RBR Rural Business Research

Newcastle University

Farm Business Survey

2018/2019

Organic Farming in England

Charles Scott

August 2020

RBR *independent research, data and analysis*

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Acknowledgments

The Rural Business Research (RBR) Consortium thanks sincerely all the farmers who have voluntarily provided records and information on which the annual Farm Business Survey, and this report, is based.

The basic information on which this report is based was collected on behalf of, and largely financed by, the Department for Environment, Food and Rural Affairs and is Crown Copyright. The views expressed in this report are those of the authors and are not necessarily shared by other members of RBR or by the Department for Environment, Food and Rural Affairs.

Foreword to the Fourteenth Series

Now in its fourteenth year of production, our series of reports on the economics of agriculture and horticulture in England from *Rural Business Research (RBR)* has now arguably greater relevance to the farming and horticultural sectors in England than ever before. Following a general election in December 2019, the UK Government has now passed legislation through parliament which will result in the UK leaving the EU at the end of January 2020. A transition period will then follow, with the expectation that by the end of December 2020 the UK will have completed the transition phase of fully leaving the EU.

The new era will impact on many areas of activity in the UK; UK agriculture will witness and experience one of the largest transitions it has seen in decades. The new Agriculture Bill 2019-20 will be translated into policies and subsequently implemented, with an "Agricultural Transition" starting on the 1st January 2021 and being completed by 2028. During this agricultural transition, English agricultural and horticultural businesses will experience a phased decline in the Basic Payment Scheme support, that many businesses have received, while new opportunities for payments for public goods will be introduced and implemented, all against a backdrop of a need to reduce agriculture's 'carbon footprint' and increase productivity performance. Alongside this change in emphasis, trade deals will be negotiated with the EU, the USA and other countries with which we currently, and intend to, trade with. This change in the UK's agricultural policies and trading relationship will lead to both challenges and opportunities for business. Irrespective of the challenges and opportunities that lay ahead, most industry commentators note the need for businesses to adapt and to be fully aware of their costs and returns. We hope that RBR's core focus on independent analysis of the economics of agricultural and horticultural sectors will continue to provide the industry with the data on enterprise and sectoral returns to aid business decision making.

For the 2018/19 year, average Farm Business Income (FBI), derived from our work on the Farm Business Survey (FBS), fell to £50,400 per business from £56,100 in 2017/18. The 2018/19 year relates to the 2018 harvest year, which witnessed an exceptionally cold spring "The Beast from the East" followed by one of the driest summers on record (almost in line with the 1976 drought). These weather impacts led to forage shortage and thus increased livestock feeds costs in the grazing sectors, and reduced cropping yields, albeit with an increase in crop prices. The dairy and grazing livestock sectors witnessed the largest percentage decreases in FBI, as they faced the higher costs of feed and lower prices for stock, particularly in the less favoured areas (LFAs).

As with our previous editions of these reports, available at www.ruralbusinessresearch.co.uk, our core aim is to inform agricultural and horticultural businesses about the economics in their sector. This series of reports, and our work on the FBS more generally, would not be possible without the cooperation of the farmers and growers who participate in the FBS to ensure that the data we provide for policy making, and in our reports and free to use online data services at www.farmbusinesssurvey.co.uk, is truly representative of the sectors. Our sincere thanks therefore go to the farmers and growers for their most valuable contribution.

Professor Paul Wilson
Chief Executive Officer, Rural Business Research
February 2020
www.ruralbusinessresearch.co.uk

Executive Summary

Organic food consumption in the UK grew for the seventh year running to reach an annual total of £2.33bn in 2018 (Soil Association 2019). The area under organic food production (including that in conversion) in the UK rose slightly to 485,179ha in 2019 (Defra 2019). The area under conversion in the UK fell slightly to 28,064ha in 2019 and the number of organic producers (including producer/processors) reached 5,762 in 2019 (Defra 2019).

This report uses data from the 2018/19 Farm Business Survey of 1768 farms, of which 155 are organic. Several measures of performance have been used in this report and Farm Business Income (FBI) is used as the main measure. Farm Business Output (FBO) has been split into four sources; agriculture, agri-environment, diversification and the Basic Payment. Total costs have also been broken down into selected cost centres. Organic farms have been compared year-on-year using an identical sample and a full sample comparison of organic and non-organic farms is made for the current year. Gross margin data for individual organic crop and livestock enterprises is presented whenever enterprise sample size is 10 farms or more.

Four of the six farm types recorded higher farm profitability per hectare (FBI/ha) for the organic farms over their non-organic counterparts and these differences were statistically significant for two of these four farm types: cropping and Mixed. Organic dairy farms however, recorded a statistically lower FBI/ha than the non-organic dairy farms. The differences in income were broadly similar when using Net Farm Income per hectare (NFI/ha) with the exception of the LFA grazing group where there was no difference. The differences in NFI/ha were only significant in three of these groups; for Cropping and Mixed where the organic farms out-performed the non-organics and for Dairy where the reverse was true. With the exception of the cropping group, where the reverse is true, organic farms generate a lower output and incur lower costs than the non-organics. On a year-on-year basis, FBI/farm and FBI/ha increased for organic cropping and mixed farms, but fell for other farm types.

Organic cropping farms earned on average an FBI of £786/ha, £390/ha more than the non-organic cropping farms, and equating to an FBI of £105,642/farm. The difference was significant at the per hectare level but not at the farm level. The higher FBI/ha was due to a greater total farm output per hectare (£2,331 versus £1,745) and despite a higher expenditure on costs per hectare (£1,539/ha versus £1,355/ha). Net farm income was also significantly higher for organic cropping farms at the per hectare level (£690/ha versus £288/ha). Organic cropping farms saw a 21% increase in FBI/ha of between 2017/18 and 2018/19. This increase in profitability was due to a 13% increase in total output and despite a 9% increase in total farm costs.

The FBI/ha for organic horticulture farms of £2,099/ha was lower than that of the non-organics by £56/ha (although not significant). Non-organic horticulture farms operated a much more intensive operation than organic horticulture farms; FBO being £16,650/ha for non-organics versus £8,982/ha for organic farms. The total costs for non-organic horticulture farms were £14,492/ha and only £6,896/ha for organic farms. The FBI/ha on an identical sample of organic horticulture farms fell by 31% between 2017/18 and 2018/19. This was due to a 24% increase in total costs and despite a 5%

increase in total farm output. The small sample size of the identical sample means that some care must be taken in interpreting the year-on-year results.

Organic dairy farms recorded a significantly lower FBI/ha of £291/ha, £178/ha less, than the non-organic dairy farms. Total farm output was £1,049/ha lower on the organic dairy farms, and their costs were £875/ha lower. There is a smaller, but also significant, difference in profitability (of £142/ha) at the NFI/ha level. Organic dairy farms have typically fewer stock (an average of 205 Grazing Livestock Units (GLU) compared to 288 GLU for the non-organics) – on average areas of 163ha and 174ha respectively. Between 2017/18 and 2018/19 the FBI/ha on organic dairy farms fell by 48%; this due to a 6% decrease in output and a 5% increase in costs.

As has been the case for some years, organic LFA grazing farms continue to be more profitable than their non-organic counterparts. The average FBI/farm, of £17,839/farm, is £2,352 more than the non-organic farms although not significant at the farm or the per hectare level. When using NFI, the difference in profitability is also not statistically significant at the farm level and the difference reduced to zero at the NFI/ha level. Organic LFA grazing farms generated £92/ha less output per hectare (at £780/ha) but incurred £96/ha fewer costs (at £659) than the non-organics. The average size of an organic LFA grazing farm is 148 adjusted hectares (adj. ha) carrying 103 GLU whereas a non-organic farm is typically 132 adj. ha and carrying 89 GLU. Organic LFA grazing farms saw a 56% decrease in FBI/ha between 2017/18 and 2018/19 – down to a 12% increase in costs per hectare and a 9% decrease in total output per hectare.

In 2018/19 organic lowland grazing farms recorded an average FBI/ha of £134/ha compared to their non-organic counterparts' of £129/ha – the difference was not significant, and actually reversed at the farm level (also non-significant). The average FBO/ha for organic farms (of £945/ha) was £277/ha less than the FBO/ha for the non-organics, primarily due to a lower output from agriculture and despite the organic farms having considerably lower total costs (by £281/ha). The profitability of organic lowland grazing farms decreased by 40% between 2017/18 and 2018/19. This was due to a 3% decrease in total output per hectare and an 8% increase in total costs to £807/ha.

Organic mixed farms earned an FBI/ha of £386/ha, a significant £122/ha more than their non-organic counterparts (of £264/ha). The NFI/ha was also significantly higher, by £94/ha, at £269/ha. While organic mixed farms earned £161/ha less in total farm output (of £1,784/ha) they also spent £275/ha less in total costs (of £1,409/ha). Organic mixed farms saw a 38% rise in FBI from 2017/18 to 2018/19 to £391/ha. This was due to a 14% increase in FBO to £1,757/ha, and despite a 9% or £118/ha increase in total costs to £1,378/ha.

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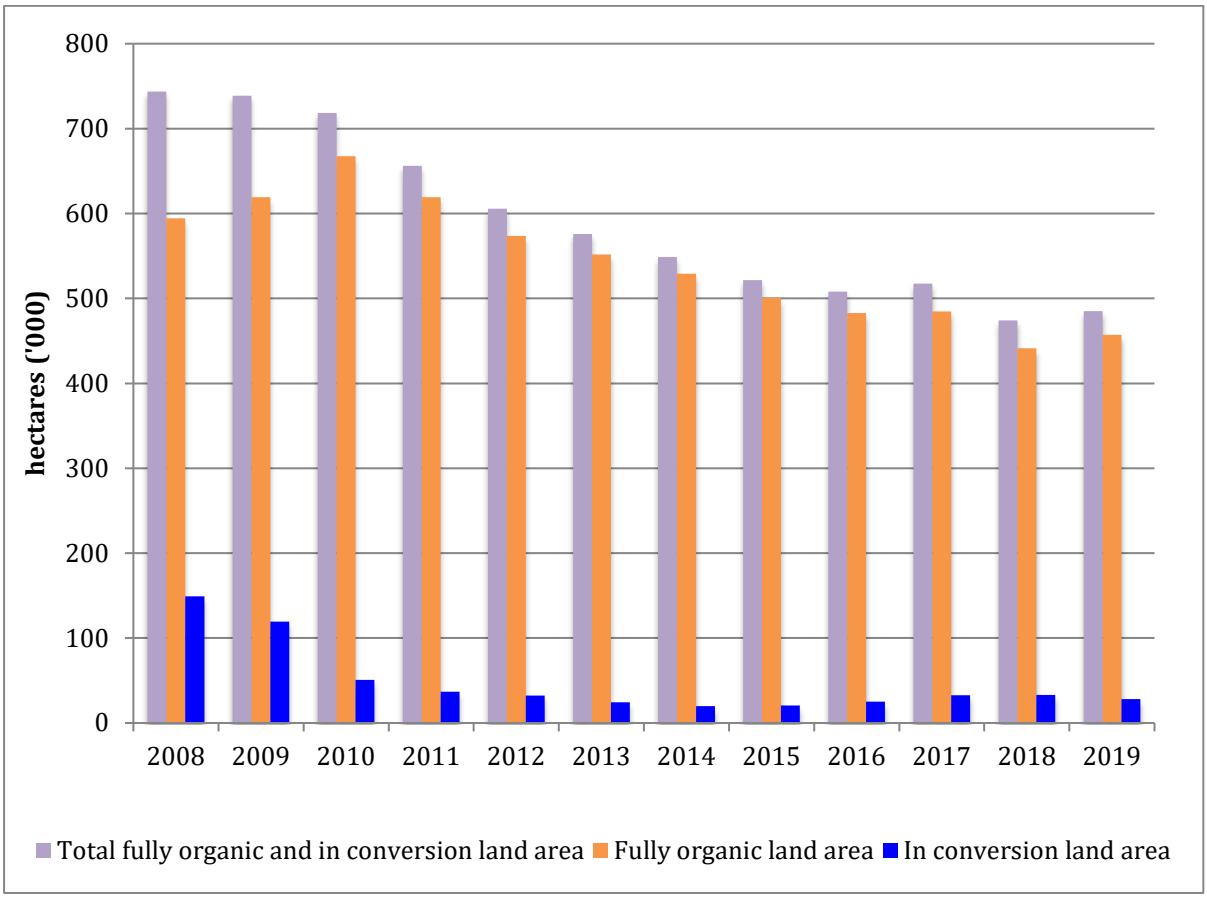
1 Organic farming in the United Kingdom

1.1 Area

The total organic agricultural area consists of land certified as fully organic and land in conversion to organic. Total UK land in organic food production peaked in 2008/09 at 743,516 hectares (ha) but has since declined to 485,179ha in 2019. The area in conversion, peaking in 2007/08 at 157,893ha, was only 28,064ha in 2019.

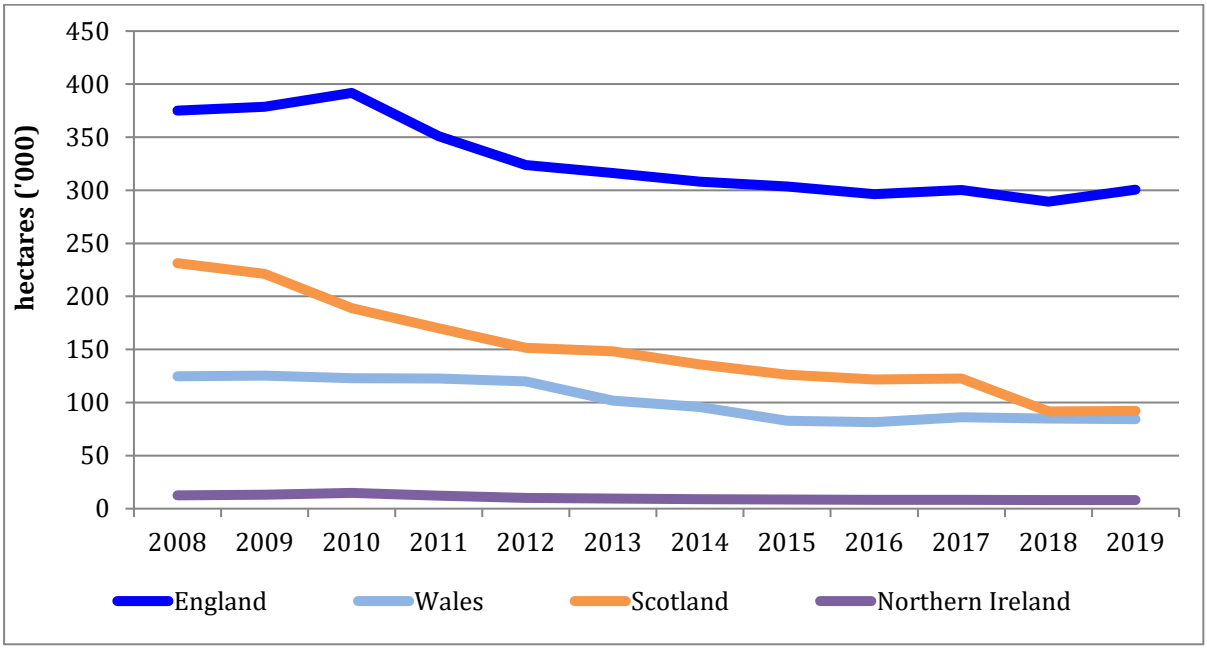
Figure 1 UK land in organic food production 2004-2019



(*Source: DEFRA 2019*)

The area of organic (including areas in conversion) farmland in England has followed a similar pattern to that of the UK as a whole (Figure 2) with 281,557ha being classified as organic (and in-conversion) in 2019, down from a peak of 391,761ha in 2010 (DEFRA 2019). Organic conversions in England, while increasing between 2016 and 2018 reduced slightly to 19,023ha in 2019. Scotland's organic area has been in decline for some years and was 92,122ha in 2019 (25% of the area that was under organic production in 2003). The area under organic production in Wales has also decreased, to 84,368ha in 2019, and the organic area in Northern Ireland continued a nine-year decline to 8,109ha.

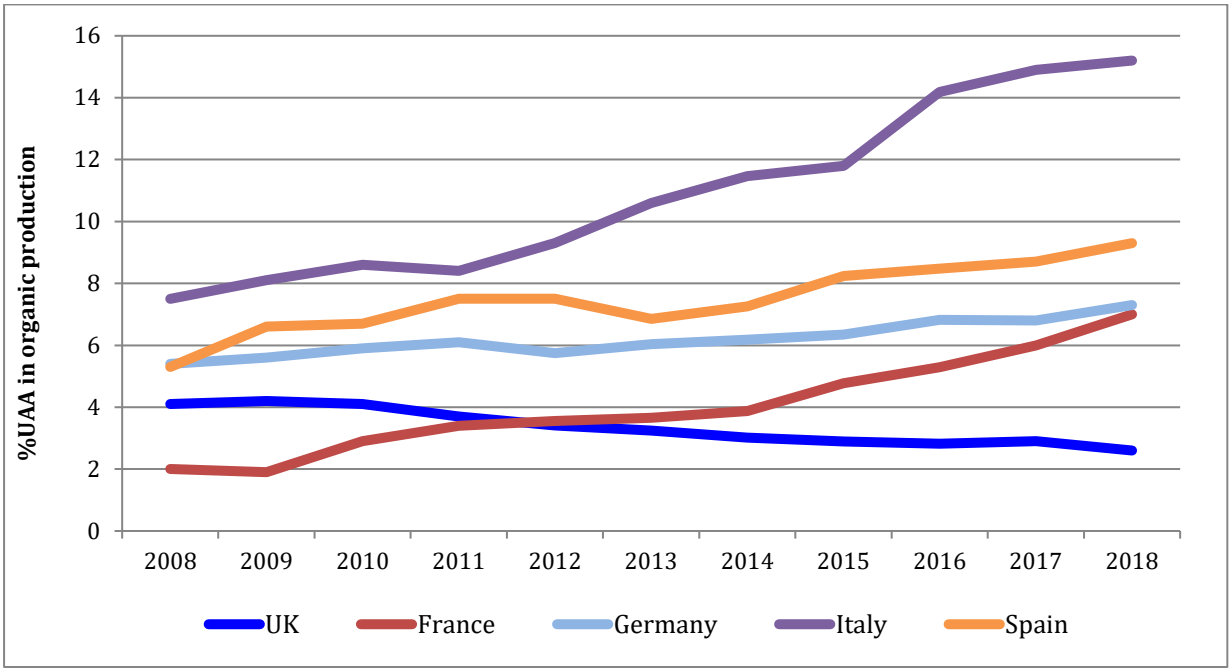
Figure 2 Land area in organic production by UK country (including in-conversion)



(*Source: DEFRA 2019*)

The organic share of the total utilised agricultural area (UAA) in the UK was 2.6% in 2018; this amounts to 3.5% of the EU organic area. The UK share has been steadily declining over the past eight years, this at a time when the major organic growers of the EU are expanding – see Figure 3 and Table 1.

