details of the value of business related⁷ purchases (excluding labour) made in the most recent year for which information was available. Together these respondents spent over £65m in purchases for their businesses. This clearly represents a significant injection of money into the economy although following the economic linkage concept it is important to understand where that money was spent and whether agricultural and related businesses purchases represent a source of leakage from local economies or an injection of spending that will be associated with local multiplier effects. A smaller number of respondents (462) supplied spatial estimates of where they made their purchases. These respondents spent over £56m on purchases and it is on this smaller group which most of the subsequent analysis is based (unless stated otherwise). At an aggregate level, 28% of purchases (by value) were made very locally (within 10 miles) and a total of 68% were made either very locally or within the rest of the county. These results are in marked contrast to those from other studies, which suggest that agricultural businesses are not well integrated into their local economies (e.g. Courtney and Errington 2000).

Looking at purchases in more detail, Figure 2 presents data for non-organic farm businesses only. Non-organic respondents were responsible for purchases of approximately £31m, of which 27% were made very locally (within 10 miles of the farm), while a total of 65% were made either very locally or within the county. The average (mean) value of purchases in the county was slightly larger than those at the very local level (£49,313 and £35,268 respectively). That only 11% of all purchases by value were made in the national economy appears to point to limited leakages although this is subject to the qualification that more local purchases may actually be made via an outlet of a national or international company. Purchases in the national economy were also considerably smaller on average: the mean value of national purchases was £14,658 compared to £49,313 for purchases made within the county.

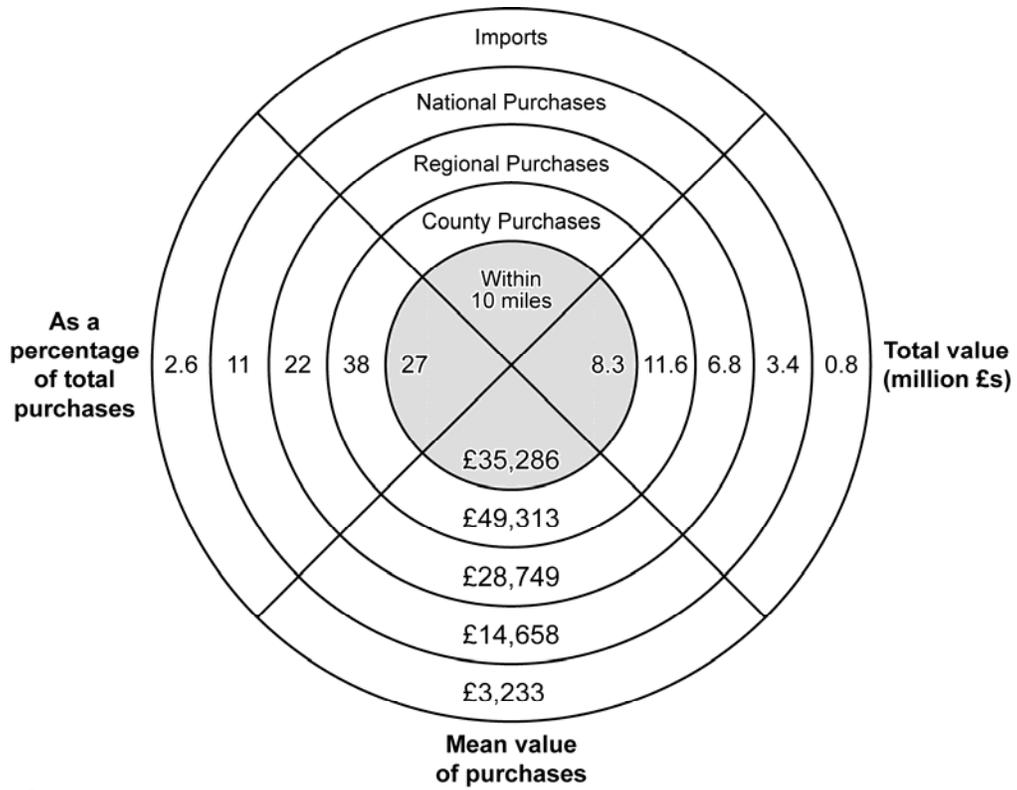
Figure 3 presents the same data but for organic farm businesses. The organic businesses supplying spatial data recorded £25.2m of purchases for the most recent year. The lower value of total purchases compared to non-organic farms is partly a function of the slightly lower sample size and may partly be a reflection of the purchasing requirements of organic farm systems. However, it is apparent from Figure 3 that the mean values are not greatly different and neither is the proportion of purchases sourced very locally (within 10 miles) or within the county. On average organic farms made purchases of £32,110 within 10 miles of the farm compared to £35,286 for non-organic farms. Measuring economic connectivity in terms of the proportion of all purchases made within 10 miles reveals very little difference between organic and non-organic farms (29% and 27% respectively) although if the concept of local is stretched to the county boundary then the difference becomes larger; 72% compared to 65% for non-organic farms. Although the total value of purchases made by non-organic farms is greater, the size of the non-organic sample is also larger. When mean purchases per farm are considered, again there is little apparent difference between organic and non-organic farms.

Looking in more detail at different farm types revealed variation both within the organic farming sector and between organic and non-organic farms. In terms of their purchasing behaviour some types of organic farm (such as horticulture and lowland livestock) purchase a much greater proportion of inputs and services locally compared to arable and pig and poultry organic farms. On the other hand, while organic horticulture farms source a significant proportion (42%) of their inputs locally compared to non-organic horticulture farms, organic lowland livestock and pig and poultry farms are less well connected in this sense compared to their non-organic counterparts.

⁶ There is an interesting 'chicken and egg' question here, which we are unable to easily resolve. What came first, participation in CSS or organic conversion? Clearly some of the 'veteran' organic farms were in organic production long before the advent of CSS but for others, CSS may have been associated with changing attitudes towards farming and the environment and may have been a contributory factor in organic conversion.