Figure 3 Share of UAA in organic production in the UK, France, Germany, Italy and Spain



(*Source: Eurostat 2019*)

Table 1 Share of organic area in the EU by country

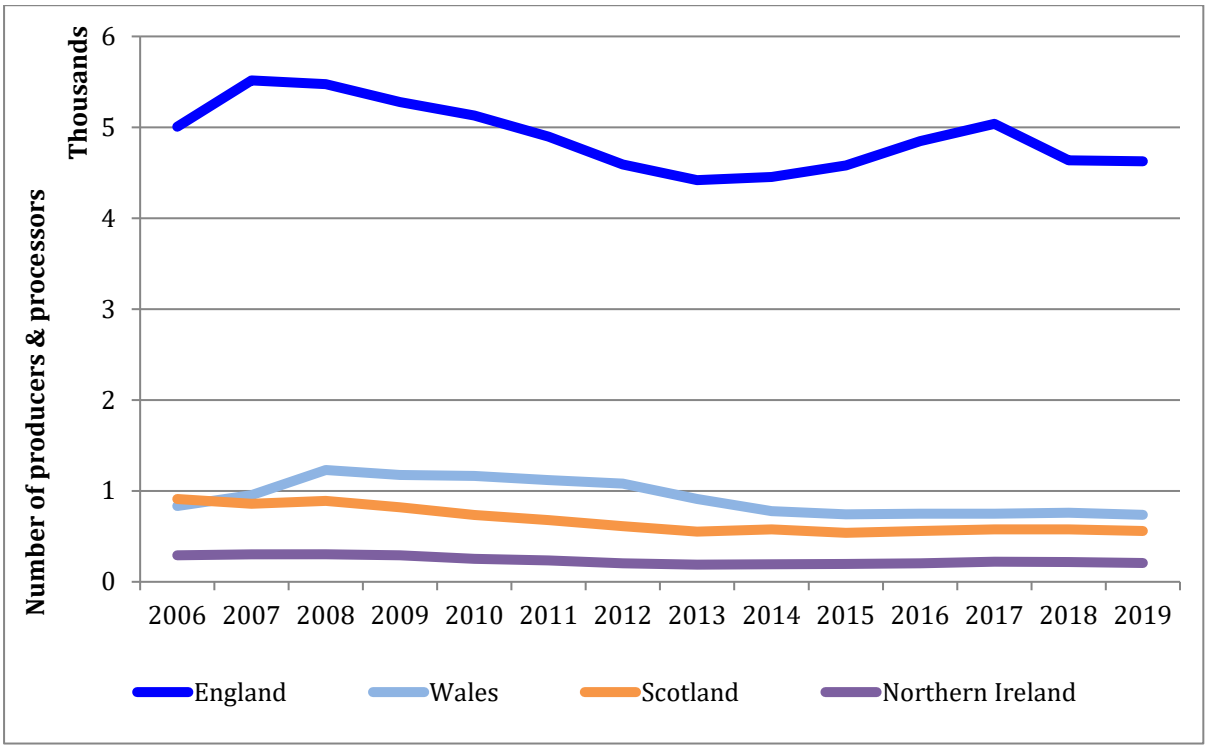
Product	2018 % share of EU28 organic area*
Spain	16.7
Italy	14.6
France	15.1
Germany	9.1
Poland	3.6
Austria	4.8
Sweden	4.5
United Kingdom	3.4

* includes area in conversion (*Source: Eurostat 2019*)

1.2 Producers

The number of organic producers and processors in the UK was at its peak in 2007/08 (of 7,631) and has been steadily declining since then (Figure 4) to a low of 6,002 in 2014. Since 2014 numbers increased slightly to 6,188 in 2018 before dropping back to 6,129 in 2019. In 2019, seventy-five per cent (4,627) of the UK organic producers and processors are in England and of these, 3,617 are producers or producer/processors.

Figure 4 Organic producers and processors in the UK

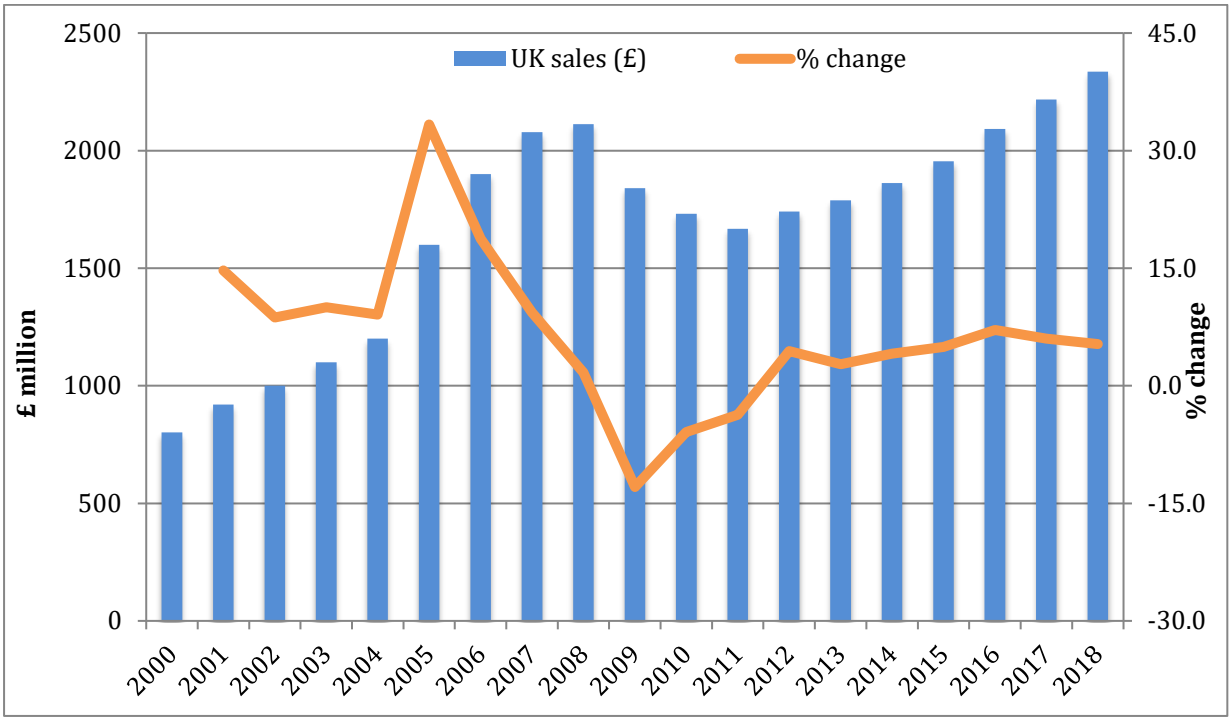


(*Source: DEFRA 2020*)

1.3 Output and sales

Sales of organic products in the UK increased by 5.3% in 2018 to a total sales value of £2.33bn (Figure 5). This is the seventh annual increase in a row to a eight-year high and now exceeds the pre-recession high of £2.11bn in 2008.

Figure 5 UK sales of organic products



(*Source: Soil Association, 2019*)

Organic dairy and fruit and vegetables which account for 53% of the organic market continue to grow in market share and these changes are given in Table 2.

Table 2 Product shares of the UK organic market and changes in sales value 2017/18

Product	2017/18 % change in sales value	2018 % share
Dairy	1.9	28.4
Produce	3.6	24.3
Baby food & drink	-4.8	9.0
Meat, fish & poultry	1.1	10.1
Confectionery/soft drinks	2.3	3.8
Canned & packaged	6.1	16.5
Beers/wines/spirits	21.0	2.8
Bakery & cakes	-2.7	1.2
Frozen	3.7	0.7

(*Source: Soil Association, 2019*)

In terms of market share by outlet, Table 3 describes how, by some considerable margin, the supermarkets handle the bulk of UK organic produce. It is also quite clear that alternative channels of consumption are realising higher growth rates in the organic sector, with Home delivery seeing the greatest growth.

Table 3 The UK organic market in 2018

Outlet	proportion of total sales (%)	growth in 2018 (%)	market value (£ million)
Supermarkets	66	3.3	1537
Independent retailers	16	6.2	382
Home delivery	14	14.2	326
Foodservice	4	7.8	91

(*Source: Soil Association, 2019*)

2 Methods

This report presents financial and physical farm data for the 2017/18 and 2018/19 financial years. Data were collected using the standard Farm Business Survey methodology for all farms[1] by the six Rural Business Research (RBR) Units in England; Newcastle University, Askham Bryan College, University of Nottingham, University of Cambridge, University of Reading, and Duchy College.

For the purpose of this report, an organic farm is defined as a farm business that has at least 70% of the Utilisable Agricultural Area (UAA) certified as organic in 2018/19. The organic farm data are presented as full and identical samples where applicable and sample size allows. The data are analysed for comparisons between years and with non-organic farms. Data from participating farms are used to compile a fully reconciled management profit and loss account. The surveyed farms had financial year-ends between 31st December 2018 and 5th April 2019 and consequently reflect the 2018 lamb crop and the 2018 arable harvest.

2.1 Data sample: farm type and region

This report uses data from the Farm Business Survey of 1768 farms, 155 of which are organic. Of the 155 organic farms; 141 are entirely organic and 14 farms have some non-organic enterprises or land area. A further 21 farms have some organic enterprises but with less than 70% of their UAA being classified as organic, they are considered non-organic in this report. Therefore organic enterprises from "non-organic" farms may be included in the Gross margin analysis section of this report. The distribution of surveyed organic farms by type and region are presented in Table 4 and Table 5.

[1] Details of the data collection methodology for the farm accounting method used in England and Wales by DEFRA, are available from:
https://www.gov.uk/government/collections/farm-business-survey

Table 4 The distribution of surveyed organic farms by farm type 2018/19

Robust farm type	No.	%
Cereals & General cropping	12	8
Horticulture	8	5
Pigs & Poultry	8	5
Dairy	40	26
LFA Grazing	20	13
Lowland Grazing	50	32
Mixed	17	11
All farms	**155**	**100**

Table 5 The distribution of surveyed organic farms by region 2018/19

Region	No	%
North East	16	10
North West	12	8
Yorks. & Humber	5	3
East Midlands	11	7
West Midlands	19	12
East of England	13	8
South East	20	13
South West	59	38
All farms	**155**	**100**

2.2 Data sample: farm type and size

The distribution of the sample by farm size is shown in Table 6. The farm size categories are based on the 2013SO (Standard Output) methodology used by DEFRA - see Appendix 5 – for more information. Farm area, unless specified as Utilisable Agricultural Area (UAA) is the total adjusted area (TAA) this includes: adjusted sole occupier rough grazing, adjusted shared grazing and short term rentals (less than 1 year).

For consistency the 2017/18 results have been recalculated and presented in this report on 2013 SO coefficients to allow comparability between 2017/18 and 2018/19. The results published here are therefore not directly comparable with those published in reports in earlier years which are based on previous SO coefficients. Results for 2017/18 based on the previous SO coefficients can be found at: https://www.ruralbusinessresearch.co.uk/archive-publications/

The 2018/19 dataset was evenly distributed overall across the size bands with each band contributing approximately one third each, but within farm type groups the

distribution was somewhat less even. Dairy and lowland grazing farm types made up the largest proportion of the data sample with 26% and 32% respectively.

Table 6 Organic sample distribution by size (2013 Standard Output)

Farm size band	Small (€2,500-100,000)	Medium (€100,000-250,000	Large (>€250,000)	All
All	45	53	57	155
% distribution	29	34	37	100

2.3 Data sample: Limitations

Due to the small sample size (3) of the organic general cropping farm type this farm type has been merged with organic cereals and the combined group is referred to as cropping farms in this report. Further, there is only one organic pig farm in the survey and insufficient poultry (7) farms to present their data.

In the organic horticulture group some care must be taken in interpreting the results. The 2018/19 sample of 8 farms is composed of 3 subgroups: 2 specialist fruit, 2 specialist glass, and 4 other horticulture i.e. not a uniform group of producers. Furthermore the non-organic sample of 164 farms has a subgroup composition of: 47 specialist fruit, 47 specialist glass, 28 specialist hardy nursery stock and 42 other horticulture. The non-organic horticultural farms are clearly not perfectly comparable to the organic sample and hence the degree of caution advised above.

The identical sample of horticultural farms used to compare the 2017/18 and 2018/19 farming years is limited to 8 farms. These farms do have a consistent sub-group composition between the years, with no changes in subgroup, but the very small sample size means that great care must be taken in interpreting the identical sample results.

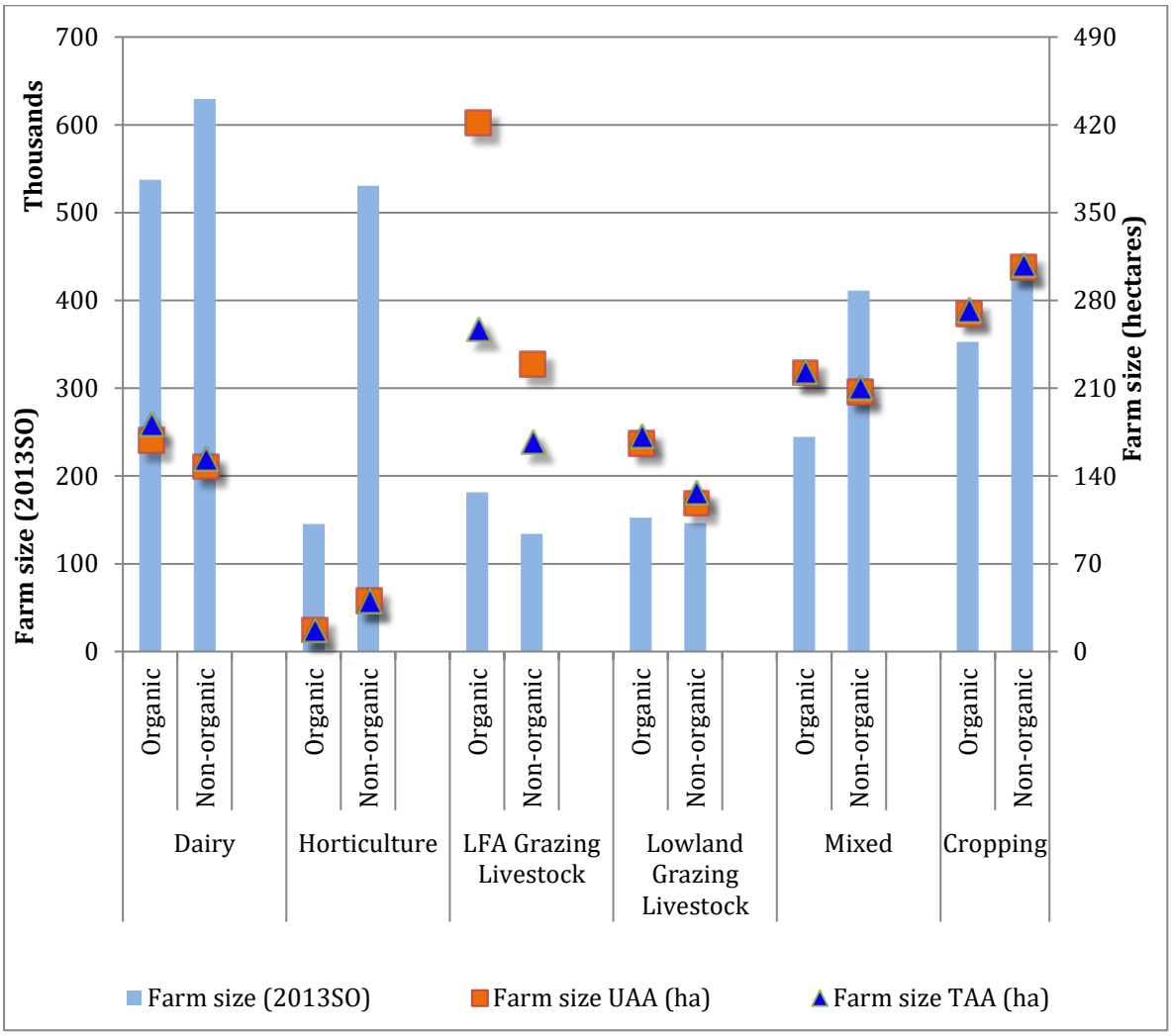
The identical sample of cropping farms used to compare the 2017/18 and 2018/19 farming years is limited to 9 farms, this very small sample size means that great care must be taken in interpreting the identical sample results.

2.4 Farm size

The common measure of farm size of Standard Output (SO) represents a theoretical business size in terms of agricultural output generated. This measure allows for a comparison of business size across farms of varying types of farm but does not necessarily correspond to the area of land farmed. Figure 6 shows the weighted farm sizes for the 2018/19 sample measured by SO and two alternative measures of farm size by farm area; Utilisable Agricultural Area (UAA) and by total adjusted area (TAA). While there is little difference between the area measurements of UAA and TAA in most groups, in the case of LFA grazing farms there is a marked difference. The choice of farm size and area measurement is therefore critical when

benchmarking and making comparisons across farm types. The measure of area used throughout this report is TAA.

Figure 6 Farm size by Standard Output and area (2018/19)



**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

3 Whole-farm results

3.1 Presentation of results

This section presents summary data in the form of tables and figures giving breakdowns of farm sizes, output sources, cost centres and a range of farm income measures at both farm and hectare levels for cropping, horticulture, dairy, LFA grazing, lowland grazing, and mixed farms.

This report focuses on two main income measures: Farm Business Income (FBI) and Net Farm Income (NFI). FBI has been the headline farm income measure since the mid 2000s; it represents the financial return to all unpaid labour (farmers and spouses, non-principal partners and directors, and their spouses and family workers) and on all their capital invested in the farm business, including land and buildings. However, FBI excludes imputed rental values for owner-occupied land and unpaid labour, both of which are included in NFI.

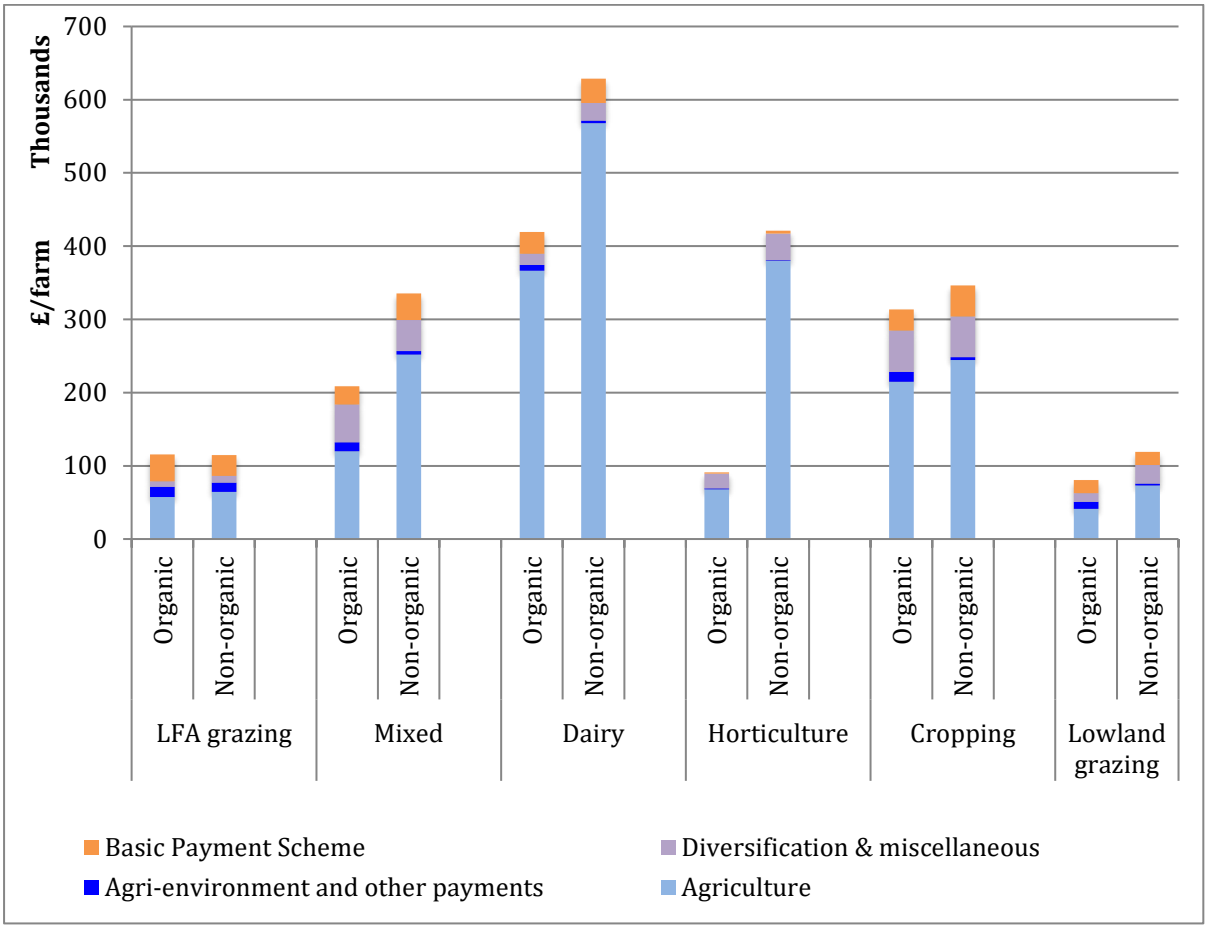
Net Farm Income allows individual farms of different tenure, business organisation and indebtedness to be compared directly with one another on a consistent basis and is thus an excellent farm benchmarking measure. However unlike FBI, interest payments, director's remuneration and ownership costs are not considered in NFI.

A further measure of Management and Investment Income (MII) has also been included in the farm type tables (Table 16 to Table 27). MII, like NFI, provides a good benchmarking tool for farmers; it represents the return to the farm after the subtraction of the farmer and spouse's own manual labour. A definition of terms explaining the various income measures is included in Appendix 5 – Definition of terms.

The measure of Farm area used throughout this report, unless otherwise specified, is the total adjusted area (TAA). TAA includes adjusted common grazing and short term lets taken in (less than 1 year). The area measure of Utilisable Agricultural Area (UAA) differs from the total adjusted area in that it excludes common grazing, does not "adjust" the area of sole-occupier rough grazing, and excludes short term lets. See Appendix 5 – Definition of terms.

3.2 Farm Business Output

Figure 7 Farm Business Output per hectare by cost centre and farm type, organic and non-organic farms, 2018/19



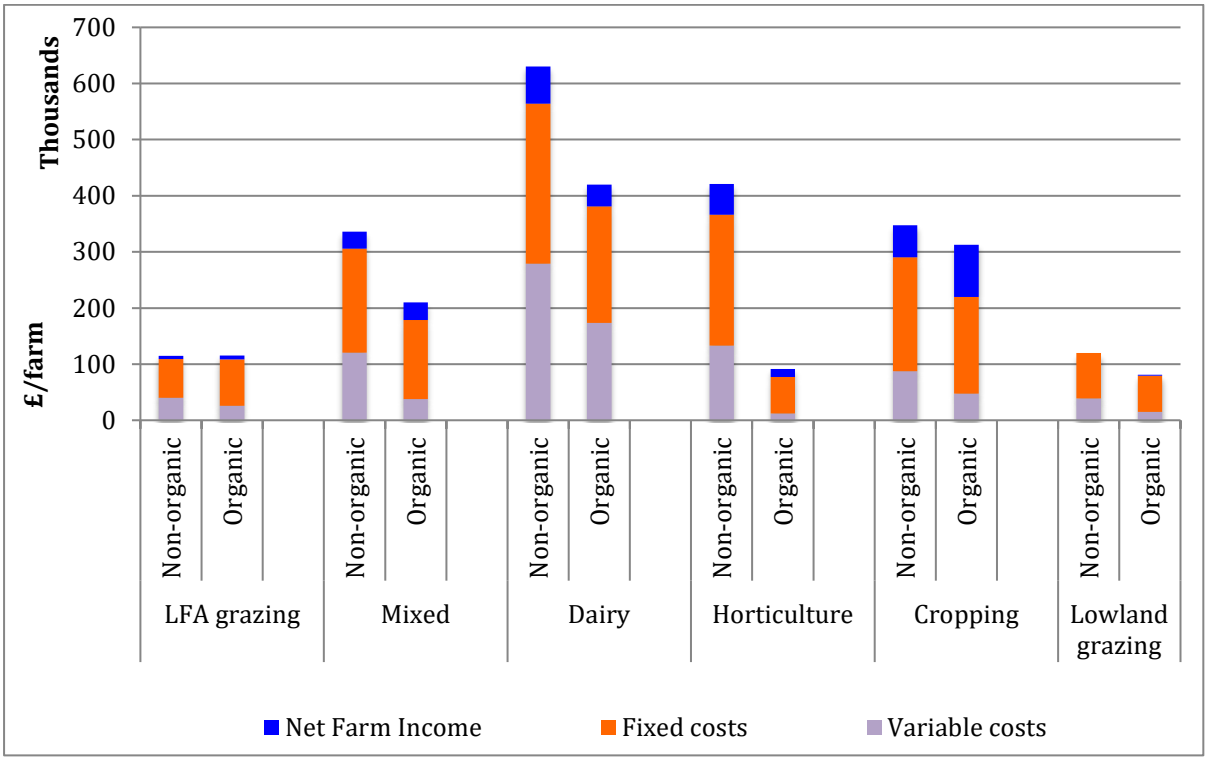
**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Note: Horticulture data presented as 1/10th of actual

Figure 7 illustrates the composition of Farm Business Output per hectare for organic and non-organic farms by farm type for the 2018/19 sample. With the exception of the LFA grazing group, organic farms achieved a lower Farm Business Output than their non-organic equivalents. Agriculture remained the largest component of Farm Business Output for all farm types both organic and non-organic. Non-organic farms generated a higher agricultural output per hectare than their organic counterparts for all groups. Organic farms however, earned consistently more through agri-environment schemes than non-organic farms. Earnings from both the Basic Payment Scheme and diversification activities are varied both across farm types and between organic and non-organic farm groups.

3.3 Costs

Figure 8 Average variable and fixed costs for organic and non-organic farms by farm type, 2018/19



**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Note: Horticulture data presented as 1/10th of actual

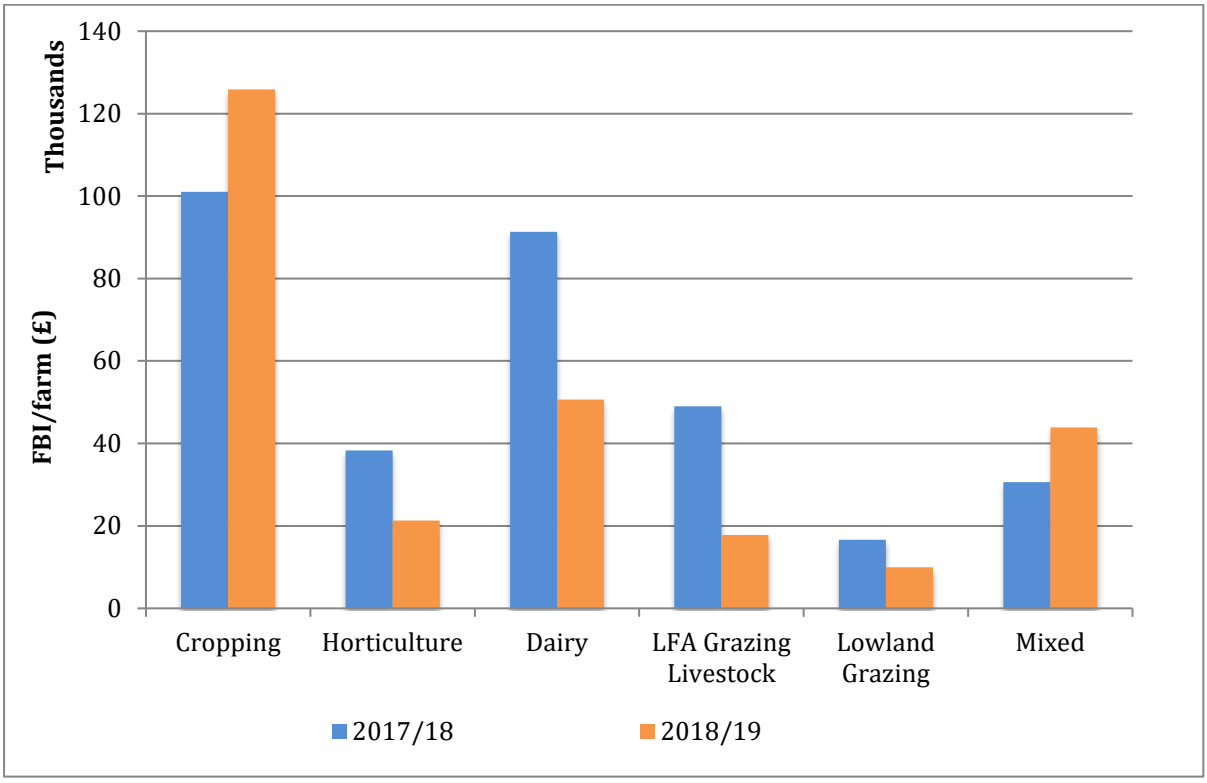
For all farm types variable costs per hectare were greater for non-organic farms than organic farms. There was a mixed picture for fixed costs with differences between organic and non-organic farms being only slight apart from organic LFA grazing and cropping farms which had higher fixed costs than their non-organic counterparts. Non-organic mixed, dairy, horticulture and lowland grazing farm types had higher fixed costs than the organic farms of these types (Figure 8).

The fixed costs presented here are as for the calculation of Net Farm Income (NFI) hence include unpaid family labour (excluding farmer and spouse) and an imputed rent for owned land – see Appendix 5 – . Hence NFI plus costs equals total farm output (net of profit or loss on the sale of fixed assets).

3.4 Farm Business income

3.4.1 Organic farms year on year (identical sample)

Figure 9 Average Farm Business Income (FBI/farm) on organic farms by farm type group 2017/18 and 2018/19



**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 7 Change in average organic FBI by farm type 2017/18 and 2018/19

Farm type	2017/18 (identical sample)				2018/19 (identical sample)			
	Sample farms	No. farms weighted	FBI - £/farm	FBI - £/ha (TAA)	Sample farms	No. farms weighted	FBI - £/farm	FBI - £/ha (TAA)
Cropping	9	166	101040	771	9	160	125907	932
Horticulture	8	156	38327	3053	8	201	21318	2099
Dairy	34	286	91342	553	34	272	50649	289
LFA Grazing	20	138	49003	274	20	171	17839	121
Lowland Grazing	41	997	16623	194	41	1066	9951	117
Mixed	15	259	30601	284	15	286	43871	391

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 8 Change in average organic FBI/farm by farm type 2017/18 and 2018/19

FBI/Farm (£)	2017/18 Mean	2018/19 Mean	Difference	Significance
Cropping	101,040	125,907	24,868	-
Horticulture	38,327	21,318	-17,009	**
Dairy	91,342	50,649	-40,693	**
LFA Grazing	49,003	17,839	-31,165	**
Lowland Grazing	16,623	9,951	-6,673	*
Mixed	30,601	43,871	13,270	-
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 9 Change in average organic FBI/ha (UAA) by farm type 2017/18 and 2018/19

FBI/ha UAA (£)	2017/18 Mean	2018/19 Mean	Difference	Significance
Cropping	771	940	170	-
Horticulture	3,053	2,099	-954	-
Dairy	596	321	-275	**
LFA Grazing	199	86	-113	**
Lowland Grazing	196	118	-77	**
Mixed	277	385	108	*
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

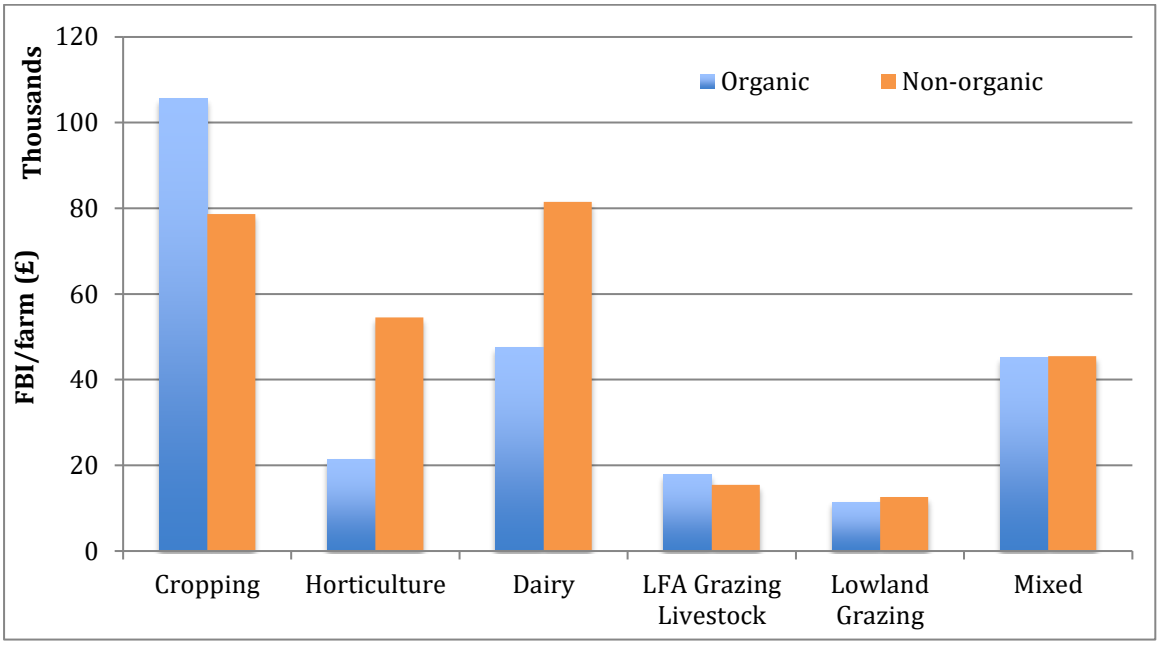
Table 10 Change in average FBI/ha (TAA) by farm type group 2017/18 and 2018/19

FBI/ha TAA (£)	2017/18 Mean	2018/19 Mean	Difference	Significance
Cropping	771	932	162	-
Horticulture	3,053	2,099	-954	-
Dairy	553	289	-264	**
LFA Grazing	274	121	-153	**
Lowland Grazing	194	117	-78	**
Mixed	284	391	107	*
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

3.4.2 Organic versus non-organic (full sample)

Figure 10 Average FBI/farm for organic and non-organic farms by farm type 2018/19



**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

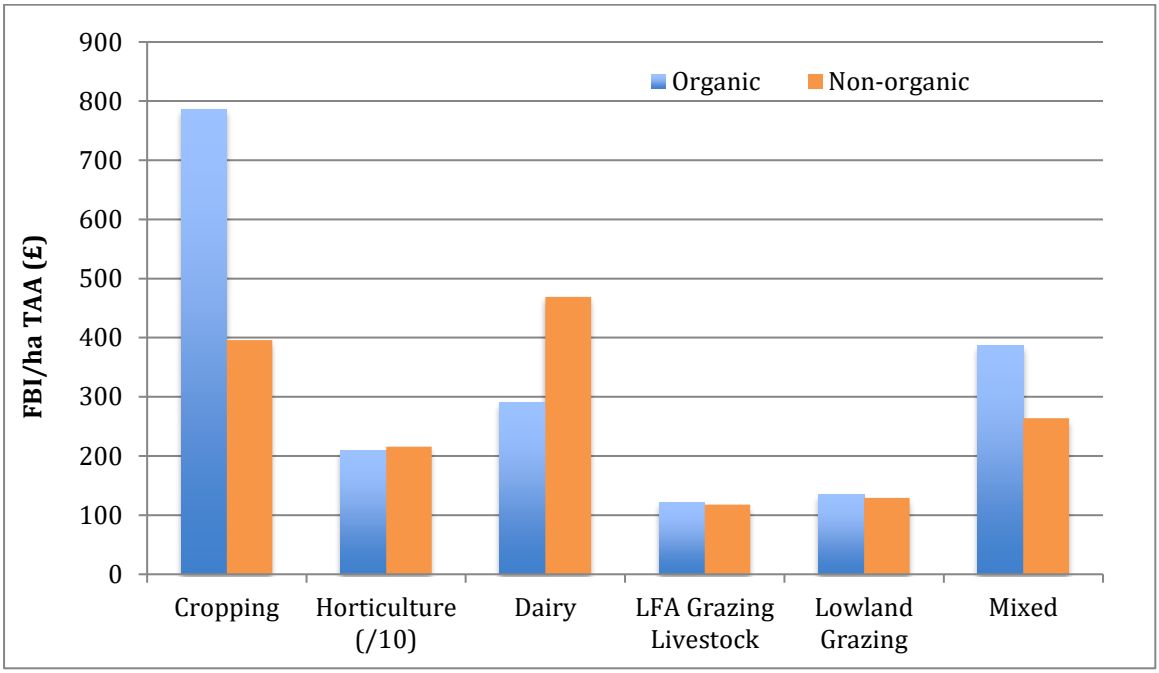
In 2018/19 organic cropping and LFA grazing farms recorded a higher FBI/farm than the non-organic farms (Figure 10) but this difference was not statistically significant (Table 11). In the other farm type groups: horticulture, dairy, lowland grazing and mixed, the non-organic farms generate a higher FBI/farm and the difference was significant for the horticulture and dairy groups (Table 11). While the FBI/farm figure is best able to inform profitability at a national level, the per hectare figure is often seen as more appropriate at farm level. Table 12 presents the FBI/ha data by farm type group. At the per hectare level organic: cropping, LFA grazing, lowland grazing and mixed farms all generate a higher FBI/ha than the non-organic farms and this difference is statistically significant for two of those groups (see Table 12).

Table 11 Statistical differences in average FBI/farm between organic and non-organic farms 2018/19

FBI/Farm (£) 2018/19	Organic Mean	Non-organic Mean	Difference	Significance
Cropping	105642	78629	27013	-
Horticulture	21318	54496	-33178	***
Dairy	47473	81519	-34046	**
LFA Grazing	17839	15487	2352	-
Lowland Grazing	11447	12578	-1131	-
Mixed	45164	45496	-332	-
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Figure 11 Average FBI/ha (TAA) for organic and non-organic farms by farm type 2018/19



**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 12 Statistical differences in average FBI/ha between organic and non-organic farms 2018/19

FBI/ha TAA (£) 2018/19	Organic Mean	Non-organic Mean	Difference	Significance
Cropping	786	396	390	**
Horticulture	2099	2155	-56	-
Dairy	291	469	-178	**
LFA Grazing	121	118	3	-
Lowland Grazing	134	129	5	-
Mixed	386	264	122	*
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 13 shows the relationship by farm type, between FBI/farm and FBI/ha on both a Utilisable Agricultural Area and Total Adjusted Area basis. See section 2.4 above, Farm size, for the background to these two measures of area.