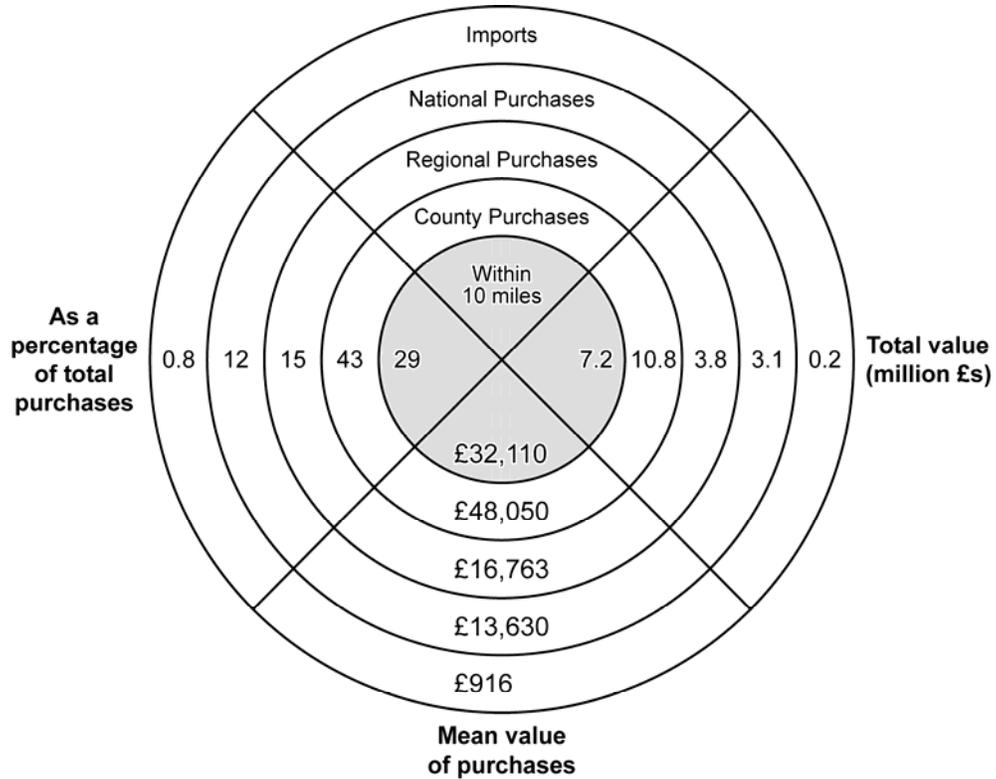
⁷ Household purchases were excluded.

Figure 2: Purchases by non-organic farm businesses



Source: Farm Survey

Figure 3: Purchases by organic farm businesses



Source: Farm Survey

Labour use on organic and non-organic farms

One of the most common claims made for organic farming in a rural development context relates to employment creation. Employment is necessary in order to earn income to purchase other goods and services and also brings with it a range of less tangible benefits such as social contact and a feeling of self worth. While employment is not the only goal of rural development, it can be seen as a principal means of meeting several objectives. The farms in the sample employed a total of 3,230 people, of which organic farm businesses accounted for 57%. On average organic farm businesses employed 6.4 people per farm compared to 4.6 people on non-organic farms. One implication is immediately clear - organic farms 'punch above their weight' in employment provision. They account for less than half the sample but more than half of all employment recorded and despite operating smaller farms (in terms of area) organic farms employ more people per farm. However, while absolute numbers of people employed may be taken as an indicator of rural development impacts at the farm level, it obscures differences in terms of full-time labour, part-time, casual and seasonal employees. For example 48% of labour on non-organic farms is provided by full-time, 19% by part-time and 33% casual/seasonal workers compared to 33%, 17% and 50% respectively on organic farms.

Given the differences in the composition of the total labour force within the survey, a more meaningful comparison is to standardise labour into Full Time Equivalents (FTEs).⁸ In these terms the surveyed farm businesses employ 2,133 FTEs, of which 1151 (54%) are found on organic farms. On average organic farms employ more FTEs (55% compared to 48% for conventional farms excluding the 'other' farm type category)⁹ and this employment effect is even more marked when considering FTE per ha. These differences are at least partly explained by differences between farm types, with some organic farms employing significantly more labour in FTE terms than comparable non-organic farms. For example, organic arable, dairy and pig and poultry farms all employ more FTEs than their non-organic counterparts. The role of organic horticultural farms further complicates the picture, supporting fewer employed non-family FTEs but significantly more family FTE labour (see Table 6). Overall, organic horticultural farms generate higher levels of FTEs/ha than their non-organic counterparts and given the significance of horticulture within the organic sample (see Table 3), this is likely to impact on the aggregate mean figures for employment on organic farms. A further explanation relates to the very different business model adopted by some organic businesses. Organic farmers are more likely to be involved in diversification, on-farm processing and direct sales, all of which could be expected to have an employment impact. Indeed, 27% of organic farmers report increasing employment following conversion, employing on average an additional 1.73 FTE labour units. As well as supporting greater employment, organic farm businesses employ more non-family FTEs, supporting employment in the local economy rather than just their own family.

Table 6: Labour use by FTE/HA by farm type

	FTE Employee/HA*	FTE Family/HA*	FTE per ha excluding other*
Organic			
Arable	0.01	0.01	0.02
Horticulture	0.32	0.47	0.79
Dairy	0.01	0.02	0.03
Lowland	0.01	0.03	0.04
Pigs & Poultry	0.15	0.23	0.39
LFA	0.00	0.03	0.03
Mixed	0.01	0.05	0.06
Non-organic			
Arable	0.01	0.01	0.02
Horticulture	0.45	0.29	0.73
Dairy	0.01	0.04	0.05
Lowland	0.01	0.05	0.06
Pigs & Poultry	0.02	0.28	0.29
LFA	0.01	0.04	0.05
Mixed	0.01	0.03	0.04
Total	0.04	0.06	0.10

* Means between organic and non-organic farm types are significant (t-test, p <0.05).

⁸ The calculation of FTEs was based on the definition from Errington and Gasson (1996) where: full-time = 1 worker, part-time = 0.5 of a worker, casual = 0.33 of a worker and seasonal = 0.125 of a worker).

⁹ The 'Other' category of farm type, while capturing an important aspect of rural society, does not necessarily represent 'typical' employment in agriculture, as many did not include any commercial agricultural functions. For example, one respondent listed those working in the hotel business as farm employees, while another recorded school bus drivers as farm employees. Clearly, while these enterprises are important for rural employment opportunities and those particular businesses, they are not agricultural in nature and as such have been excluded from the employment analysis to provide a more precise picture.

Establishing the number of jobs supported by organic and non-organic farms is one thing but it is also important to identify rates of pay for family and non-family employees. Together, the organic and non-organic farm businesses in the survey have an annual salary bill of approximately £5.25m. The salary per FTE is approximately £4000 lower for organic farms although this is largely accounted for by low family wages as non-family labour is paid slightly higher than compared to non-organic farms. The data on the salaries of family labour must be treated with some caution, particularly where this represents a farmer and spouse as many farmers do not pay themselves a wage that is easily comparable with salaried workers either within farming or beyond. Bearing that in mind further analysis revealed considerable differences both within the organic sector and between organic and non-organic farms of the same type.

Farm Business Sales

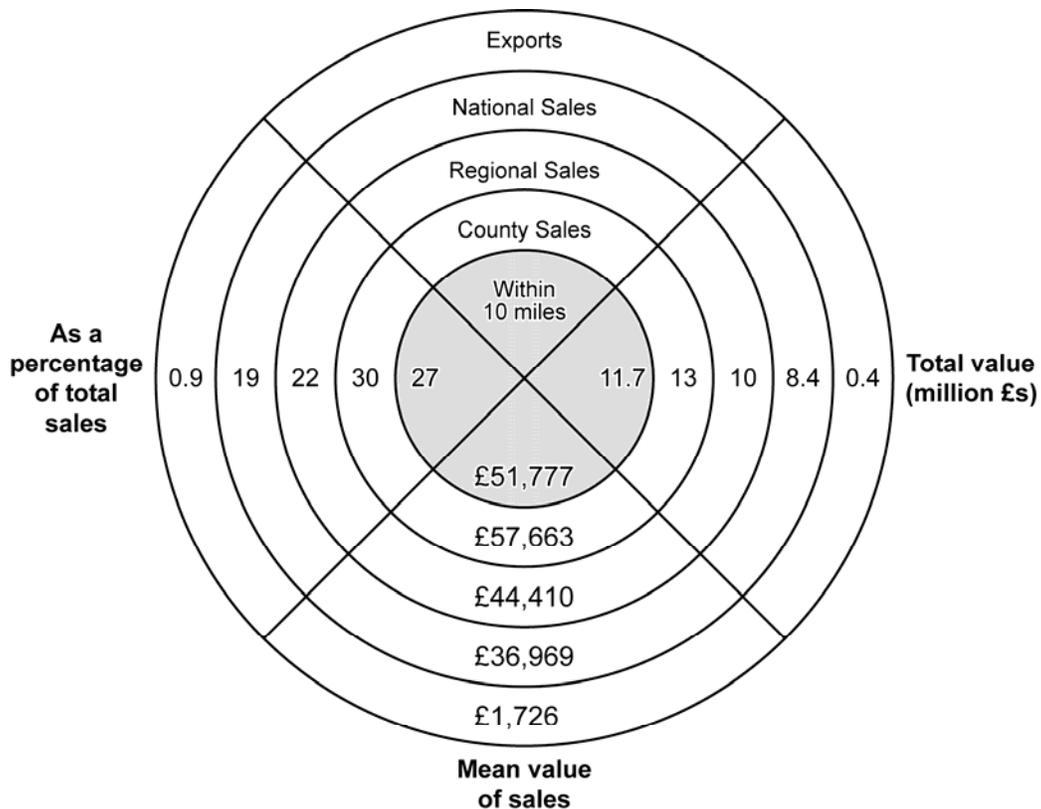
Turning to farm sales, as a indication of the ability of farms to generate value in the economy at the aggregate level, the 497 respondents supplying sales data generated sales of £90.5m. Again a slightly smaller number of respondents (454) supplied information on the spatial destination of sales, recording sales totalling £79m or an average of £171,672 per farm. 35% of sales were made locally, 30% within the rest of the county and just 12% in the 'national' economy. Considering sales from organic and non-organic farms, 42% of all sales by value (£37.9m) were associated with organic farms. Mean sales per farm were higher for non-organic businesses at £211,005 compared to £152,862 for organic farm businesses (although the difference is not significant in a statistical sense). In both instances though, the wide range of farm sizes, including some micro businesses and some very large businesses, and as such the median figures of £70,000 and £48,293 respectively give a less misleading picture. Indeed, given the differences in the farm size structure of the organic and non-organic samples comparing the values of sales generated per hectare provides a more robust basis for comparison. On this basis, organic farm businesses generate sales of substantially greater value per hectare compared to non-organic farms (although this varies considerably by farm type – see below).

Figures 4 and 5 present data on the spatial economic connectivity of sales behaviour for organic and non-organic businesses. A first point to note is that while the mean values and absolute values of sales differ, in terms of their very local and county connectedness the two sub-samples differ very little. Indeed, 57% of the value of sales from non-organic farms were made either within ten miles of the farm or within the county compared to 56% for organic farms. Organic farms however, are slightly less locally orientated than their non-organic counterparts with the value of very local sales accounting for only 19% of the total sales made by organic farms compared to 27% for non-organic farms. On this basis of this measure organic farms are no more connected to their local economy than non-organic farms and the value of their sales is less. One interpretation of these results is that on the basis of this measure, organic farming does not lead to a benefit to rural economies over and above that of conventional agriculture. Despite the increasing importance of the 'local food' market and the greater use of local and direct sales routes by organic farmers, a lower proportion of their sales are located in the local area. One explanation may relate to the definition of local¹⁰ although an alternative explanation is that treating both organic and non-organic farms as a homogenous mass obscures important distinctions which may be revealed by exploring differences associated with farm type clarifications or indeed alternative methods of categorising farm businesses.

Further analysis indicated substantial differences in terms of economic connectivity between organic and non-organic farms that are ostensibly of the same type. And, as with purchases, there are considerable differences between different types of organic farm. For instance, horticultural organic farm businesses appear highly connected to their local economy with 67% of sales (by value) going to the immediate area (within a radius of 10 miles) and with mean local sales of £930k per farm. Non-organic horticultural farms on the other hand made only 33% of sales locally with a significantly lower mean value of £33k per farm. Non-organic horticultural farms in the sample are much more focused on national sales (which account for 48% of sales). Within the organic sector, as would largely be expected, arable farms and dairy farms are much less locally connected in terms of sales patterns compared to other types of organic farms with 16% and 18% of sales made locally compared to 47% for lowland livestock farms (see figure 6a & 6b). Although there is also some variation within the non-organic sector the differences are less pronounced (excluding the category of 'other' farms).