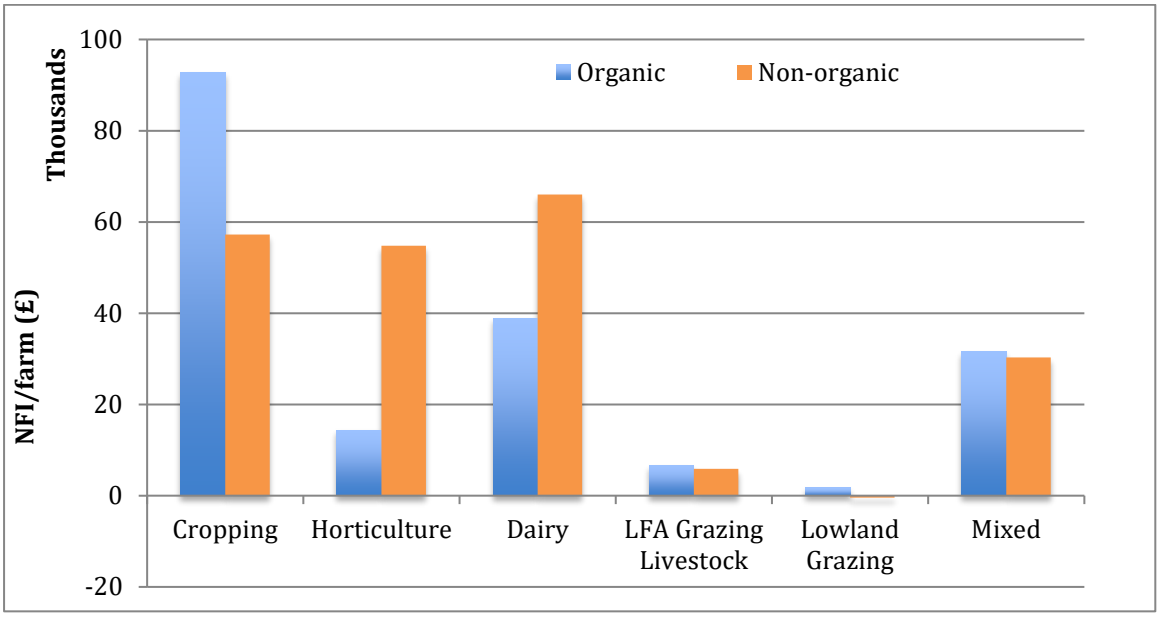
Table 13 Average FBI for organic and non-organic farms by farm type 2018/19

2018/19 (full sample)		Number of farms (sample)	Number of farms (weighted)	FBI – £/farm	FBI – £/ha (UAA)	FBI – £/ha (TAA)
Cropping	Organic	12	211	105642	791	786
	Non-organic	492	19689	78629	398	396
Horticulture	Organic	8	201	21318	2099	2099
	Non-organic	164	2551	54496	2186	2155
Dairy	Organic	40	317	47473	316	291
	Non-organic	198	5522	81519	493	469
LFA Grazing	Organic	20	171	17839	86	121
	Non-organic	192	6757	15487	95	118
Lowland Grazing	Organic	50	1236	11447	136	134
	Non-organic	246	11555	12578	138	129
Mixed	Organic	17	298	45164	383	386
	Non-organic	154	5705	45496	269	264

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

3.5 Net Farm Income

Figure 12 Average NFI/farm for organic and non-organic farms by farm type 2018/19



**A part of this figure was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Net Farm Income (NFI) remains the preferred measure of farm income with which to compare farms on an equal basis with differing levels of land ownership (see section 3.1). NFI, while including an imputed rental charge for owned land, excludes land ownership costs and interest payments (see Appendix 5 – for a full definition). The differences in farm income between organic and non-organic farms are broadly similar when measured by either NFI or FBI, in direction if not in absolute terms. The organic lowland grazing and mixed groups, which while realising a lower FBI/farm than the non-organics, record a higher NFI/farm – although neither difference is significant. Organic horticulture and dairy farms earn a significantly lower NFI/farm than their non-organic counterparts; other group differences between organic and non-organics are not significant (see Table 14).

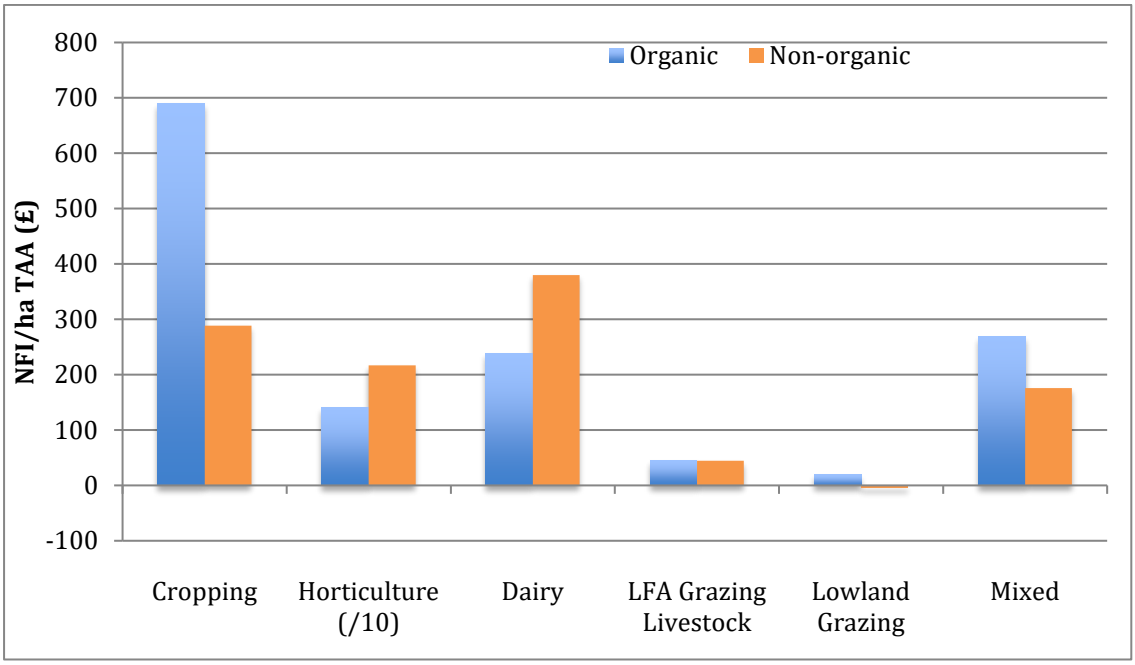
Table 14 Differences in NFI/farm between organic and non-organic farms by farm type 2018/19

NFI/Farm (£) 2018/19	Organic Mean	Non-organic Mean	Difference	Significance
Cropping	92824	57262	35562	-
Horticulture	14342	54814	-40471	***
Dairy	38913	66038	-27125	**
LFA Grazing	6688	5886	802	-
Lowland Grazing	1704	-464	2168	-
Mixed	31509	30289	1219	-
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

At the farm level the per hectare measure of income remains a more relevant benchmark figure in that it removes (arguably not completely) the impact of farm size on farm income levels. Figure 13 shows the differences in NFI/ha by farm type (with the horticulture group results reduced by a factor of ten to facilitate presentation). The differences in NFI at the farm level are broadly mirrored at the per hectare level for all type groups. The organic cropping and mixed farm groups recorded a significantly greater NFI/ha than the non-organics and the organic dairy group recorded a significantly lower NFI/ha – see Table 15.

Figure 13 Average NFI/ha (TAA) for organic and non-organic farms by farm type 2018/19



**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 15 Differences in average NFI/ha between organic and non-organic farms by farm type 2018/19

NFI/ha TAA (£) 2018/19	Organic Mean	Non-organic Mean	Difference	Significance
Cropping	690	288	402	**
Horticulture	1412	2168	-756	-
Dairy	238	380	-142	**
LFA Grazing	45	45	0	-
Lowland Grazing	20	-5	25	-
Mixed	269	176	94	*
(- not significant, * significant at 10% (slight), ** at 5% (moderate), *** at 1% (strong))				

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

4 Detailed costs and returns by farm type

The following section provides a detailed breakdown by farm type on a per farm and per hectare basis, of revenue by cost centre and farm income measures for: an identical sample of organic farms year-on-year (2017/18 and 2018/19) and the full sample (2018/19) on an organic versus non-organic basis. This commentary focuses on the per hectare results, which, as discussed above, minimises the effect of farm size on the results. Year-on-year percentage changes are based on per hectare figures.

4.1 Cropping

The cropping group includes farms from both the cereal and general cropping farm types – there were insufficient farms in these groups to allow separate presentation.

Organic cropping farms year-on-year

An identical sample of organic cropping farms saw a rise in Farm Business Output of 13% between 2017/18 and 2018/19 to £2,628/ha. Agricultural output, which generated 70% of farm output, rose by 12% to £1,831/ha. This output is now almost entirely due to crop output; the livestock component now being <1%. Agri-environment scheme revenues (4% of total revenue) increased by 24%, and the Basic payment, now 8% of total revenue, was 4% higher than the year before. Diversification and miscellaneous revenues, which provided 18% of total revenue, increased by 21% to £473/ha in 2018/19 (Table 16).

Total costs on organic cropping farms rose by 9% to £1,688/ha. The resultant Farm Business Income in 2018/19 was 21% higher (than in 2017/18) at £932/ha. Net Farm Income (NFI) rose by 23% to £830/ha (£112,048/farm) which after having deducted an imputed figure for farmer and spouse manual labour generated a Management and Investment Income (MII) - effectively the return on the capital invested in the business, of £670/ha, or an average of £90,487/farm.

Cropping farms, organic and non-organic

Table 17 details the differences between the full sample of organic and non-organic cropping farms for the 2018 crop year. The average organic cropping farm size is 134.5ha compared to 198.6ha for a non-organic cropping farm. At the per hectare level organic cropping farms generate 34% more output than the non-organic farms at £2,331/ha. The agricultural output per hectare of organic cropping farms (at £1,599/ha) is 30% higher than the non-organics. Organic cropping farms are also able to earn five times the revenue per hectare (at £99/ha, or £13,373/farm) from agri-environment schemes as their non-organic counterparts. Organic cropping farms generate 50% more revenue per hectare (at £419/ha, or £56,362/farm) from diversification and miscellaneous sources than the non-organics.

Organic cropping farms incurred total costs of £1,539/ha, 14% more than the non-organic farms. Variable costs are £86/ha less on organic cropping farms, with fertiliser and crop protection costs accounting for most of this difference – offset by higher other crop costs. Overhead costs were £270/ha higher for organic cropping farms with contract and labour costs being the main components. The Farm Business Income of £786/ha for organic cropping farms is significantly greater than the figure of £396/ha for the non-organic farms. The corresponding NFI of £690/ha for organic cropping farms is also significantly higher than the £288/ha of the non-organics (see Table 15).

Table 16 Cropping farms, organic identical sample 2017/18 and 2018/19

The average cropping farm	Organic identical sample 2017/18			2018/19		
Number (unweighted)	9			9		
Number (weighted)	166			160		
Farm size (2013SO)	135,689			142,297		
Farm area (adjusted ha)	131.1			135.1		
Grazing livestock units	4.4			4.1		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	215,142	1,641	71%	247,348	1,831	70%
Livestock component	612	5	*0%*	406	3	*0%*
Crop component	214,530	1,636	*100%*	246,942	1,828	*100%*
Agri-environment and other payments	12,186	93	4%	15,527	115	4%
Diversification & miscellaneous	51,302	391	17%	63,892	473	18%
Basic Payment Scheme	26,439	202	9%	28,235	209	8%
Farm Business Output (a)	**305,069**	**2,327**	**100**	**355,001**	**2,628**	**100**
Livestock variable costs:	288	2	0%	233	2	0%
Feed	70	1	*24%*	114	1	*49%*
Vet & medicine	0	0	*0%*	0	0	*0%*
Other livestock costs	218	2	*76%*	120	1	*51%*
Crop variable costs:	48,627	371	24%	56,811	421	25%
Seed	19,845	151	*41%*	22,061	163	*39%*
Fertiliser	5,226	40	*11%*	7,319	54	*13%*
Crop protection	917	7	*2%*	2,267	17	*4%*
Other crop costs	22,639	173	*47%*	25,165	186	*44%*
Contract	18,732	143	9%	22,117	164	10%
Paid Labour	27,988	213	14%	30,015	222	13%
Machinery:	41,855	319	21%	44,711	331	20%
Fuel & oil	7,630	58	*18%*	9,469	70	*21%*
Repairs	14,579	111	*35%*	14,219	105	*32%*
Depreciation	19,647	150	*47%*	21,022	156	*47%*
Paid Rents	18,120	138	9%	22,188	164	10%
Other costs	47,079	359	23%	51,892	384	23%
Total Costs (b)	**202,690**	**1,546**	**100**	**227,967**	**1,688**	**100**
Profit/(loss) on sale of fixed assets	-1,340			-1,127		
Farm Business Income (c=a-b)	**101,040**	**771**		**125,907**	**932**	
Unpaid manual labour excl. farmer & spouse	944	7		914	7	
Interest payments (e)	5,239	40		4,824	36	
Imputed rents (f)	24,596	188		25,709	190	
Director's remuneration (g)	689	5		531	4	
Ownership costs (h)	7,344	56		7,409	55	
Net Farm Income (i=c-d+e-f+g+h)	**88,772**	**677**		**112,048**	**830**	
Farmer & Spouse unpaid labour (j)	27,333	208		21,696	161	
Paid managerial labour (k)	197	2		135	1	
Management and Investment Income (l=i-	**61,635**	**470**		**90,487**	**670**	

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 17 Cropping farms, organic and non-organic, full sample 2018/19

The average cropping farm	Non-organic 2018/19			Organic 2018/19		
Number (unweighted)	492			12		
Number (weighted)	19,689			211		
Farm size (2013SO)	257,843			150,995		
Farm area (adjusted ha)	198.6			134.5		
Grazing livestock units	11.2			10.7		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	244,671	1,232	71%	214,967	1,599	69%
Livestock	7,512	38	*3%*	4,628	34	*2%*
Crops	237,158	1,194	*97%*	210,339	1,564	*98%*
Agri-environment and other payments	3,826	19	1%	13,373	99	4%
Diversification & miscellaneous	55,340	279	16%	56,362	419	18%
Basic Payment Scheme	42,708	215	12%	28,662	213	9%
Farm Business Output (a)	**346,545**	**1,745**	**100%**	**313,364**	**2,331**	**100%**
Livestock variable costs:	4,557	23	2%	1,656	12	1%
Feed	2,399	12	*53%*	645	5	*39%*
Vet & medicine	484	2	*11%*	178	1	*11%*
Other livestock costs	1,674	8	*37%*	833	6	*50%*
Crop variable costs:	82,664	416	31%	45,871	341	22%
Seed	16,993	86	*21%*	18,633	139	*41%*
Fertiliser	25,541	129	*31%*	6,076	45	*13%*
Crop protection	30,020	151	*36%*	1,727	13	*4%*
Other crop costs	10,111	51	*12%*	19,435	145	*42%*
Contract	22,642	114	8%	22,068	164	11%
Paid Labour	28,047	141	10%	30,284	225	15%
Machinery:	57,800	291	21%	38,539	287	19%
Fuel & oil	13,071	66	*23%*	7,983	59	*21%*
Repairs	15,764	79	*27%*	12,337	92	*32%*
Depreciation	28,965	146	*50%*	18,220	136	*47%*
Paid Rents	19,202	97	7%	21,244	158	10%
Other costs	54,079	272	20%	47,226	351	23%
Total Costs (b)	**268,992**	**1,355**	**100%**	**206,888**	**1,539**	**100%**
Profit/(loss) on sale of fixed assets	1,076			-833		
Farm Business Income (c=a-b)	**78,629**	**396**		**105,642**	**786**	
Unpaid manual labour excl. farmer & spouse	5,026	25		1,462	11	
Interest payments (e)	6,523	33		3,862	29	
Imputed rents (f)	34,591	174		22,315	166	
Director's remuneration (g)	2,456	12		405	3	
Ownership costs (h)	9,271	47		6,691	50	
Net Farm Income (i=c-d+e-f+g+h)	**57,262**	**288**		**92,824**	**690**	
Farmer & Spouse unpaid labour (j)	18,327	92		26,108	194	
Paid managerial labour (k)	354	2		957	7	
Management and Investment Income (l=i-	**39,288**	**198**		**67,673**	**503**	

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

4.2 Horticulture

As with previous years the sample of organic horticulture farms remains low with only 8 organic horticulture farms in 2018/19, fortunately these 8 farms are also present in the 2017/18 dataset for a year on year comparison. However extreme care must be taken when making conclusions about the horticulture sample due to the very small sample size and diverse nature of enterprises contained within the sample, see 2.3 Data sample: Limitations.

Organic horticulture farms year-on-year

Table 18 shows Farm Business Output (FBO) for organic horticulture farms increased by 5% to £8,982/ha in 2018/19 to give an average £91,237/farm. Crop output increased by 1% to £6,654/ha. Diversification and miscellaneous income, which account for 22% of farm output increased by 14%, to £1,986/ha. Agri-environment payments and the Basic payment combined only account for 4% of total farm output of organic horticulture farms.

Total costs for organic horticulture farms increased by 24% to £6,896/ha. Crop variable costs, which account for 17% of costs, rose by 14% to £1,194/ha. Paid labour (29% of total costs) rose by 19% to £2,010/ha. Unpaid labour fell by 8% to £641/ha. Paid rents rose by 15% to £462/ha (which, plus an imputed rent on owner occupied land of £306/ha gives an overall rent figure of £768/ha).

The overall effect on Farm Business Income (FBI) was a 31% decrease to £2,099/ha. After allowing for the appropriate adjustments Net Farm Income (NFI) showed a 37% fall to £1,412/ha. However, this figure fails to cover an imputed wage for farmer and spouse manual labour of £3,045/ha, thus returning a negative Management and Investment Income (MII) of £-1,633/ha.

Horticulture farms, organic and non-organic

The average organic horticulture farm at 10.2ha is a third of the size of its non-organic counterpart (of 25.3ha). When measured on a Standard Output (SO) (see Appendix 5 – Definition of terms) basis, the average non-organic horticulture farm is over three times the size of an organic unit (Table 19). Organic horticulture farms generate, on average, an FBO of £8,982/ha which is only 54% of that of the non-organic farms (of £16,650/ha). As might be expected this is mainly due to the difference in output from crops, where organic farms typically generate £6,654/ha which is about 44% of that generated by the non-organics (of £15,006/ha). Diversification revenues are slightly higher in the organic group (£1,986/ha versus £1,438/ha for the non-organics). The Basic payment and agri-environmental payments are both slightly higher for the organics but only contribute 4% to overall farm output.

Total costs for organic horticulture farms, of £6,896/ha, were only half of those of the non-organic farms. Variable costs make up 17% of total costs on organic farms (36% on non-organic farms). Paid labour accounts for 29% of total costs on organic horticultural farms, machinery 14%, and paid rents 7%.

The resultant FBI is significantly greater for the non-organics at the farm level but this difference is not significant at the per hectare level (£2,099/ha for the organic farms and £2,155/ha for the non-organics). At the NFI level the organic farms realise an NFI of £1,412/ha and the non-organics £2,168/ha (not statistically significant). After an imputed wage for farmer and spouse manual labour is deducted from NFI the resultant MII is a negative -£1,633/ha for organic horticultural farms, and £1,230/ha for the non-organic farms.