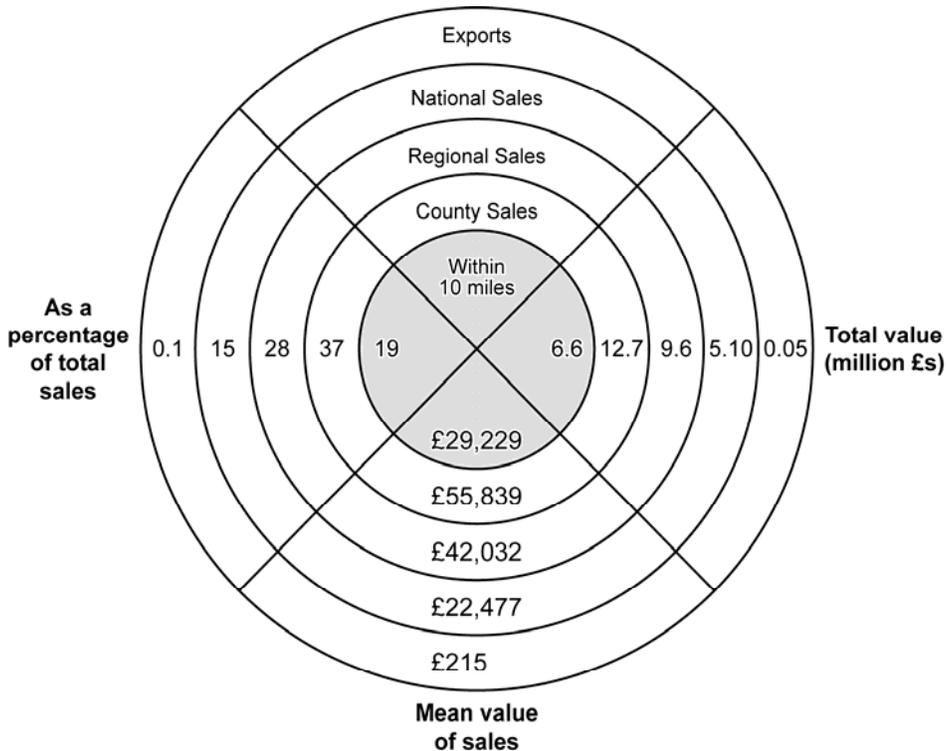
¹⁰ Farmers may be travelling further than ten miles to participate in farmers' markets for instance.

Figure 4: Sales by non-organic farm businesses



Source: Farm Survey

Figure 5: Sales by organic farm businesses



Source: Farm Survey

Figure 6a: The spatial distribution of sales: organic and non-organic farms compared

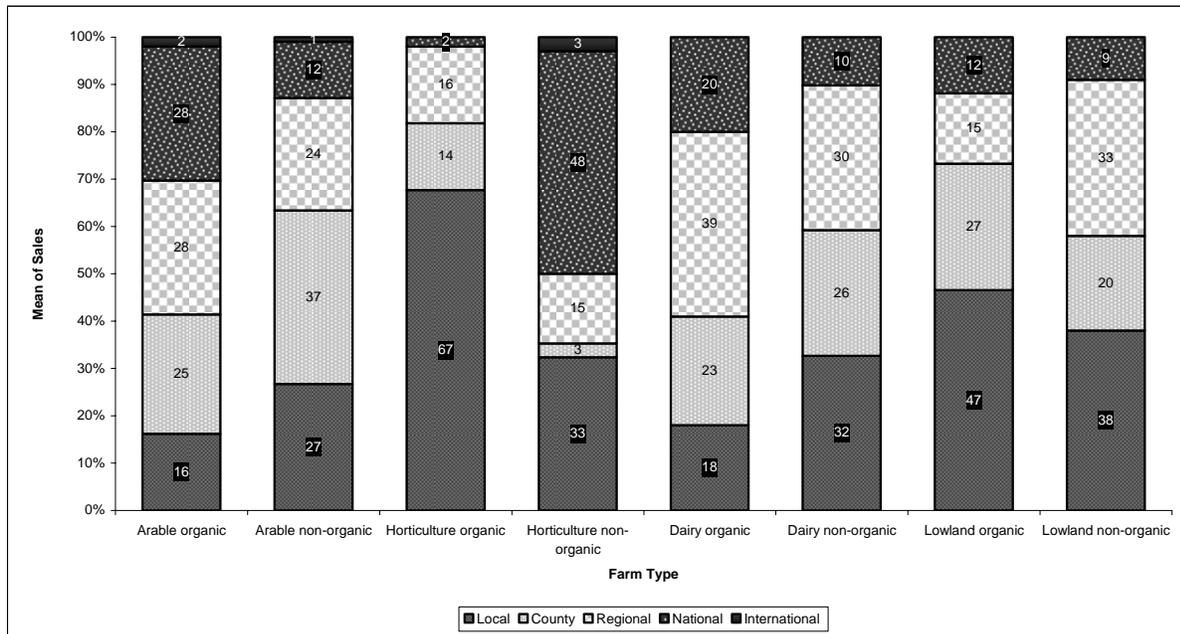
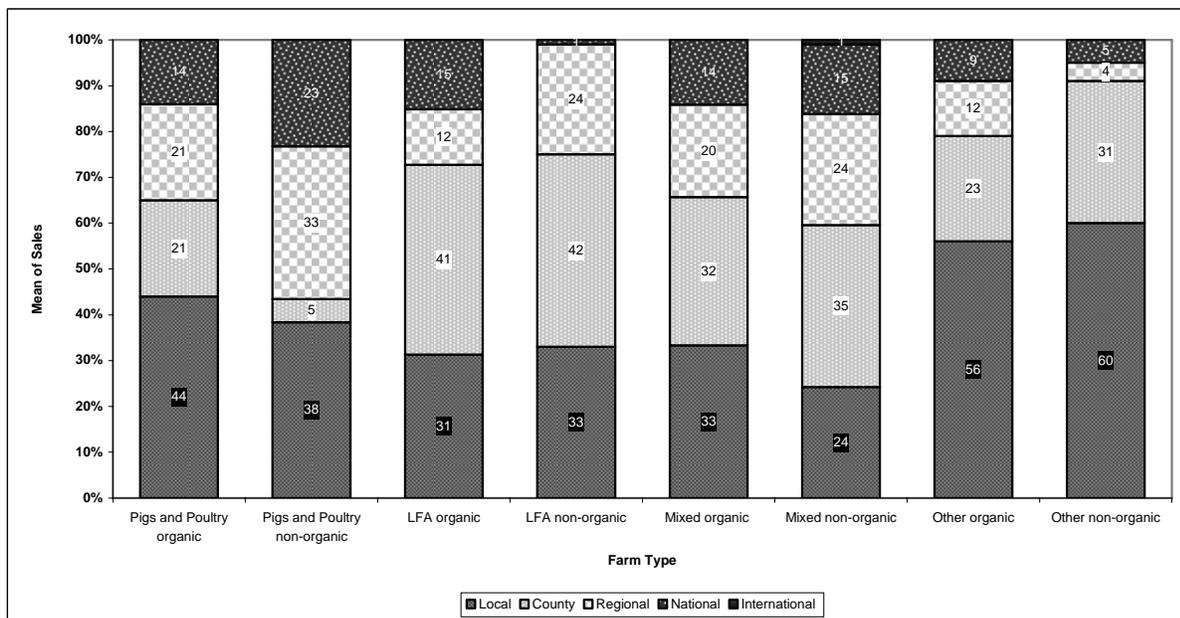


Figure 6b: The spatial distribution of sales: organic and non-organic farms compared



Socio-economic footprints

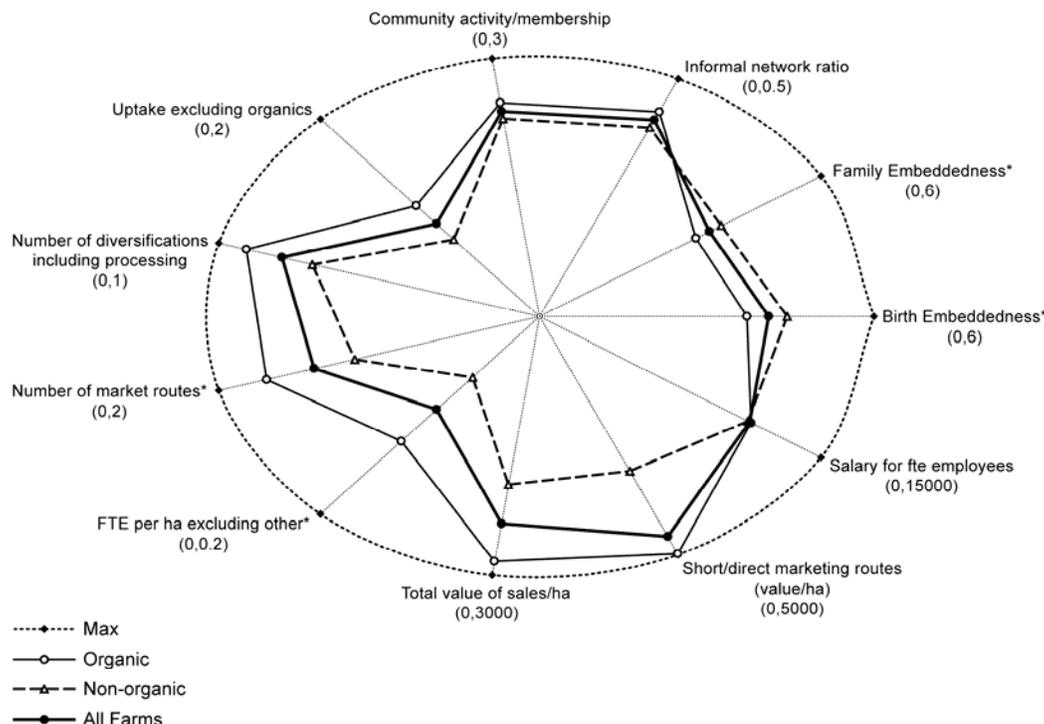
A number of the characteristics explored so far relating to the rural development impact of organic farming can be synthesised and presented in the form of a socio-economic footprint (SEF). The SEF is a form of shorthand for describing a range of indicators concerning the social and economic characteristics of the business. As such it is clearly a simplification. However, the characteristics charted in the footprint relate closely to the features of rural development identified earlier (see Table 1) and reflect an interest in embeddedness, social capital and civic participation, diversification and uptake of rural development funding as well as the generation of value and employment. Although the exact footprint of any particular business is unique, there are marked differences between the footprints of different types of farming business.

Figure 7 presents the socio-economic footprint for all organic and non-organic farms in the survey. Each axis of the graph is a measure formed using data collected in the survey (see Chapter 5 of the main report for a full explanation). The outer line is formed by connecting the end of each axis and thus represents an illustrative boundary. The inner line (or lines) is the footprint of the group of farms. This allows comparisons to be made between different groups of farm businesses in terms of their typical footprint.

Considering each axis in turn: clockwise from *community activity and membership of groups*, this measures how active respondents are in their community and civic life. *Informal Network Ratio* is the ratio of informal (family and friends) to formal business relationships in a respondent's social network. A score of one indicates that the number of informal and formal relationships equate. *Family Embeddedness* and *Birth Embeddedness* are both measures based on how close the family live and how close the respondent currently lives to where they were born. Together these measure the depth to which the business operators are embedded in their communities by family ties. The next indicator is *Salary per FTE employee*, to measure the level of remuneration that employees receive. Next is the measurement of *value of sales per hectare*, followed by the number of FTE jobs generated per hectare by the farm business. This is followed by the number of *routes to market* operated by the business and a measure of the *number of diversified activities*, including processing, within the portfolio of businesses based around the farm. The final axis reflects the uptake of ERDP and similar public support programmes (excluding the Organic Farming Scheme).

Comparing the footprints of all organic and all non-organic farms illustrates the less embedded nature of organic farmers, the greater diversity of marketing channels and their greater propensity to diversify and draw down grant aid. That said, the differences are not particularly striking, certainly not striking enough to claim that organic farms provide a natural vehicle for delivering rural development.