Table 18 Horticulture farms, organic identical sample 2017/18 and 2018/19

The average horticulture farm	Organic identical sample 2017/18			Organic identical sample 2018/19		
Number (unweighted)	8			8		
Number (weighted)	156			201		
Farm size (2013SO)	94,233			83,900		
Farm area (adjusted ha)	12.6			10.2		
Grazing livestock units	0.1			0.3		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	82,706	6,588	77%	67,764	6,671	74%
Livestock component	0	0	0%	175	17	*0%*
Crop component	82,706	6,588	100%	67,590	6,654	*100%*
Agri-environment and other payments	846	67	1%	1,541	152	2%
Diversification & miscellaneous	21,908	1,745	20%	20,170	1,986	22%
Basic Payment Scheme	2,282	182	2%	1,761	173	2%
Farm Business Output (a)	**107,742**	**8,582**	100%	**91,237**	**8,982**	**100**
Livestock variable costs:	67	5	0%	44	4	0%
Feed	24	2	*36%*	27	3	*62%*
Vet & medicine	10	1	*15%*	4	0	*8%*
Other livestock costs	33	3	*49%*	13	1	*29%*
Crop variable costs:	13,158	1,048	19%	12,124	1,194	17%
Seed	6,837	545	*52%*	6,016	592	*50%*
Fertiliser	705	56	*5%*	1,567	154	*13%*
Crop protection	327	26	*2%*	220	22	*2%*
Other crop costs	5,288	421	*40%*	4,321	425	*36%*
Contract	1,811	144	3%	4,476	441	6%
Paid Labour	21,147	1,684	30%	20,415	2,010	29%
Machinery:	10,021	798	14%	9,924	977	14%
Fuel & oil	2,915	232	*29%*	2,745	270	*28%*
Repairs	4,635	369	*46%*	4,616	454	*47%*
Depreciation	2,472	197	*25%*	2,562	252	*26%*
Paid Rents	5,058	403	7%	4,695	462	7%
Other costs	18,298	1,458	26%	18,366	1,808	26%
Total Costs (b)	**69,560**	**5,541**	100%	**70,044**	**6,896**	**100**
Profit/(loss) on sale of fixed assets	144			125		
Farm Business Income (c=a-b)	**38,327**	**3,053**		**21,318**	**2,099**	
Unpaid manual labour excl. farmer & spouse	8,765	698		6,510	641	
Interest payments (e)	752	60		104	10	
Imputed rents (f)	5,011	399		3,106	306	
Director's remuneration (g)	404	32		482	47	
Ownership costs (h)	2,362	188		2,055	202	
Net Farm Income (i=c-d+e-f+g+h)	**28,069**	**2,236**		**14,342**	**1,412**	
Farmer & Spouse unpaid labour (j)	32,337	2,576		30,932	3,045	
Paid managerial labour (k)	0	0		0	0	
Management and Investment Income (l=i-	**-4,268**	**-340**		**-16,590**	**-1,633**	

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 19 Horticulture farms, organic and non-organic full sample, 2018/19

The average horticulture farm	Non-organic 2018/19			Organic 2018/19		
Number (unweighted)	164			8		
Number (weighted)	2,551			201		
Farm size (2013SO)	295,890			83,900		
Farm area (adjusted ha)	25.3			10.2		
Grazing livestock units	0.9			0.3		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	379,940	15,026	90%	67,764	6,671	74%
Livestock	485	19	*0%*	175	17	*0%*
Crops	379,455	15,006	*100%*	67,590	6,654	*100%*
Agri-environment and other payments	749	30	0%	1,541	152	2%
Diversification & miscellaneous	36,358	1,438	9%	20,170	1,986	22%
Basic Payment Scheme	3,960	157	1%	1,761	173	2%
Farm Business Output (a)	**421,008**	**16,650**	**100%**	**91,237**	**8,982**	**100**
Livestock variable costs:	285	11	0%	44	4	0%
Feed	110	4	*39%*	27	3	*62%*
Vet & medicine	23	1	*8%*	4	0	*8%*
Other livestock costs	151	6	*53%*	13	1	*29%*
Crop variable costs:	132,648	5,246	36%	12,124	1,194	17%
Seed	54,959	2,174	*41%*	6,016	592	*50%*
Fertiliser	13,222	523	*10%*	1,567	154	*13%*
Crop protection	8,948	354	*7%*	220	22	*2%*
Other crop costs	55,518	2,196	*42%*	4,321	425	*36%*
Contract	8,220	325	2%	4,476	441	6%
Paid Labour	130,373	5,156	36%	20,415	2,010	29%
Machinery:	29,106	1,151	8%	9,924	977	14%
Fuel & oil	6,447	255	*22%*	2,745	270	*28%*
Repairs	9,925	393	*34%*	4,616	454	*47%*
Depreciation	12,734	504	*44%*	2,562	252	*26%*
Paid Rents	6,782	268	2%	4,695	462	7%
Other costs	59,034	2,335	16%	18,366	1,808	26%
Total Costs (b)	**366,449**	**14,492**	**100%**	**70,044**	**6,896**	**100**
Profit/(loss) on sale of fixed assets	-63			125		
Farm Business Income (c=a-b)	**54,496**	**2,155**		**21,318**	**2,099**	
Unpaid manual labour excl. farmer & spouse	6,638	263		6,510	641	
Interest payments (e)	2,558	101		104	10	
Imputed rents (f)	9,262	366		3,106	306	
Director's remuneration (g)	6,856	271		482	47	
Ownership costs (h)	6,803	269		2,055	202	
Net Farm Income (i=c-d+e-f+g+h)	**54,814**	**2,168**		**14,342**	**1,412**	
Farmer & Spouse unpaid labour (j)	24,199	957		30,932	3,045	
Paid managerial labour (k)	491	19		0	0	
Management and Investment Income (l=i-	**31,106**	**1,230**		**-16,590**	**-1,633**	

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

4.3 Dairy

Organic dairy farms year-on-year

Organic dairy farms saw a 48% decrease in Farm Business Income (FBI) to £289/ha in 2018/19. This converted to a Net Farm Income (NFI) figure of £237/ha, which, having deducted the imputed figure for farmer and spouse manual labour, gives a Management and Investment Income (MII) of only £47/ha.

Total Farm Business Output, of £2,598/ha, was 6% lower than in 2017/18. Agricultural production, which contributed 88% of this total, was down by 5% and within this total, livestock output was down by 5% to £2,215/ha. Agri-environment payments were down by 27% to £48/ha. Diversification output was down by 7% to £93/ha and the Basic payment contribution fell by 1% to £181/ha.

Total costs were up by 5% to £2,313/ha. Livestock variable costs, which account for 45% of total costs, were up by 8% to £1,046/ha, with feed, the major component, increasing by 10%. Paid labour, 12% of total costs, at £279/ha, was up by 8%, and machinery, 13% of total costs, was up by 6% to £293/ha. Paid rents, 5% of total, were up by 8%.

Dairy farms, organic and non-organic

The average organic dairy farm has a farm area of 163.2 hectares and carries 205 grazing livestock units (GLU) – slightly smaller but with considerably fewer stock than the average for non-organic dairy farms, which has 173.8 hectares and 288 GLU.

The Farm Business Income of £291/ha for organic dairy farms is significantly lower than the £469/ha figure for the non-organic farms. This FBI figure translates to an NFI of £238/ha, which is also significantly lower than the £380/ha for the non-organic dairy farms.

The Farm Business Output, of £2,569/ha for organic dairy farms is considerably lower than the £3,618/ha for non-organic farms. On organic farms 87% of this total is derived from agricultural production and this figure is 90% on non-organic farms. The organic dairy farms derive over twice the revenue from Agri-environment schemes than non-organics, and slightly less for Diversification activities and from the Basic payment.

The total costs on organic dairy farms (of £2,281/ha) are £875/ha lower than on non-organic farms but the proportional distribution of costs among the cost components is broadly similar. The livestock variable costs, which make up 45% of the total costs for both groups of farms, have a very similar distribution among the sub-categories with the exception of vet costs which are about twice as much on the non-organic farms than on the organics.

Please see Appendix 3 – Organic dairy production for a more detailed commentary on organic dairy production.

Table 20 Dairy farms, organic identical sample 2017/18 and 2018/19

The average dairy farm	Organic identical sample 2017/18			2018/19		
Number (unweighted)	34			34		
Number (weighted)	286			272		
Farm size (2013SO)	511,599			522,730		
Farm area (adjusted ha)	165.1			175.1		
Grazing livestock units	211.4			220.3		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	397,173	2,406	87%	398,561	2,277	88%
Livestock component	384,456	2,329	*97%*	387,818	2,215	*97%*
Crop component	12,718	77	*3%*	10,743	61	*3%*
Agri-environment and other payments	10,958	66	2%	8,429	48	2%
Diversification & miscellaneous	16,364	99	4%	16,224	93	4%
Basic Payment Scheme	30,103	182	7%	31,678	181	7%
Farm Business Output (a)	**454,598**	**2,754**	100	**454,893**	**2,598**	**100**
Livestock variable costs:	159,878	969	44%	183,094	1,046	45%
Feed	112,147	679	*70%*	130,667	746	*71%*
Vet & medicine	8,243	50	*5%*	9,221	53	*5%*
Other livestock costs	39,488	239	*25%*	43,206	247	*24%*
Crop variable costs:	6,987	42	2%	6,829	39	2%
Seed	3,439	21	*49%*	3,643	21	*53%*
Fertiliser	1,816	11	*26%*	1,497	9	*22%*
Crop protection	4	0	*0%*	48	0	*1%*
Other crop costs	1,727	10	*25%*	1,641	9	*24%*
Contract	20,641	125	6%	21,468	123	5%
Paid Labour	42,864	260	12%	48,875	279	12%
Machinery:	45,646	277	13%	51,240	293	13%
Fuel & oil	8,731	53	*19%*	10,479	60	*20%*
Repairs	14,625	89	*32%*	17,404	99	*34%*
Depreciation	22,290	135	*49%*	23,357	133	*46%*
Paid Rents	16,934	103	5%	19,414	111	5%
Other costs	70,167	425	19%	74,022	423	18%
Total Costs (b)	**363,118**	**2,200**	100	**404,941**	**2,313**	**100**
Profit/(loss) on sale of fixed assets	-138			697		
Farm Business Income (c=a-b)	**91,342**	**553**		**50,649**	**289**	
Unpaid manual labour excl. farmer & spouse (d)	7,639	46		7,628	44	
Interest payments (e)	10,780	65		13,099	75	
Imputed rents (f)	29,786	180		31,198	178	
Director's remuneration (g)	2,423	15		2,343	13	
Ownership costs (h)	14,294	87		14,291	82	
Net Farm Income (i=c-d+e-f+g+h)	**81,414**	**493**		**41,555**	**237**	
Farmer & Spouse unpaid labour (j)	32,378	196		33,317	190	
Paid managerial labour (k)	0	0		20	0	
Management and Investment Income (l=i-j+k)	**49,036**	**297**		**8,258**	**47**	

Table 21 Dairy farms, organic and non-organic full sample, 2018/19

The average dairy farm	Non-organic 2018/19			Organic 2018/19		
Number (unweighted)	198			40		
Number (weighted)	5,522			317		
Farm size (2013SO)	706,521			488,853		
Farm area (adjusted ha)	173.8			163.2		
Grazing livestock units	287.6			204.9		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	567,780	3,267	90%	366,418	2,245	87%
Livestock	535,131	3,079	*94%*	356,730	2,186	*97%*
Crops	32,649	188	*6%*	9,688	59	*3%*
Agri-environment and other payments	3,473	20	1%	7,834	48	2%
Diversification & miscellaneous	24,310	140	4%	15,266	94	4%
Basic Payment Scheme	33,248	191	5%	29,627	182	7%
Farm Business Output (a)	**628,811**	**3,618**	**100**	**419,145**	**2,569**	**100%**
Livestock variable costs:	243,489	1,401	44%	167,223	1,025	45%
Feed	180,091	1,036	*74%*	119,014	729	*71%*
Vet & medicine	17,961	103	*7%*	8,464	52	*5%*
Other livestock costs	45,437	261	*19%*	39,745	244	*24%*
Crop variable costs:	35,224	203	6%	6,151	38	2%
Seed	6,416	37	*18%*	3,266	20	*53%*
Fertiliser	18,211	105	*52%*	1,393	9	*23%*
Crop protection	7,133	41	*20%*	42	0	*1%*
Other crop costs	3,464	20	*10%*	1,449	9	*24%*
Contract	30,367	175	6%	20,049	123	5%
Paid Labour	57,728	332	11%	43,318	265	12%
Machinery:	73,492	423	13%	48,666	298	13%
Fuel & oil	15,458	89	*21%*	9,645	59	*20%*
Repairs	23,743	137	*32%*	16,057	98	*33%*
Depreciation	34,291	197	*47%*	22,963	141	*47%*
Paid Rents	21,351	123	4%	17,489	107	5%
Other costs	86,826	500	16%	69,376	425	19%
Total Costs (b)	**548,477**	**3,156**	**100**	**372,272**	**2,281**	**100%**
Profit/(loss) on sale of fixed assets	1,186			600		
Farm Business Income (c=a-b)	**81,519**	**469**		**47,473**	**291**	
Unpaid manual labour excl. farmer & spouse (d)	15,372	88		6,974	43	
Interest payments (e)	13,728	79		12,293	75	
Imputed rents (f)	33,527	193		28,911	177	
Director's remuneration (g)	2,475	14		2,016	12	
Ownership costs (h)	17,215	99		13,016	80	
Net Farm Income (i=c-d+e-f+g+h)	**66,038**	**380**		**38,913**	**238**	
Farmer & Spouse unpaid labour (j)	31,736	183		32,577	200	
Paid managerial labour (k)	591	3		17	0	
Management and Investment Income (l=i-j+k)	**34,894**	**201**		**6,353**	**39**	

4.4 LFA grazing

Organic LFA grazing farms year-on-year

The profitability of LFA grazing farms fell by 56% between 2017/18 and 2018/19 to a Farm Business Income (FBI) of £121/ha. This decrease in FBI translated into a 79% fall in Net Farm Income, to £45/ha, and a consequential 191% decrease in Management and Investment Income (MII) to -£93/ha (Table 22). These decreases in profitability followed a 9% decrease in Farm Business Output, to £780/ha, and a 12% increase in total costs (to £659/ha). The decrease in total farm output was attributable to: a 14% decrease per hectare in output from production agriculture (50% of total output) a 28% decrease in Agri-environment revenues (12% of output) and a 7% decrease in Diversification revenues and despite a 11% increase in Basic payment scheme revenues.

The 12% increase in total costs per hectare was due to a 11% increase in livestock variable costs (23% of total costs) primarily feed costs (which increased by 20%) a 23% increase in paid labour costs to £58/ha, a 24% increase in machinery costs (24% of total) and an 8% increase in other overhead costs. Paid rents fell by 15% over the same period.

LFA grazing farms, organic and non-organic

The average organic LFA grazing farm is 147.9ha (TAA) and carries 103 grazing livestock units (GLU) – this is rather larger than the average non-organic LFA grazing farm which is 131.6ha and carries 89 GLU. This gives a, surprisingly, slightly higher stocking rate of 0.70GLU/ha on organic farms against 0.68GLU/ha on the non-organics.

Organic LFA grazing farms made a profit of £121/ha Farm Business Income (FBI) in 2018/19 whereas the non-organic farms only managed £118/ha (Table 23) - this difference is not statistically significant. This difference disappeared when these figures are adjusted to Net farm Income (NFI) where the all farms saw a profit of £45/ha. Having deducted an imputed sum for farmer and spouse labour (of £139/ha for organics and £172/ha for the non-organics) the difference widened again at the Management and Investment Income level to -£93/ha and -£127/ha for the non-organics.

Farm Business Output for the organic LFA grazing farms averaged £780/ha against £872/ha for the non-organics. The organic LFA farms generate a lower agricultural output (of £389/ha) than the non-organic farms (of £490) and lower revenues per hectare from Agri-environment payments and Diversification activities. Basic payment revenues are greater per hectare on organic farms.

Total costs for organic LFA grazing farms were £659/ha and £755/ha for the non-organics. Organic farms had noticeably lower livestock variable costs (at £153/ha versus £260/ha) and lower crop variable costs (of £23/ha versus £43/ha). Organic farms had higher fixed cost of: contract (£68/ha for organics and £30/ha for the non-organics) paid labour (£58 for organics, £53/ha for the non-organics) and machinery (£159/ha for organics and £144/ha for the non-organics). Paid rents on organic farms were £38/ha against £56/ha on non-organics, and other fixed costs were £160/ha for organics and £169/ha on non-organics.

Further detailed commentary on organic LFA grazing farms is given in Appendix 2 – Organic LFA cattle and sheep.

Table 22 LFA grazing farms, organic identical sample 2017/18 and 2018/19

The average LFA grazing farm	Organic identical sample 2017/18			2018/19		
Number (unweighted)	20			20		
Number (weighted)	138			171		
Farm size (2013SO)	125,039			109,277		
Farm area (adjusted ha)	179.1			147.9		
Grazing livestock units	122.9			103.2		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	80,781	451	53%	57,476	389	50%
Livestock component	77,425	432	96%	53,802	364	*94%*
Crop component	3,356	19	4%	3,675	25	*6%*
Agri-environment and other payments	23,261	130	15%	13,831	94	12%
Diversification & miscellaneous	9,781	55	6%	7,512	51	7%
Basic Payment Scheme	39,813	222	26%	36,551	247	32%
Farm Business Output (a)	**153,635**	**858**	100	**115,371**	**780**	**100**
Livestock variable costs:	24,556	137	23%	22,605	153	23%
Feed	9,629	54	39%	9,545	65	*42%*
Vet & medicine	4,935	28	20%	3,924	27	*17%*
Other livestock costs	9,992	56	41%	9,136	62	*40%*
Crop variable costs:	3,479	19	3%	3,443	23	4%
Seed	1,461	8	42%	1,142	8	*33%*
Fertiliser	1,269	7	36%	1,192	8	*35%*
Crop protection	18	0	1%	3	0	*0%*
Other crop costs	731	4	21%	1,105	7	*32%*
Contract	10,983	61	10%	10,097	68	10%
Paid Labour	8,479	47	8%	8,580	58	9%
Machinery:	22,861	128	22%	23,470	159	24%
Fuel & oil	4,602	26	20%	4,523	31	*19%*
Repairs	6,223	35	27%	6,021	41	*26%*
Depreciation	12,037	67	53%	12,925	87	*55%*
Paid Rents	8,061	45	8%	5,691	38	6%
Other costs	26,579	148	25%	23,619	160	24%
Total Costs (b)	**104,999**	**586**	100	**97,504**	**659**	**100**
Profit/(loss) on sale of fixed assets	367			-28		
Farm Business Income (c=a-b)	**49,003**	**274**		**17,839**	**121**	
Unpaid manual labour excl. farmer & spouse (d)	2,311	13		2,099	14	
Interest payments (e)	3,247	18		2,557	17	
Imputed rents (f)	18,909	106		17,412	118	
Director's remuneration (g)	1,354	8		773	5	
Ownership costs (h)	5,765	32		5,030	34	
Net Farm Income (i=c-d+e-f+g+h)	**38,149**	**213**		**6,688**	**45**	
Farmer & Spouse unpaid labour (j)	19,764	110		20,496	139	
Paid managerial labour (k)	0	0		39	0	
Management and Investment Income (l=i-j+k)	**18,385**	**103**		**-13,770**	**-93**	

Table 23 LFA grazing farms, organic and non-organic full sample, 2018/19

The average LFA grazing farm	Non-organic 2018/19			Organic 2018/19		
Number (unweighted)	192			20		
Number (weighted)	6,757			171		
Farm size (2013SO)	97,246			109,277		
Farm area (adjusted ha)	131.6			147.9		
Grazing livestock units	89.2			103.2		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	64,433	490	56%	57,476	389	50%
Livestock	60,573	460	*94%*	53,802	364	*94%*
Crops	3,860	29	*6%*	3,675	25	*6%*
Agri-environment and other payments	12,747	97	11%	13,831	94	12%
Diversification & miscellaneous	8,857	67	8%	7,512	51	7%
Basic Payment Scheme	28,745	218	25%	36,551	247	32%
Farm Business Output (a)	**114,783**	**872**	**100**	**115,371**	**780**	**100**
Livestock variable costs:	34,242	260	34%	22,605	153	23%
Feed	20,430	155	*60%*	9,545	65	*42%*
Vet & medicine	4,405	33	*13%*	3,924	27	*17%*
Other livestock costs	9,407	72	*27%*	9,136	62	*40%*
Crop variable costs:	5,614	43	6%	3,443	23	4%
Seed	393	3	*7%*	1,142	8	*33%*
Fertiliser	4,040	31	*72%*	1,192	8	*35%*
Crop protection	458	3	*8%*	3	0	*0%*
Other crop costs	724	6	*13%*	1,105	7	*32%*
Contract	3,918	30	4%	10,097	68	10%
Paid Labour	7,001	53	7%	8,580	58	9%
Machinery:	18,968	144	19%	23,470	159	24%
Fuel & oil	4,649	35	*25%*	4,523	31	*19%*
Repairs	4,581	35	*24%*	6,021	41	*26%*
Depreciation	9,738	74	*51%*	12,925	87	*55%*
Paid Rents	7,383	56	7%	5,691	38	6%
Other costs	22,219	169	22%	23,619	160	24%
Total Costs (b)	**99,343**	**755**	**100**	**97,504**	**659**	**100**
Profit/(loss) on sale of fixed assets	48			-28		
Farm Business Income (c=a-b)	**15,487**	**118**		**17,839**	**121**	
Unpaid manual labour excl. farmer & spouse (d)	5,429	41		2,099	14	
Interest payments (e)	3,316	25		2,557	17	
Imputed rents (f)	11,506	87		17,412	118	
Director's remuneration (g)	246	2		773	5	
Ownership costs (h)	3,772	29		5,030	34	
Net Farm Income (i=c-d+e-f+g+h)	**5,886**	**45**		**6,688**	**45**	
Farmer & Spouse unpaid labour (j)	22,657	172		20,496	139	
Paid managerial labour (k)	52	0		39	0	
Management and Investment Income (l=i-j+k)	**-16,720**	**-127**		**-13,770**	**-93**	

4.5 Lowland grazing farms

Organic lowland grazing farms year-on-year

The average organic lowland grazing farm saw a 40% decrease Farm Business Income to £117/ha in 2018/19. This corresponds to a Net farm Income of £7/ha (a 91% reduction on 2017/18). However, once an imputed figure for farmer and spouse manual labour is deducted, the resultant Management and Investment Income is a negative -£272/ha (Table 24).

Farm Business Output fell by 3% on 2017/18 (to £924/ha). Within this gross output figure, output from agriculture decreased by 3% to £457/ha, with the livestock component, which accounted for 87% of this figure, falling by 6%. Agri-environment payments fell by 2% to £117/ha and Diversification revenues fell by 5% to £138/ha. Basic payment revenue was unchanged at £212/ha.

Within the total costs figure of £807/ha; livestock variable costs were up by 19% and crop variable costs by 27% on 2017/18 figures. Contract costs (10% of total) were up by 36% and paid labour (8% of total) was down by 3%. Machinery costs were down 1% to £186/ha. Paid rents, which account for 5% of total costs, were down by 3% to £42/ha (imputed rents on owned land combine to give an overall rent figure of £219/ha). Other costs, (insurance, interest, professional fees, water etc.) which account for 33% of total costs, were £267/ha.

Lowland grazing farms, organic and non-organic

The average organic lowland grazing farm (at 85.3ha) is slightly smaller than the average non-organic farm and has 23 fewer livestock units. The stocking rate on organic farms, of 0.82GLU/ha, compares to 0.95GLU/ha for the non-organic farms (Table 25).

The average Farm Business Income of £134/ha for organic lowland grazing farms is slightly higher than the £129/ha figure for non-organic lowland grazing farms but this difference is not statistically significant. At the Net Farm Income level, where the profitability measured £20/ha for organic farms and negative -£5/ha for non-organics, this difference is also not statistically significant.

Organic lowland grazing farms produce a total output of £945/ha compared to £1,221/ha for the non-organic farms. Agri-environment schemes, Diversification and Basic payment sources collectively account for 49% of total output on the organic farms leaving agriculture to generate the remaining 51% at £484/ha. On non-organic lowland grazing farms agricultural output at £750/ha accounts for 61% of total output.

Variable costs on organic lowland grazing farms (of £175ha) account for 21% of total costs and on non-organic lowland grazing farms this figure is 37% of total costs at £401/ha. Paid labour (8% total costs) and Contract costs (10% of total costs) are slightly higher on organic farms at £68/ha and £78/ha respectively. Machinery costs, at £186/ha, are lower than on the non-organics (£226/ha). Other (overhead) costs account for 33% of total costs for organic farms (£267/ha). Paid rents of £43/ha for organic farms, when combined with an imputed rent on owned land, give an overall rent figure of £220/ha in comparison to an overall rent figure of £207/ha for the non-organic lowland grazing farms.

Further detailed commentary on organic lowland grazing farms is given in Appendix 1 – Organic lowland cattle and sheep.

Table 24 Lowland grazing farms, organic identical sample 2017/18 and 2018/19

The average lowland grazing farm	Organic identical sample 2017/18			2018/19		
Number (unweighted)	41			41		
Number (weighted)	997			1066		
Farm size (2013SO)	70,580			70,593		
Farm area (adjusted ha)	85.5			85.1		
Grazing livestock units	65.7			68.2		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	40,432	473	50%	38,950	457	50%
Livestock component	36,470	427	90%	33,990	399	*87%*
Crop component	3,962	46	10%	4,960	58	*13%*
Agri-environment and other payments	10,139	119	13%	9,942	117	13%
Diversification & miscellaneous	12,365	145	15%	11,740	138	15%
Basic Payment Scheme	18,064	211	22%	18,016	212	23%
Farm Business Output (a)	**81,001**	**948**	100%	**78,649**	**924**	**100**
Livestock variable costs:	10,474	123	16%	12,377	145	18%
Feed	3,418	40	33%	4,618	54	*37%*
Vet & medicine	2,049	24	20%	2,003	24	*16%*
Other livestock costs	5,006	59	48%	5,756	68	*47%*
Crop variable costs:	1,697	20	3%	2,150	25	3%
Seed	975	11	57%	1,156	14	*54%*
Fertiliser	192	2	11%	476	6	*22%*
Crop protection	94	1	6%	81	1	*4%*
Other crop costs	435	5	26%	436	5	*20%*
Contract	4,910	57	8%	6,637	78	10%
Paid Labour	5,533	65	9%	5,366	63	8%
Machinery:	16,065	188	25%	15,857	186	23%
Fuel & oil	2,431	28	15%	2,720	32	*17%*
Repairs	4,110	48	26%	4,004	47	*25%*
Depreciation	9,524	111	59%	9,132	107	*58%*
Paid Rents	3,751	44	6%	3,616	42	5%
Other costs	21,695	254	34%	22,702	267	33%
Total Costs (b)	**64,124**	**750**	100%	**68,704**	**807**	**100**
Profit/(loss) on sale of fixed assets	-253			6		
Farm Business Income (c=a-b)	**16,623**	**194**		**9,951**	**117**	
Unpaid manual labour excl. farmer & spouse (d)	2,877	34		3,218	38	
Interest payments (e)	2,733	32		2,975	35	
Imputed rents (f)	14,748	173		15,054	177	
Director's remuneration (g)	1,056	12		1,372	16	
Ownership costs (h)	4,094	48		4,576	54	
Net Farm Income (i=c-d+e-f+g+h)	**6,882**	**81**		**601**	**7**	
Farmer & Spouse unpaid labour (j)	23,344	273		23,764	279	
Paid managerial labour (k)	0	0		0	0	
Management and Investment Income (l=i-	**-16,463**	**-193**		**-23,163**	**-272**	

Table 25 Lowland grazing farms, organic and non-organic full sample, 2018/19

The average lowland grazing farm	Non-organic 2018/19			Organic 2018/19		
Number (unweighted)	246			50		
Number (weighted)	11,555			1236		
Farm size (2013SO)	99,024			72,218		
Farm area (adjusted ha)	97.4			85.3		
Grazing livestock units	92.6			69.8		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	73,064	750	61%	41,299	484	51%
Livestock	60,939	626	*83%*	36,089	423	*87%*
Crops	12,125	125	*17%*	5,210	61	*13%*
Agri-environment and other payments	2,704	28	2%	9,340	110	12%
Diversification & miscellaneous	25,266	259	21%	11,822	139	15%
Basic Payment Scheme	17,908	184	15%	18,111	212	22%
Farm Business Output (a)	**118,943**	**1,221**	**100**	**80,573**	**945**	**100**
Livestock variable costs:	31,562	324	30%	12,602	148	18%
Feed	19,186	197	*61%*	4,413	52	*35%*
Vet & medicine	3,251	33	*10%*	2,011	24	*16%*
Other livestock costs	9,125	94	*29%*	6,178	72	*49%*
Crop variable costs:	7,536	77	7%	2,295	27	3%
Seed	1,164	12	*15%*	1,297	15	*57%*
Fertiliser	4,173	43	*55%*	451	5	*20%*
Crop protection	1,243	13	*17%*	70	1	*3%*
Other crop costs	955	10	*13%*	477	6	*21%*
Contract	6,777	70	6%	6,681	78	10%
Paid Labour	6,504	67	6%	5,762	68	8%
Machinery:	21,972	226	21%	15,904	186	23%
Fuel & oil	5,193	53	*24%*	2,921	34	*18%*
Repairs	5,853	60	*27%*	4,018	47	*25%*
Depreciation	10,925	112	*50%*	8,965	105	*56%*
Paid Rents	6,550	67	6%	3,698	43	5%
Other costs	26,037	267	24%	22,731	267	33%
Total Costs (b)	**106,938**	**1,098**	**100**	**69,673**	**817**	**100**
Profit/(loss) on sale of fixed assets	573			546		
Farm Business Income (c=a-b)	**12,578**	**129**		**11,447**	**134**	
Unpaid manual labour excl. farmer & spouse (d)	7,028	72		2,812	33	
Interest payments (e)	2,947	30		2,775	33	
Imputed rents (f)	13,628	140		15,070	177	
Director's remuneration (g)	264	3		1,183	14	
Ownership costs (h)	4,403	45		4,182	49	
Net Farm Income (i=c-d+e-f+g+h)	**-464**	**-5**		**1,704**	**20**	
Farmer & Spouse unpaid labour (j)	23,848	245		24,063	282	
Paid managerial labour (k)	18	0		17	0	
Management and Investment Income (l=i-j+k)	**-24,294**	**-249**		**-22,341**	**-262**	

4.6 Mixed farms

Organic mixed farms year-on-year

Organic mixed farms saw a 38% increase in Farm Business Income (FBI) from £284/ha (in 2017/18) to £391/ha in 2018/19. This translated into a 34% increase in Net Farm Income (NFI) to £267/ha. Having deducted an imputed figure for farmer and spouse labour of £223/ha (in 2018/19) from the NFI, the Management and Investment Income corresponded to £45/ha (Table 26).

This improvement in FBI was due to a 14% increase in total farm output to £1757/ha for 2018/19 and despite a 9% increase in total costs (£1,378/ha in 2018/19). Output from agriculture, which generated 55% of total output, was up by 5% to £962/ha; livestock output being down by 6% to £465/ha. Revenues from agri-environment schemes were down by 10%, but income from Diversification rose by 61% to £468ha. Livestock variable costs, which account for 14% of total costs, increased by 11% to £188/ha, and crop variable costs, 8% of total at £108/ha in 2018/19 were up 13% on 2017/18. Contract costs were up 26% to £122/ha (9% of total) and paid labour, up 13% to £205/ha (15% of total). Machinery costs, which account for 17% of total costs, were down 1% to £241/ha in 2018/19. Other (overhead) costs (32% of total costs) were up 12% to £445/ha.

Mixed farms, organic and non-organic

The average size of an organic mixed farm is 117ha and it carries 52 grazing livestock units (GLU) this making it about 55 ha smaller and with about 32 fewer GLU than the average non-organic mixed farm (Table 27).

In 2018/19 the average organic mixed farm realised a Farm Business Income of £386/ha against a figure of £264/ha for the non-organic mixed farms - this difference is slightly significant. There is also a slightly significant difference between organic and non-organic mixed farms at the Net Farm Income level (£269/ha organics and £176/ha non-organics). Having deducted an imputed figure for farmer and spouse manual labour the resultant Management and Investment Income is £58/ha for the organic group and £28/ha for the non-organics.

Farm Business Output for the average organic mixed farm was £1,784/ha in 2018/19 against £1,945/ha for the average non-organic mixed farm. The output from agriculture was lower on the organic farms (57% of total output at £1,025/ha) than on the non-organics (at 75% of total at £1,460/ha). The organic farms derived three times the income per hectare than the non-organic farms from Agri-environmental schemes (at £106/ha) and about twice the income per hectare from Diversification activities (£441/ha). Incomes were roughly equal from the Basic payment at £212/ha.

The total costs for organic mixed farms, at £1,409/ha, were 16% lower per hectare than for the non-organic farms. Variable costs of £323/ha, which form 23% of total costs on organic farms, are less than half of those on the non-organic farms – where they constitute 41% of total costs. Contract costs were higher on organic mixed farms, at £127/ha versus £90/ha, and total machinery costs were lower (at £252/ha) on organic farms than on the non-organics (at £317/ha). The average organic mixed farm spent £197/ha on paid labour (14% of total costs) against £141/ha (8% of total) for non-organic farms. Other overhead costs, at £432/ha, make up 31% of total costs against a figure of £345/ha (21% of total costs) for the non-organic farms.

Table 26 Mixed farms, organic identical sample 2017/18 and 2018/19

The average mixed farm	Organic identical sample 2017/18			Organic identical sample 2018/19		
Number (unweighted)	15			15		
Number (weighted)	259			286		
Farm size (2013SO)	117,483			116,674		
Farm area (adjusted ha)	107.9			112.2		
Grazing livestock units	50.7			51.0		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	98,813	916	59%	107,949	962	55%
Livestock component	53,147	493	54%	52,241	465	*48%*
Crop component	45,667	423	46%	55,708	496	*52%*
Agri-environment and other payments	13,495	125	8%	12,620	112	6%
Diversification & miscellaneous	31,414	291	19%	52,570	468	27%
Basic Payment Scheme	22,959	213	14%	24,119	215	12%
Farm Business Output (a)	**166,681**	**1545**	100	**197,259**	**1757**	**100**
Livestock variable costs:	18,306	170	13%	21,061	188	14%
Feed	9,888	92	54%	11,634	104	*55%*
Vet & medicine	1,996	19	11%	1,533	14	*7%*
Other livestock costs	6,423	60	35%	7,894	70	*37%*
Crop variable costs:	10,326	96	8%	12,158	108	8%
Seed	6,330	59	61%	8,173	73	*67%*
Fertiliser	1,340	12	13%	1,444	13	*12%*
Crop protection	255	2	2%	195	2	*2%*
Other crop costs	2,402	22	23%	2,347	21	*19%*
Contract	10,507	97	8%	13,727	122	9%
Paid Labour	19,628	182	14%	23,040	205	15%
Machinery:	26,205	243	19%	27,030	241	17%
Fuel & oil	4,421	41	17%	6,223	55	*23%*
Repairs	8,140	75	31%	7,607	68	*28%*
Depreciation	13,644	126	52%	13,200	118	*49%*
Paid Rents	8,040	75	6%	7,743	69	5%
Other costs	42,924	398	32%	49,904	445	32%
Total Costs (b)	**135,936**	**1260**	100	**154,664**	**1,378**	**100**
Profit/(loss) on sale of fixed assets	-144			1,276		
Farm Business Income (c=a-b)	**30,601**	**284**		**43,871**	**391**	
Unpaid manual labour excl. farmer & spouse (d)	1,316	12		2,312	21	
Interest payments (e)	2,443	23		2,781	25	
Imputed rents (f)	24,162	224		25,482	227	
Director's remuneration (g)	3,914	36		881	8	
Ownership costs (h)	9,953	92		10,244	91	
Net Farm Income (i=c-d+e-f+g+h)	**21,432**	**199**		**29,984**	**267**	
Farmer & Spouse unpaid labour (j)	25,930	240		25,031	223	
Paid managerial labour (k)	49	0		42	0	
Management and Investment Income (l=i-j+k)	**-4,450**	**-41**		**4,995**	**45**	

Table 27 Mixed farms, organic and non-organic full sample, 2018/19

The average mixed farm	Non-organic 2018/19			Organic 2018/19		
Number (unweighted)	154			17		
Number (weighted)	5,705			298		
Farm size (2013SO)	317,584			124,626		
Farm area (adjusted ha)	172.4			117.0		
Grazing livestock units	84.0			51.9		
	£/farm	£/ha		£/farm	£/ha	
Agriculture:	251,695	1,460	75%	119,872	1,025	57%
Livestock	122,592	711	*49%*	58,771	502	*49%*
Crops	129,103	749	*51%*	61,101	522	*51%*
Agri-environment and other payments	5,121	30	2%	12,432	106	6%
Diversification & miscellaneous	42,427	246	13%	51,611	441	25%
Single Payment Scheme	36,156	210	11%	24,836	212	12%
Farm Business Output (a)	**335,399**	**1,945**	**100%**	**208,751**	**1,784**	**100**
Livestock variable costs:	72,997	423	25%	25,093	215	15%
Feed	53,119	308	*73%*	15,621	134	*62%*
Vet & medicine	4,412	26	*6%*	1,632	14	*7%*
Other livestock costs	15,466	90	*21%*	7,840	67	*31%*
Crop variable costs:	47,414	275	16%	12,715	109	8%
Seed	8,923	52	*19%*	8,318	71	*65%*
Fertiliser	17,369	101	*37%*	1,779	15	*14%*
Crop protection	16,848	98	*36%*	291	2	*2%*
Other crop costs	4,274	25	*9%*	2,327	20	*18%*
Contract	15,478	90	5%	14,814	127	9%
Paid Labour	24,263	141	8%	23,080	197	14%
Machinery:	54,648	317	19%	29,485	252	18%
Fuel & oil	12,135	70	*22%*	6,422	55	*22%*
Repairs	14,632	85	*27%*	8,395	72	*28%*
Depreciation	27,880	162	*51%*	14,668	125	*50%*
Paid Rents	15,965	93	5%	9,080	78	6%
Other costs	59,555	345	21%	50,544	432	31%
Total Costs (b)	**290,320**	**1,684**	**100%**	**164,812**	**1,409**	**100**
Profit/(loss) on sale of fixed assets	417			1,225		
Farm Business Income (c=a-b)	**45,496**	**264**		**45,164**	**386**	
Unpaid manual labour excl. farmer & spouse (d)	9,170	53		3,094	26	
Interest payments (e)	8,880	51		3,339	29	
Imputed rents (f)	31,455	182		24,962	213	
Director's remuneration (g)	2,956	17		846	7	
Ownership costs (h)	13,582	79		10,215	87	
Net Farm Income (i=c-d+e-f+g+h)	**30,289**	**176**		**31,509**	**269**	
Farmer & Spouse unpaid labour (j)	25,610	149		24,775	212	
Paid managerial labour (k)	114	1		40	0	
Management and Investment Income (l=i-j+k)	**4,794**	**28**		**6,774**	**58**	

5 Enterprise Gross Margins

5.1 Data sample

The distribution of available crop and livestock margin data by robust farm type and size for organic farms are shown in Table 28 and Table 36.