Figure 7: Socio-Economic Footprints of organic and non-organic farms



Source: Farm Survey

The analysis clearly indicates that, despite quite radical differences in farming system, at an aggregate level the impact and economic connectivity of organic and non-organic farms is not dissimilar. In many ways this is surprising as the people who operate organic farms are quite different and that might be expected to be associated with a distinctive impact. Two implications stem from this finding. The first is that within the framework devised for this research, there are no appreciable differences in the economic impacts of organic and non-organic farming. The second implication is that a conventional farming system analysis (i.e. organic and non-organic) is too blunt an approach. Treating organic farms (and non-organic farms) as homogenous sectors does not help in identifying rural development potential. Further analysis confirmed this and revealed that along with farm type and a distinction between organic and non-organic farms, the way in which the business is configured and, in particular the approach to marketing and sales has a significant influence on economic impacts and that, in turn, this is associated with a distinct socio-economic profile of the farmers themselves.

Farms with direct sales activities¹¹ emerged as being associated with a significant rural development impact. These farms are in a minority in the sample as a whole (26%), a very small minority in the non-organic sample (10%) and whilst they are numerically more significant amongst the organic farms they still represent only 36% of the organic sample. This suggests that while an organic farming system may be an important contributory factor in stimulating the development of direct sales activities it is not a sufficient explanation in itself.

¹¹ Defined as those who indicated the following direct and/or local marketing routes were the most important for their business: box schemes, farm shops, farmers markets, local retail outlets, and internet sales. Each of these is assumed to have a short, distinct and traceable supply chain from farm gate to consumer. Arguably, contracts direct to multiples could also constitute 'direct sales'. However, these have been excluded as these are more formal and break the link between producer and consumer.

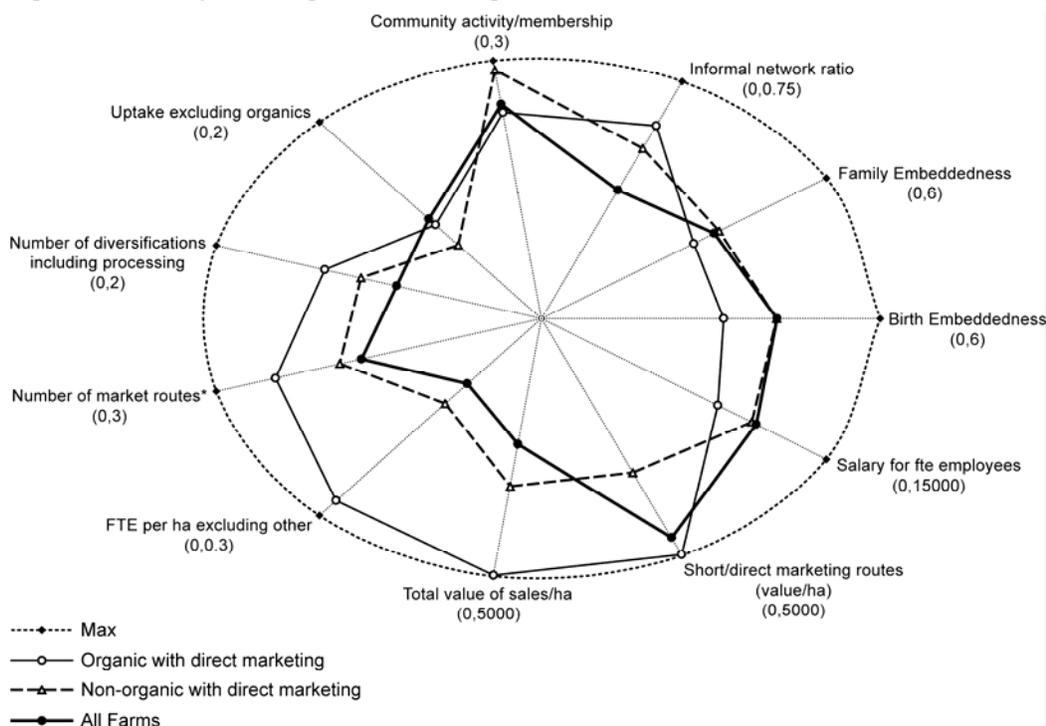
In many ways the characteristics of those organic farmers operating direct sales were even more acute than the organic farming population generally. Compared to other organic farmers they were younger, more highly educated and more likely to have diversified. All farms with direct sales recorded a higher value of sales per ha than farms where direct sales were absent but this was even more marked for organic farms. On average organic farms with direct sales generated sales of £4,983/ha compared to £3,249/ha for non-organic farms with direct sales and £1,654 for all farms without direct sales. These farms also support a larger number of jobs as well as providing a more diverse range of employment opportunities.

Organic businesses using direct marketing were often running much smaller farms. For example, 39% operated farms of under 20 ha compared to 18% of non-organic farms and 11% of organic farms without direct sales. Not only are the farms smaller but they also use a greater number of routes to the market place, an average of 3 main marketing routes compared to 1 for all farms without direct marketing. Evidence from face-to-face interviews suggests that many of these business use a range of marketing routes that interlink and create synergies. For example, Farmers Markets and Council Markets are frequently used to create customers through mail order or via the Internet. One business had dispensed with other forms of advertising: *I don't do any advertising now, but apart from the website which is a successful form of advertising we know that, we do several sites (OF7)*. Farmers involved in direct sales frequently need to broaden what they supply and so form links with other farmers. These alliances are often quite informal, in that they do not involve contracts but are based on trust between the farmers and growers. This thicket of interconnections is the basis of increased trust between these producers and potentially the emergence of important new aspects of the rural economy. As one respondent explained: "Our trading pattern is sort of based on trust and long term trading relationships and whatever, and we've just taken a huge amount of costs out of the whole thing" (OF10).

Many of the farms involved in direct sales also conduct some basic processing of their produce. This ranges from simply washing vegetables and packing them through to some relatively sophisticated butchery, hanging meat for longer, producing cuts with more fat on the supermarkets, their own sausages and burgers. In total, 32% of those conducting direct sales have some processing on their farm compared to just 10% of the whole sample and 6% of organic farms without direct sales. In addition, if the facility is certified for organic processing it is often let out to other farmers. The provision of processing facilities for other organic farmers is seen as contributing to the development of a network of direct suppliers rather than primarily being a diversification into providing agricultural services for other farmers. Indeed, organic farmers with direct sales were the least likely to have diversified into the provision of agricultural services with only 7% reporting this type of diversification compared to 22% of non-organic farms without direct sales. On the other hand, 51% reported a farm-based trading enterprise compared to just 15% of the whole sample. These range from farm-gate kiosks through to shops supplying a range of food products. In some cases the development of processing and trading enterprises had been grant aided with 13% of organic farmers undertaking direct sales in receipt of an RES grant compared to 7% of other organic farmers and 3% of non-organic farmers without direct sales. In total, 41% of all farmers with RES funding were organic farmers undertaking direct sales.