All data presented in the following gross margin tables are weighted. All variable costs to gross margin level are allocated through careful recording and in consultation with participating farmers.

Table 29 and Table 37 show the sample size of organic crop and livestock enterprises that have been analysed to gross margin level. Where sample numbers allowed, analyses for a premium group (top third by weighted numbers by: GM/litre, GM/head or GM/ha) are presented.

For livestock enterprises, forage areas and stocking rates are calculated on the basis of the total adjusted forage area including commons; see Appendix 5 – for more information. This is to allow the inclusion at the appropriate rate of all sole occupier rough grazing and all grazed common land. Unused commons are not included and the forage area figures are net of land let out and taken in. Stock sent away on agistment are excluded from the stocking rate calculations and monies spent on agistment is included in the figure for coarse fodder.

The dairy sample of 39 enterprises comprises 5 LFA and 34 lowland farms.

Crop enterprise gross margins are shown in Table 30 to Table 35.

Livestock enterprise gross margins are shown in Table 38 to Table 46.

Standard deviations are calculated on the *per litre, head* or *hectare* figures.

5.2 Organic cropping enterprises gross margins

Table 28 Sample distribution of organic crop margin data (>10 records) by robust farm type and size (2013SO)

Robust farm type	Small (€2,500-100,000)	Medium (€100,000-250,000	Large (>€250,000)	All
Cereals	7	13	6	26
General cropping	6	2	5	13
Horticulture	8	3	3	14
Pigs	0	1	0	1
Poultry	0	0	0	0
Dairy	0	0	11	11
LFA Grazing	2	2	5	9
Lowland Grazing	4	20	12	36
Mixed	1	18	17	36
All	**28**	**59**	**59**	**146**

Table 29 Sample size for organic crop gross margin analysis

Enterprise	Sample size	Weighted sample size	Average Crop area (ha)	Premium sample size	Weighted sample size	Average crop area (ha)
Winter wheat	18	215	16.2	9	69	21.4
Spring wheat	12	122	28.7			
Spring barley	32	370	19.4	13	114	23.2
Winter oats	21	165	22.6	8	52	34.9
Spring oats	20	225	17.5	11	73	31.7
Spring beans	10	69	27.0			

Please note that there are farms that have fully organic enterprises but, because less than 70% of the farm UAA is not classified as organic, the farm itself does not classify as organic. This explains the slight difference in sample sizes between Table 28 and Table 6.

Table 30 Organic winter wheat gross margin

2018 harvest year	Sample	18	crops		Top third	9	crops	
	Sample weighted	215	crops		Top third weighted	69	crops	
	Average crop area	16.2	hectares		Average crop area	21.4	hectares	
Crop Yield and Output		**per crop**	**per ha**	**std dev**		**per crop**	**per ha**	**std dev**
Yield (tonnes and tonnes/ha)		60	3.7	1.0		95	4.4	1.2
Price of crop sold (£/t)		308		45		316		52
Crop output		18,207	1121	411		29,302	1367	648
By product output		1,727	106	124		3,922	183	162
Area payment (Protein or energy crop supplements)		0	0	0		0	0	0
Total		**19,933**	**1227**			**33,224**	**1550**	
Variable Costs		**per crop**	**per ha**			**per crop**	**per ha**	
Seed		2,204	136	61		2,369	111	55
Fertiliser (incl. lime, purchased FYM, trace elements,		254	16	24		254	12	23
Crop protection materials		51	3	21		158	7	36
Other crop costs (including levies and commission)		273	17	29		320	15	34
Fuel for heating & drying		11	1	4		28	1	7
Total		**2,792**	**172**	**59**		**3,130**	**146**	**60**
Gross Margin		**17,141**	**1055**	**433**		**30,094**	**1404**	**655**

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 31 Organic spring wheat gross margin

2018 harvest year	Sample	12	crops	
	Sample weighted	122	crops	
	Average crop area	28.7	hectares	
Crop Yield and Output		**per crop**	**per ha**	**std dev**
Yield (tonnes and tonnes/ha)		116	4.0	0.9
Price of crop sold (£/t)		219		49
Crop output		37,357	1302	336
By product output		5,825	203	166
Area payment (Protein or energy crop supplements)		0	0	0
Total		**43,182**	**1504**	
Variable Costs		**per crop**	**per ha**	
Seed		3,782	132	28
Fertiliser (incl. lime, purchased FYM, trace elements,		1,096	38	35
Crop protection materials		12	0	3
Other crop costs (including levies and commission)		352	12	24
Fuel for heating & drying		8	0	4
Total		**5,250**	**183**	**51**
Gross Margin		**37,932**	**1322**	**461**

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 32 Organic spring barley gross margin

2018 harvest year	Sample	32	crops		Top third	13	crops	
	Sample weighted	370	crops		Top third	114	crops	
	Average crop area	19.4	hectares		Average crop	23.2	hectares	
Crop Yield and Output		**per crop**	**per ha**	**std dev**		**per crop**	**per ha**	**std dev**
Yield (tonnes and tonnes/ha)		58	3.0	1.6		92	4.0	1.3
Price of crop sold (£/t)		289		64		291		41
Crop output		17,164	885	458		28,041	1210	285
By product output		1,374	71	63		2,317	100	82
Area payment (Protein or energy crop supplements)		0	0	0		0	0	0
Total		**18,538**	**956**			**30,358**	**1310**	
Variable Costs		**per crop**	**per ha**			**per crop**	**per ha**	
Seed		2,024	104	39		2,227	96	49
Fertiliser (incl. lime, purchased FYM, trace elements,		316	16	44		391	17	22
Crop protection materials		35	2	6		113	5	10
Other crop costs (including levies and commission)		449	23	40		460	20	25
Fuel for heating & drying		38	2	4		48	2	3
Total		**2,862**	**148**	**82**		**3,239**	**140**	**60**
Gross Margin		**15,676**	**808**	**489**		**27,119**	**1170**	**315**

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 33 Organic winter oats gross margin

2018 harvest year	Sample	21	crops		Top third	8	crops	
	Sample weighted	165	crops		Top third weighted	52	crops	
	Average crop area	22.6	hectares		Average crop area	34.9	hectares	
Crop Yield and Output		**per crop**	**per ha**	**std dev**		**per crop**	**per ha**	**std dev**
Yield (tonnes and tonnes/ha)		100	4.4	1.2		184	5.3	1.2
Price of crop sold (£/t)		315		30		330		53
Crop output		32,428	1434	390		62,716	1795	349
By product output		4,236	187	112		8,253	236	178
Area payment (Protein or energy crop supplements)		0	0	0		0	0	0
Total		**36,665**	**1622**			**70,970**	**2032**	
Variable Costs		**per crop**	**per ha**			**per crop**	**per ha**	
Seed		1,967	87	30		2,611	75	33
Fertiliser (incl. lime, purchased FYM, trace elements,		428	19	23		656	19	20
Crop protection materials		103	5	19		143	4	29
Other crop costs (including levies and commission)		666	29	37		546	16	36
Fuel for heating & drying		12	1	3		35	1	5
Total		**3,176**	**141**	**68**		**3,991**	**114**	**70**
Gross Margin		**33,488**	**1481**	**466**		**66,979**	**1917**	**456**

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 34 Organic spring beans gross margin

2018 harvest year	Sample	10	crops	
	Sample weighted	69	crops	
	Average crop area	27.0	hectares	
Crop Yield and Output		**per crop**	**per ha**	**std dev**
Yield (tonnes and tonnes/ha)		40	1.5	0.5
Price of crop sold (£/t)		301		31
Crop output		14,247	527	164
By product output		144	5	17
Area payment (Protein or energy crop supplements)		0	0	0
Total		**14,391**	**532**	
Variable Costs		**per crop**	**per ha**	
Seed		3,547	131	51
Fertiliser (incl. lime, purchased FYM, trace elements,		859	32	37
Crop protection materials		139	5	23
Other crop costs (including levies and commission)		549	20	26
Fuel for heating & drying		75	3	3
Total		**5,169**	**191**	**53**
Gross Margin		**9,222**	**341**	**135**

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 35 Organic spring oats gross margin

2018 harvest year	Sample	20	crops		Top third	11	crops	
	Sample weighted	225	crops		Top third	73	crops	
	Average crop area	17.5	hectares		Average crop	31.7	hectares	
Crop Yield and Output		**per crop**	**per ha**	**std dev**		**per crop**	**per ha**	**std dev**
Yield (tonnes and tonnes/ha)		57	3.3	1.3		122	3.9	1.1
Price of crop sold (£/t)		355		32		341		41
Crop output		17,519	1001	439		38,511	1216	253
By product output		1,481	85	65		4,176	132	78
Area payment (Protein or energy crop supplements)		0	0	0		0	0	0
Total		**19,000**	**1086**			**42,687**	**1348**	
Variable Costs		**per crop**	**per ha**			**per crop**	**per ha**	
Seed		1,628	93	71		2,725	86	37
Fertiliser (incl. lime, purchased FYM, trace elements,		433	25	40		1,035	33	38
Crop protection materials		98	6	10		303	10	17
Other crop costs (including levies and commission)		618	35	35		952	30	31
Fuel for heating & drying		23	1	2		66	2	4
Total		**2,800**	**160**	**73**		**5,080**	**160**	**84**
Gross Margin		**16,200**	**926**	**482**		**37,607**	**1187**	**274**

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

5.3 Organic livestock enterprises gross margins

Table 36 Sample distribution of organic livestock margin data (>10 records) by robust farm type and size (2013SO)

Robust farm type	Small (€2,500-100,000)	Medium (€100,000-250,000)	Large (>€250,000)	All
Cereals	0	1	3	4
General cropping	2	0	5	7
Horticulture	0	0	3	3
Pigs	0	1	0	1
Poultry	0	1	0	1
Dairy	0	14	57	71
LFA Grazing	13	23	14	50
Lowland Grazing	44	38	17	99
Mixed	1	11	11	23
All	**60**	**89**	**110**	**259**

Table 37 Sample size for organic livestock gross margin analysis

Enterprise	Sample		Premium	
	Sample size	Weighted sample size	Sample size	Weighted sample size
Dairy cows	39	307	13	100
LFA suckler cows	19	185	10	64
Lowland suckler cows	53	1026	30	349
Dairy followers	30	241	10	79
Fat cattle from suckler bred calves or stores	40	602	15	224
Store cattle from suckler bred calves or stores	28	550	13	185
Lowland sheep	36	568	19	176
LFA sheep (upland)	14	105	-	-

Table 38 Organic dairy cows gross margin – sample

Sample size	39			
No farms in population	307			
Production information				
Average cow numbers	130			
Enterprise grazing livestock units	131.0			
Total milk produced (litres)	777,585			
Total milk produced per cow (lt/cow)	5,984			
Average price of milk sold (pence/lt)	38.56			
Calves per cow (sold or transferred)	0.89			
Herd replacement rate (%)	0.22			
Adjusted forage area (including commons)	101.9			
Stocking rate (cows per adj. forage ha.)	1.28			
Stocking rate (GLUs per adj. forage ha.)	1.29			
Enterprise Output	**Total**	**per cow**	**per litre**	**per adj for ha**
	(£)	**(£)**	**(pence)**	**(£)**
Milk	299,813	2,307	38.6	2,942
Calves and other dairy related output	13,885	107	1.8	136
Less Herd Depreciation	25,175	194	3.2	247
Total Gross Output (A)	**288,523**	**2,220**	**37.1**	**2,831**
Variable Costs				
Concentrates	82,731	637	10.6	812
Coarse fodder	7,496	58	1.0	74
Vet and Medicines	6,771	52	0.9	66
Other livestock costs	29,869	230	3.8	293
Total Variable Costs (B)	**126,866**	**977**	**16.3**	**1,245**
Gross Margin before forage (A-B) = (C)	**161,657**	**1,243**	**20.8**	**1,586**
Forage Variable Costs (D)	1,882	14	0.2	18
Gross Margin after forage (C-D) = (E)	**159,775**	**1,229**	**20.6**	**1,568**
Prices				
Average quota leasing in price (pence/lt)	na			
Calf price (£/calf)	119			
Cull cow price (£/cow)	612			
Replacement heifer/cow price (£/head)	1,276			
Forage Costs				
Fertilizer (£/ha)	4			
Seed (£/ha)	9			
Spray (£/ha)	0			
Other crop costs (£/ha)	5			
Total (£/ha)	18			
Unadjusted forage area excluding commons	99.6			

Table 39 Organic dairy cows gross margin – premium

Premium sample size	13			
No farms in population	100			
Production information				
Average cow numbers	155			
Enterprise grazing livestock units	157.0			
Total milk produced (litres)	863,376			
Total milk produced per cow (lt/cow)	5,568			
Average price of milk sold (pence/lt)	39.16			
Calves per cow (sold or transferred)	0.88			
Herd replacement rate (%)	0.18			
Adjusted forage area (including commons)	123.1			
Stocking rate (cows per adj. forage ha.)	1.26			
Stocking rate (GLUs per adj. forage ha.)	1.27			
Enterprise Output	**Total**	**per cow**	**per litre**	**per adj for ha**
	(£)	**(£)**	**(pence)**	**(£)**
Milk	338,066	2,180	39.2	2,746
Calves and other dairy related output	14,543	94	1.7	118
Less Herd Depreciation	22,186	143	2.6	180
Total Gross Output (A)	**330,423**	**2,131**	**38.3**	**2,684**
Variable Costs				
Concentrates	76,362	492	8.8	620
Coarse fodder	3,504	23	0.4	28
Vet and Medicines	5,554	36	0.6	45
Other livestock costs	25,492	164	3.0	207
Total Variable Costs (B)	**110,913**	**715**	**12.8**	**900**
Gross Margin before forage (A-B) = (C)	**219,510**	**1,416**	**25.4**	**1,784**
Forage Variable Costs (D)	2,290	15	0.3	19
Gross Margin after forage (C-D) = (E)	**217,221**	**1,401**	**25.2**	**1,765**
Prices				
Average quota leasing in price (pence/lt)	na			
Calf price (£/calf)	107			
Cull cow price (£/cow)	560			
Replacement heifer/cow price (£/head)	1,193			
Forage Costs				
Fertilizer (£/ha)	6			
Seed (£/ha)	7			
Spray (£/ha)	0			
Other crop costs (£/ha)	5			
Total (£/ha)	19			
Unadjusted forage area excluding commons	120.1			

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 40 Organic LFA Suckler cows gross margin

	Sample			Premium		
No farms in sample	19			10		
No farms in population	185			64		
Production information						
Average cow numbers	44			46		
Enterprise grazing livestock units *	41.5			46.0		
Calves per cow	0.78			0.98		
Herd replacement rate (%)	11%			13%		
Adjusted forage area (including commons)	55.49			67.52		
Stocking rate (cows per adj. forage ha.)	0.79			0.68		
Stocking rate (GLUs per adj. forage ha.)	0.75			0.68		
Enterprise Output	**Total**	**per cow**	**per adj for ha**	**Total**	**per cow**	**per adj for ha**
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
Suckler calves †	18,212	415	328	27,129	594	402
Less Herd Depreciation	4,060	92	73	3,244	71	48
Total Output (A)	**14,152**	**323**	**255**	**23,885**	**523**	**354**
Variable Costs						
Concentrates	688	16	12	1,166	25	17
Coarse fodder	1,054	24	19	854	19	13
Vet and Medicines	999	23	18	1,316	29	19
Other livestock costs	2,262	52	41	2,751	60	41
Total Variable Costs (B)	**5,003**	**115**	**90**	**6,086**	**133**	**90**
Gross Margin before forage (A-B) = (C)	**9,150**	**208**	**165**	**17,800**	**390**	**264**
Forage Variable Costs	425	10	8	431	9	6
Gross Margin after forage (A-B) = (C)	**8,725**	**198**	**157**	**17,368**	**381**	**258**
Prices						
Calf price (£/calf) †	651			651		
Cull cow price (£/cow)	716			775		
Replacement heifer/cow price (£/head)	1,070			1,048		
Forage Costs						
Fertilizer (£/ha)	3			2		
Seed (£/ha)	3			2		
Spray (£/ha)	0			0		
Other crop costs (£/ha)	2			2		
Total (£/ha)	8			6		
Unadjusted forage area excluding commons	76.62			111.77		
* excludes stock away on agistment						
† Calf price is as sold off the cow or a transfer value at weaning						

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 41 Organic lowland suckler cows gross margin

	Sample			Premium		
No farms in sample	53			30		
No farms in population	1,026			349		
Production information						
Average cow numbers	36			59		
Enterprise grazing livestock units *	35.3			57.6		
Calves per cow	1.07			1.17		
Herd replacement rate (%)	19%			16%		
Adjusted forage area (including commons)	42.69			70.51		
Stocking rate (cows per adj. forage ha.)	0.84			0.83		
Stocking rate (GLUs per adj. forage ha.)	0.83			0.82		
Enterprise Output	**Total**	**per cow**	**per adj for ha**	**Total**	**per cow**	**per adj for ha**
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
Suckler calves †	18,775	527	440	36,867	628	523
Less Herd Depreciation	2,404	67	56	2,861	49	41
Total Output (A)	**16,372**	**460**	**384**	**34,006**	**579**	**482**
Variable Costs						
Concentrates	880	25	21	681	12	10
Coarse fodder	717	20	17	1,413	24	20
Vet and Medicines	864	24	20	1,390	24	20
Other livestock costs	2,587	73	61	3,865	66	55
Total Variable Costs (B)	**5,048**	**142**	**119**	**7,349**	**126**	**105**
Gross Margin before forage (A-B) = (C)	**11,324**	**318**	**265**	**26,657**	**453**	**377**
Forage Variable Costs	509	14	12	917	16	13
Gross Margin after forage (A-B) = (C)	**10,815**	**304**	**253**	**25,740**	**437**	**364**
Prices						
Calf price (£/calf) †	582			724		
Cull cow price (£/cow)	867			827		
Replacement heifer/cow price (£/head)	1,034			1,031		
Forage Costs						
Fertilizer (£/ha)	3			3		
Seed (£/ha)	7			8		
Spray (£/ha)	0			0		
Other crop costs (£/ha)	2			2		
Total (£/ha)	12			13		
Unadjusted forage area excluding commons	37.69			59.39		
* excludes stock away on agistment						
† Calf price is as sold off the cow or a transfer value at weaning						