Together these readily observable characteristics combine to produce the socio-economic footprint illustrated in Figure 8. It is clear that organic farmers operating direct sales are less embedded and less socially active in the community than other farmers but the greater value of sales associated with the business, employment impact and diversification behaviour are also clearly evident. In addition to the readily quantifiable impacts noted above, the combination of organic production in particular with direct sales is associated with less easily quantifiable impacts that nevertheless represent a bonus to rural development and suggest the possibility of having a re-generative role in the community. Key here is the direct relationship with the consumer which often transforms the operation of the farm business in that it requires there to be trust between the farmer and their customers. The direct contact changes the tenor of that relationship for both parties, as it is without mediation but often based on a face-to-face encounter. That is not to suggest that it is a simple or unambiguous relationship, but it is one that is one that the farmers in the survey report to be hugely rewarding and which transforms their business.

Figure 8: The footprint of organic and non-organic farms involved in direct sales



Trust and connection was central to many of the direct sales businesses. As noted above it is viewed as central between the businesses that form these informal supply networks but also between producers and customers. Multiple retailers again provide an important mirror against which to make comparisons. Many had confidence in the importance of face-to-face communication:

[when customers go to] Tesco's or whoever you cannot get over the fact that they are mass catering and their truck goes up and down the countryside picking stuff up, even if they do have pictures of farmers besides their displays there is no way it can give them the same sense of trust that they would get by going onto a farm and buying something, there is an integrity about it that they just cannot match (OF7).

This often fuelled what the producers felt was a reconnection or in most cases a connection for the first time between the methods of production and the customer.

I want to be able to grow the food we are serving here. It is a change of emphasis on the farm, but it does mean that we will be making the maximum return. I have discovered, I discovered very quickly in fact, that people like to be able to eat what you have grown, they like the traceability, they might not want to see the cow they are about to have on a plate, but what they want to see is the field or the meadow where it is grown and that it is done in a way that they can relate to (OF7).

Another business operator, who ran a catering venture, spoke of how customers were changing their wider relationships with food production:

They can see it out there, when they come in here they can see you. The man who is making their coffee also raised the beef they had for their lunch and that is something.. they view you as a friend. Everyone knows who Bernard Matthews is, doesn't mean that they trust the guy, this is about trust, you can actually speak to this producer, I know that they really appreciate that (OF6).

This building and re-building of trust was viewed by those involved in direct sales as being one of the most personally rewarding aspect of their business. But also many associated it with a broader improvement in the community:

Maybe accepting a little bit of inconvenience will make them feel better about what they are doing and give them a better product at the end of the week. If you are complaining your sausages from the supermarket aren't very good you have to go somewhere else, walk down the street but you might bump into someone you know and have a conversation, stop for a coffee, see some real life, if you inconvenience yourself a little bit you can find that your life becomes more interesting and more valuable (OF6).

These bonds of trust had developed in this instance to the point where discussions were held about the importance of supporting the rest of the local community. These were not necessarily bonds that had existed previously but were often new ones forged through the direct sales businesses. Importantly, these were relationships that were establishing a solidarity and fellow-feeling that many had obviously felt to be absent or seriously eroded.

As well as connecting farmers and consumers in a more direct manner, direct sales are frequently associated with improved connections and collaboration between farmers as consumer demand almost always requires farms to act collectively. Most of these relationships are based on a shared understanding rather than a formal contract, meaning that those involved have to trust each other, not only on questions of supply but also of quality. Organic status acts as an important bridge between producers, meaning that questions of quality are almost already established. These low level networks between producers also means that some degree of specialisation can take place, with farmers less confident at dealing with the public able to access the market through those who are.

These networks of trust can help build broader feelings of reciprocity and solidarity. Consumers can feel that they are supporting and building a form of food production that they find to be superior from an environmental and or health perspective, or just convenient, or a combination of all of these. As a result, they can enter a new set of relationships with those who produce their food. In turn the producers, who are often already acutely aware of their dependency on consumers, can negotiate that relationship face-to-face with their customers. Organic status again acts as a bridge, a social short hand, that helps customers and producers share a feeling of solidarity, before entering into a relationship of relative interdependence. These feelings can be established outside the framework of organic agriculture, but the costs in terms of time and effort will be more considerable. Fellow feeling and mutual dependence strengthen the feelings of community. Although the selling of food directly to the customer is not a complete answer to community development, it can make an important contribution.

It is quite clear from the research that organic farms that sell directly to the end consumer have a distinctive socio-economic footprint and make a significant contribution to rural development. However, this does not imply that they represent a model that can be easily and uniformly copied to boost rural development. Not all farm businesses would find the direct selling of their produce straightforward. For example, finding a way of selling cereal crops directly to the customer would be highly challenging, as would (for many farms) selling milk. The contemporary farm and food economy will continue to be characterised by a diverse range of businesses serving different needs but in a context where public funding is ever more closely connected to the provision of public goods and social sustainability, the combination of organic farming and direct sales should not be overlooked.

Implications and recommendations

As the analysis in this report has made clear, configuring farm businesses differently can foster rural development. To date those who have sought to supply customers directly have done so with limited support and have faced the market very directly. All of those engaged in these activities who took part in this research were firm believers in the importance of self-reliance and flexibility in the face of challenges. This type of market facing, entrepreneurial approach closely matches the changing CAP environment and suggests that pioneering farmers such as some of those in the study could have a role to play in influencing the direction and pace of change in their industry.

Promoting farm business change: As this research has demonstrated, in order to deliver rural development benefits organic conversion alone is not enough. The beneficial impacts identified in the research were associated with organic farms which operated a very different business model. Therefore it is recommended that a *business reconfiguration package* is developed to help farmers reconfigure their businesses to supply customers directly. This package should recognise that it is a process rather than a simple switch and that on-going support will be required. The business reconfiguration package should be available to all farmers but in the organic sector it could be run in tandem with organic conversion. Given the greater benefits associated with the organic direct sales sector (compared to non-organic direct sales), a differentiated rate of support should be available.

While the ERDP and its successor will clearly have a role in promoting farm business change it is also necessary to consider alternative means of leveraging support into the farm sector. Many of those engaged in growing a direct supply business had received grant assistance but many wished that it had been accompanied by on-going support –both financial and advisory. Given the shortage of external private capital in farming it is recommended that possibility of private co-financing to lever in funds from outside the farm sector is explored. A *venture grant scheme* could be facilitated with DEFRA acting as the broker introducing those willing to share both risk and reward with farmers wanting to reconfigure their business. Combining funding with on-going business advice would help the grant provider feel a partner in the venture and interested in the long-term success of the project.

Working together: One of the key themes to emerge from this research is the importance of farmers working together in a variety of ways. The operators of existing direct sales organic farms could clearly have a role in providing a demonstration farm and in the provision of business reconfiguration advice. It is recommended that a number of pioneering farmers should be recruited to form part of a *network of demonstration farms* where the emphasis is on understanding the process of changing and sustaining the farm business rather than just the farm system. As part of this system, funding should be available for exchange visits within the UK and possibly further a field.

Closely linked to the need to facilitate interactions and the sharing of experience is the need to support critical mass and infrastructure. Infrastructure is a continual problem for smaller organic producers, often those involved in direct sales, and until now frequently small-scale private initiatives, often backed by grants, have sought to fill the gap. Alongside this are a series of regional initiatives to promote or foster organic farming on a regional basis. It is recommended the concept of developing *organic hubs* is explored through an experimental pilot project. An organic hub would be a single site where organic infrastructure, including advice workers, is located. The hub could provide an organically certified small-scale abattoir, cold-storage unit and warehouse/pack-house facilities. The principle would be to establish a point where infrastructure was available to facilitate the building up of networks of smaller producers selling directly to the customer. Some of the farms in the survey are effectively acting as a mini-hub, providing the site for processing and direct sales for their own business but also renting out facilities to other (organic) farmers.

Information and market intelligence: Clearly, for businesses becoming more market facing it is imperative that they have accurate and timely information about that market. Currently information about the organic market is scattered and often incomplete or partial. Co-ordination and standardisation of information and having it presented in an accessible form is a key part of allowing the sector to grow. While it should not be DEFRA's role to collect such information there could be a role in co-ordinating and verifying the data. DEFRA has a clearer role in the collection and provision of data on the size and structure of the organic sector. Data should be made available on the farm size, type and tenure structure of the organic sector in order to develop a more detailed understanding of the comparative structural features of the organic sector. Confidentiality may be used as an argument for not disclosing such data at a small geographical scale. If this is the case, regional or even national

summaries would represent a step forward. In the longer term confidentially arguments may be harder to sustain in the light of the recent disclosure of the value of subsidies to individual farmers.

Research implications

A number of implications for future research activity arise from this report. Further refinement of the methodology is needed and, significantly, *integration of environmental impacts with socio-economic impacts*. This research explicitly did not consider the environmental impacts of organic farming and how they might relate to rural development. Yet, if the full importance of policy support measures in the creation of public goods is to be appreciated then an integration of the social, economic and the environmental should be a priority. This would require a significant investment of time and resources but the socio-ecological footprints would allow a fuller picture of the role of all farm businesses to be developed. In addition, elements of the methodology could be adapted and applied to other rural (and urban) businesses.

Beyond these methodological concerns there are several easily identified areas where further information and a deeper understanding is required. These include developing an improved understanding of the *networks of support between farmers and important agents of change*. In the organic sector in particular, the decision making process at the farm level often appears to be heavily influenced by example and exemplars. A greater understanding of the role of exemplars as agents of change would be helpful in understanding how change can be facilitated and encouraged. Linked to this is a need for research into *the role and impact of certifying bodies, public sector agencies and policy measures*. For instance, the south of England is benefiting considerably more from the public monies targeted toward organic farming than the north. An understanding of how the policy context, key actors and policy measures interact to encourage and support the development of organic farming and direct sales to consumers may be useful in facilitating a more even distribution of the rural development benefits of certain baseness forms.

Finally, it is possible that there is the potential to develop the SEF into a commercially exploitable tool. We are in the early stages of considering this and if we wish to proceed will approach DEFRA for the necessary permissions.

Tests of Statistical Significance: A Note

On a number of occasions in this report comparisons are made between sub-groups of respondents. In these cases Chi² has been calculated to test the statistical significance of the difference between sub-groups. A 'significant' difference between distributions is taken to be one where there is less than a 5% probability of the difference arising by chance.

This report also reports statistical significance regarding the comparison of means between sub-groups of respondents. For these, the t-tests procedure compares the means for two groups of cases. An extension of the two-sample t-test is the analysis of variance (ANOVA) that tests the hypothesis that several means are equal. A 'significant' difference between means is taken when there is a less than 5% probability of the difference arriving by chance. On occasion 'significant' difference is indicated where there is a less than 10% probability of the difference arriving by chance, which is indicated by $p < 0.1$. Furthermore, while not shown, all 'significantly' different means are also reliable in terms of the test for variance homogeneity.

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References to published material

9. This section should be used to record links (hypertext links where possible) or references to other published material generated by, or relating to this project.

Journal articles

Lobley, M, Reed, M., Butler, A. (2005) The socio-economic impact of organic farming on the rural economy. In preparation for *Geoforum*

Reed, M., and Lobley, M. (2005) The spatial dynamics of Organic farming – towards a new research agenda. Under revision for *Tijdschrift voor Economische en Social Geografie*.

Reed, M., Butler, A. and Lobley, M. (2005) Beyond the Conventions – re-conceptualising organic agriculture. In preparation for *Environment and Planning D: Society and Space*

Reed, M., Lobley, M. and Butler, A., (2005) *The white van carriage trade –organic and post-organic farmers delivering rural development*. In preparation

Conference paper

Comparing the socio-economic footprints of organic and conventional farms Sustainable Development of Rural Areas – Experience of Different Countries in Europe, Institute of Rural and Agricultural Development, Polish Academy of Sciences, Warsaw 20-21 April 2005.

The impacts of organic farming on the rural economy of England. The Colloquium of Organic Researchers seminar, Bristol, 10th February.

Project website

www.organic-impacts.info