Table 42 Organic dairy followers gross margin

	Sample		Premium	
No farms in sample	30		10	
No farms	241		79	
Production information				
Enterprise grazing livestock units *	48.9		48.2	
Adjusted forage area (including commons)	36.92		36.42	
Stocking rate (GLUs per adj. forage ha.)	1.32		1.32	
Enterprise Output		**per adj for ha**		**per adj for ha**
		£		**£**
Cattle output	39,987	1,083	46,315	1,272
Total Output (A)	**39,987**	**1,083**	**46,315**	**1,272**
Variable Costs				
Concentrates	17,766	481	9,739	267
Coarse fodder	2,612	71	2,970	82
Vet and Medicines	1,086	29	732	20
Other livestock costs	6,015	163	3,665	101
Total Variable Costs (B)	**27,478**	**744**	**17,106**	**470**
Gross Margin before forage (A-B) = (C)	**12,509**	**339**	**29,209**	**802**
Forage Variable Costs (D)	295	8	225	6
Gross Margin after forage (C-D) = (E)	**12,215**	**331**	**28,984**	**796**
Prices				
Dairy heifer transfer or sale price £	1,262		1,235	
Finished cattle price £	1,033		753	
Store cattle price £	689		726	
Forage Costs				
Fertilizer (£/ha)	1		2	
Seed (£/ha)	4		3	
Spray (£/ha)	0		0	
Other crop costs (£/ha)	2		1	
Total (£/ha)	8		6	
Unadjusted forage area excluding commons	36.78		35.63	

* excludes stock away on agistment
† maximum available from a limited sample size

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 43 Organic fat cattle from suckler bred calves or stores gross margin

	Sample		Premium	
No farms in sample	40		15	
No farms	602		224	
Production information				
Enterprise grazing livestock units *	37.4		43.2	
Adjusted forage area (including commons)	44.18		39.35	
Stocking rate (GLUs per adj. forage ha.)	0.85		1.10	
Enterprise Output		**per adj for ha**		**per adj for ha**
		(£)		**(£)**
Cattle output	26,884	609	40,700	1,034
Total Output (A)	**26,884**	**609**	**40,700**	**1,034**
Variable Costs				
Concentrates	3,201	72	3,412	87
Coarse fodder	799	18	892	23
Vet and Medicines	577	13	547	14
Other livestock costs	3,890	88	5,009	127
Total Variable Costs (B)	**8,467**	**191**	**9,860**	**251**
Gross Margin before forage (A-B) = (C)	**18,417**	**418**	**30,839**	**783**
Forage Variable Costs (D)	521	12	800	20
Gross Margin after forage (C-D) = (E)	**17,896**	**406**	**30,039**	**763**
Prices				
Dairy heifer transfer or sale price £	na		na	
Finished cattle price £	1,309		1,393	
Store cattle price £	779		896	
Forage Costs				
Fertilizer (£/ha)	3		4	
Seed (£/ha)	6		11	
Spray (£/ha)	0		0	
Other crop costs (£/ha)	3		5	
Total (£/ha)	12		20	
Unadjusted forage area excluding commons	46.76		39.38	
* excludes stock away on agistment				

Table 44 Organic store cattle from suckler bred calves or stores gross margin

Store cattle from suckler bred calves or stores	**Sample**		**Premium**	
No farms in sample	28		13	
No farms	550		185	
Production information				
Enterprise grazing livestock units *	22.9		30.4	
Adjusted forage area (including commons)	28.00		31.47	
Stocking rate (GLUs per adj. forage ha.)	0.82		0.97	
Enterprise Output		**per adj for ha**		**per adj for ha**
		(£)		**(£)**
Cattle output	9,200	329	15,723	500
Total Output (A)	**9,200**	**329**	**15,723**	**500**
Variable Costs				
Concentrates	793	28	929	30
Coarse fodder	247	9	317	10
Vet and Medicines	350	13	421	13
Other livestock costs	2,095	75	2,106	67
Total Variable Costs (B)	**3,485**	**125**	**3,772**	**120**
Gross Margin before forage (A-B) = (C)	**5,714**	**204**	**11,951**	**380**
Forage Variable Costs (D)	97	3	136	4
Gross Margin after forage (C-D) = (E)	**5,617**	**201**	**11,815**	**376**
Prices				
Dairy heifer transfer or sale price £	na		na	
Finished cattle price £	1,297		1,369	
Store cattle price £	818		830	
Forage Costs				
Fertilizer (£/ha)	1		2	
Seed (£/ha)	1		2	
Spray (£/ha)	0		0	
Other crop costs (£/ha)	1		1	
Total (£/ha)	3		4	
Unadjusted forage area excl. commons (ha)	28.93		28.89	

* excludes stock away on agistment
† maximum available from a limited sample size

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 45 Organic lowland sheep gross margin

2018 lamb crop	Sample			Premium		
No farms in sample	36			19		
No farms in population	568			176		
Production information						
Average ewe numbers	178			240		
Enterprise grazing livestock units *	27.9			38.4		
Lambs reared per ewe	1.29			1.46		
Flock replacement rate (%)	26%			25%		
Adjusted forage area (including commons)	37.88			49.96		
Stocking rate (ewes per adj. forage ha.)	4.69			4.81		
Stocking rate (GLUs per adj. forage ha.)	0.74			0.77		
Enterprise Output	**Total**	**per ewe**	**per adj for ha**	**Total**	**per ewe**	**per adj for ha**
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
Lambs †	18,527	104	489	31,562	131	632
Wool	505	3	13	914	4	18
Less Flock Depreciation	1,892	11	50	2,496	10	50
Total Output (A)	**17,139**	**96**	**452**	**29,979**	**125**	**600**
Variable Costs						
Concentrates	1,441	8	38	1,582	7	32
Coarse fodder	475	3	13	844	4	17
Vet and Medicines	1,630	9	43	2,156	9	43
Other livestock costs	2,515	14	66	3,121	13	62
Total Variable Costs (B)	**6,060**	**34**	**160**	**7,702**	**33**	**154**
Gross Margin before forage (A-B) = (C)	**11,079**	**62**	**292**	**22,278**	**92**	**446**
Forage Variable Costs (D)	309	2	8	331	1	7
Gross Margin after forage (C-D) = (E)	**10,770**	**60**	**284**	**21,946**	**91**	**439**
Prices	**£/hd**	**% sales**			**£/hd**	
Fat Lamb price	86	70		86	91	
Store Lamb price	53	25		47	5	
Ewe Lamb price	111	5		106	5	
Draft ewe price	91			87		
Cull ewe price (£/ewe)	62			68		
Wool price (£/kg)	0.94			0.93		
Replacement price (£/head)	99			97		
Forage Costs						
Fertilizer (£/ha)	1			1		
Seed (£/ha)	6			4		
Spray (£/ha)	0			0		
Other crop costs (£/ha)	1			1		
Total (£/ha)	8			7		
Unadjusted forage area excl. commons (ha)	39.23			48.24		
* excludes stock away on agistment						
† includes all enterprise output except wool						

Table 46 Organic LFA sheep gross margin

2018 lamb crop	Sample		
No farms in sample	14		
No farms in population	105		
Production information			
Average ewe numbers	443		
Enterprise grazing livestock units *	67.9		
Lambs reared per ewe	1.34		
Flock replacement rate (%)	26%		
Adjusted forage area (including commons)	65.23		
Stocking rate (ewes per adj. forage ha.)	6.79		
Stocking rate (GLUs per adj. forage ha.)	1.04		
Enterprise Output	**Total**	**per ewe**	**per adj for ha**
	(£)	**(£)**	**(£)**
Lambs †	56,561	128	867
Wool	916	2	14
Less Flock Depreciation	7,105	16	109
Total Output (A)	**50,372**	**114**	**772**
Variable Costs			
Concentrates	6,195	14	95
Coarse fodder	1,307	3	20
Vet and Medicines	4,039	9	62
Other livestock costs	6,360	14	97
Total Variable Costs (B)	**17,901**	**40**	**274**
Gross Margin before forage (A-B) = (C)	**32,472**	**74**	**498**
Forage Variable Costs (D)	692	2	11
Gross Margin after forage (C-D) = (E)	**31,779**	**72**	**487**
Prices	**£/hd**	**% sales**	
Fat Lamb price	84	82	
Store Lamb price	51	11	
Ewe Lamb price	122	8	
Draft ewe price	102		
Cull ewe price (£/ewe)	51		
Wool price (£/kg)	0.81		
Replacement price (£/head)	94		
Forage Costs			
Fertilizer (£/ha)	5		
Seed (£/ha)	4		
Spray (£/ha)	0		
Other crop costs (£/ha)	2		
Total (£/ha)	11		
Unadjusted forage area excl. commons (ha)	109.44		
* excludes stock away on agistment, † includes all enterprise output except wool			

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

6 Appendix 1 – Organic lowland cattle and sheep

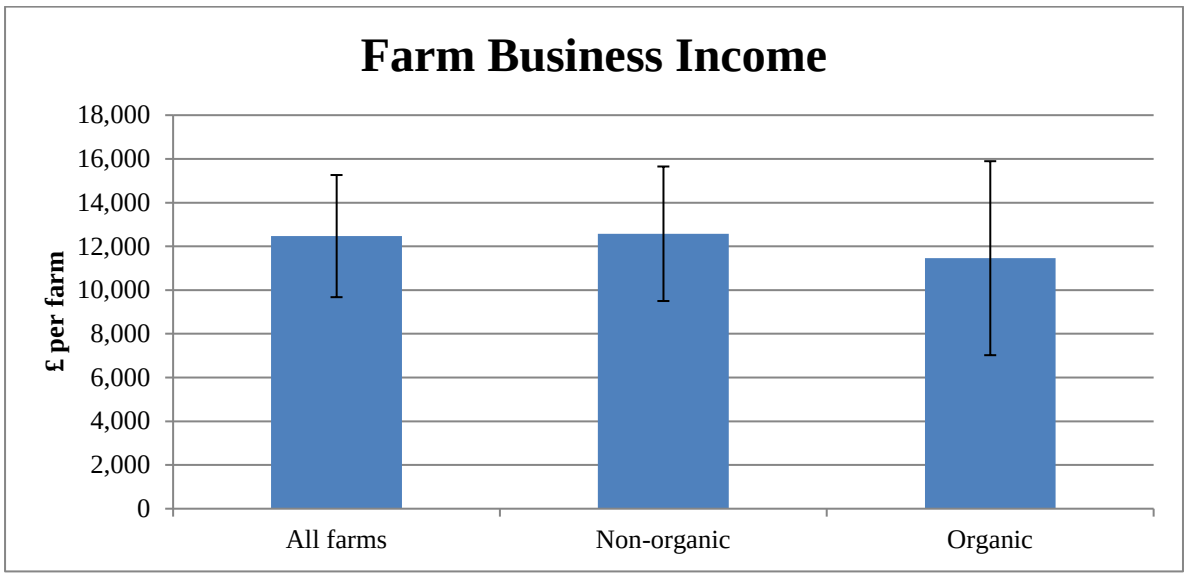
Organic Lowland Grazing Producers

Table 6.1 Farm Business Income for Non-organic and Organic farms, 2018/19

Type of Production	Non-organic	Organic
Number of farms	245	51
Average farmed area (hectares)	92.4	85.9
Average % of owned total farmed area	58%	74%
	£ per farm	
Output		
Cattle	43,387	27,252
Sheep	17,110	8,945
Other livestock	401	361
Crops	6,967	4,129
Forage	4,994	953
Environmental schemes	2,643	9,290
Basic Payment Scheme	17,899	18,194
Rental income	6,284	2,866
Contract work	4,858	912
Renewable energy production	1,294	4,876
Miscellaneous output	13,062	3,660
Total Farm Output	118,900	81,437
Variable costs		
Concentrates	17,432	3,227
Purchased fodder	2,058	1,578
Veterinary and medicines	3,251	2,017
Other livestock costs	9,126	6,180
Seeds	1,164	1,295
Fertilisers	4,174	454
Crop protection	1,244	70
Other crop costs	952	508
Total Variable Costs	39,401	15,329
Gross Margin	79,499	66,108
Fixed costs		
Paid labour	6,756	7,059
Contract	6,777	6,676
Machinery repairs	5,528	3,848
Machinery fuel	5,185	3,008
Machinery depreciation	10,917	9,061
General costs	13,615	11,089
Property maintenance	4,989	3,730
Rent, hired in keep and bare land	6,315	3,670
Buildings depreciation	3,869	3,627
Interest	2,971	2,880
Total Fixed Costs	66,922	54,648
FARM BUSINESS INCOME	**12,577**	**11,460**
All unpaid labour	30,866	26,991

The organic farms are broadly similar in size to their non-organic counterparts but the percentage of the land they own is slightly higher. Output from the organic farms is lower when compared to non-organic equivalents. However, there are important differences in how this output is achieved; organic farms tend to get more than their non-organic counterparts from agri-environment schemes and less from livestock and crops. For the organic producers the output from the agri-environment type schemes is more than three times higher than non-organic farms reflecting the extra support they receive from the various Stewardship schemes. With the lower 'farming' output, organic farms tend to have lower variable costs; being less than half the level of non-organic producers. The resulting total gross margin per farm for the organic farmers is lower than the non-organic level. Fixed costs for the organic farms are also lower than to the non-organic producers. Thus the Farm Business Income per farm for the organic producers is lower than that of their non-organic counterparts but similar per hectare, but not statistically significant.

Lowland Grazing Livestock farms- Farm Business Income per farm, by type of production. 2018/19



Sample sizes are small for some of these analyses and standard error bars have been included in the figures to indicate the accuracy of the estimate of the mean. Error bars are shown on 95% confidence intervals as a measure of the uncertainty that may apply to the estimated means. These signify that we are 95% confident that this range contains the true value. They are calculated as the standard error (se) multiplied by 1.96 to give the 95% confidence interval (95% CI)

7 Appendix 2 – Organic LFA cattle and sheep

The current sample of 212 English LFA grazing farms includes 20 fully organic farms. Within this there are 17 organic suckler herds, 13 organic upland flocks and 4 organic hill flocks.

Table 7.1 compares suckler herd performance to the gross margin (GM) and net margin (NM) level across organic and non-organic farms. The organic suckler herd output is £47/cow less than the non-organic output but with £88/cow less spent on variable costs (particularly concentrates and purchased fodder) the gross margin for organic sucklers is £40/cow more than the non-organic average. As can be seen from the spread of GMs there is considerable variation across farms. Organic fixed costs are unusually higher, by £59/cow, than the non-organics meaning that the non-organic farms have a £18/cow advantage at the net margin level (excepting farmer and spouse labour). After allowing for the farmer and spouse labour the final net margins are £19/cow higher for organic herds than the non-organic herds (albeit negative in both cases). The stocking rate for the organic farms is 0.69 GLU/total adjusted area (including commons and all land rented in) and 0.74 GLU/total adjusted area for the non-organics.

Table 7.1 LFA Suckler Herd Performance Non-organic and Organic (£/cow)

2018/19	All Suckler herds	
	Non-organic	Organic
Number of farms	136	17
Number of farms (weighted)	4,026	145
Herd size (no. cows)	39	44
	£ per cow	
Enterprise Output (excluding BLSA)	427	380
BLSA	-75	-63
Total Variable costs	238	150
Concentrates	63	21
Purchased fodder and keep	34	16
Veterinary and medicines	28	26
Other livestock costs	66	59
Forage costs	48	28
Gross Margin (excluding BLSA)	189	229
Gross Margin range	-594 to 566	60 to 578
Total Fixed costs	443	502
Total costs	681	652
Enterprise Net Margin (excluding BLSA)	-254	-272
Enterprise NM after F&S labour (excl. BLSA)	-442	-423
Stocking rate (GLUs/total adj ha)	0.74	0.69

Table 7.2 compares organic and non-organic Upland SDA flocks to the GM and NM level. Enterprise output is £7/ewe lower for organics (at £85/ewe) than that of the non-organics. Variable costs are £15/ewe lower for organic flocks (at £41/ewe) than the non-organics. The resultant gross margin is £45/ewe for organic flocks and £36/ewe for the non-organic flocks. Fixed costs are £78/ewe for organic flocks and £67/ewe for non-organics – this results in net

margins (after farmer and spouse labour) of -£53/ewe for organic flocks and -£61/ewe for non-organic flocks.

Table 7.2 SDA Flock Performance Non-organic and Organic

2018 lamb crop	SDA flocks	
	Non-organics	Organics
Number of farms	96	13
Number of farms (weighted)	3096	88
Flock size (no. ewes)	515	408
	£ per ewe	
Enterprise Output (excluding BLSA)	92.1	85.0
BLSA	-9.7	-9.4
Total Variable costs	56.0	40.5
Concentrates	23.3	11.4
Purchased fodder and keep	5.3	3.1
Veterinary and medicines	7.5	9.2
Other livestock costs	13.3	13.8
Forage costs	6.6	2.9
Gross Margin (excluding BLSA)/Ewe	36.1	44.5
Gross Margin range	-45 to 111	9 to 87
Total Fixed costs	67.2	77.9
Total costs	123.2	118.3
Enterprise Net Margin (excluding BLSA)	-31.1	-33.3
Enterprise NM after F&S labour (excl. BLSA)	-61.1	-53.4
Stocking rate (GLUs/total adj ha)	0.70	0.78
Lambing rate (born and reared/average no. ewes)	1.34	1.31

**A part of this table was derived from data with less than 15 observations in the sample which could reduce the robustness of the results*

Table 7.3 compares whole farm profitability across all four cost centres between the 20 fully organic farms and the 192 non-organic LFA grazing farms in the sample. This table shows that the overall difference in profit favours the organic farms by £2,352 in Farm Business Income and by over £7,000 in Farm Corporate Income and Farm Investment Income. After the appropriate adjustments these profit figures translate to a Net Farm Income (NFI) of £6,688, which is £802 higher than the non-organic LFA grazing farms, and a Management and Investment Income (MII) loss of -£13,770, which is £3,000 better than the non-organic farms' loss of -£16,720. This greater FBI is down to the higher profitability of the non-production cost centres; the Agri-environmental cost centre (by £977) the Basic payment cost centre (by £7,038) and the Diversification cost centre (by £679) which offset the £6,343 loss of the Agriculture cost centre. Agricultural production activities realise a negative FBI for both organic and non-organic farms. Clearly the large area advantage that the organic farms enjoy goes some way to explain the difference in the Basic Payment revenue – see Table 7.4. Table 7.4 compares the Organic sample with the Non-organic sample through a series of land use, stocking, outputs and variable costs. With an average area farmed of 215ha, organic farms are 29% larger, in area terms, of the non-organics (167ha) and while a large portion of this is rough grazing very little of it is common land. Organic LFA farms are 60% owner occupied, against 46% for the non-organics, and actually use 14% less labour (at 1.4 annual labour units per farm) than the non-organic average. Further comment on Organic farms may be found in a sister publication – see Appendix 4 – Reports in this series .

Table 7.3 Farm Income measures by cost centre, Organic vs. Non-organic

2018 lamb crop		Cost Centre (£ per farm)									
		Agriculture		**Agri-environment and other payments**		**Diversification out of agriculture**		**Basic Payment Scheme**		**Farm Business Income**	
Derivation of farm income measures		Non-organic	Organic	Non-organic	Organic	Non-organic	Organic	Non-organic	Organic	Non-organic	Organic
% contribution of centre revenue to total:		59%	52%	11%	12%	5%	4%	25%	32%		
Total output (Revenue)	(a)	**67,819**	**59,972**	**12,747**	**13,831**	**5,471**	**5,016**	**28,745**	**36,551**	**114,783**	**115,371**
Variable costs	(b)	45,987	37,866	14	97	150	11	10	65	46,161	38,038
Total Gross margin	(**c**=a-b)	**21,832**	**22,106**	**12,733**	**13,735**	**5,321**	**5,005**	**28,735**	**36,487**	**68,622**	**77,333**
Fixed costs	(d)	43,219	49,760	2,425	2,450	2,674	1,679	4,864	5,577	53,183	59,466
Total Costs	(e=b+d)	**89,206**	**87,626**	**2,440**	**2,546**	**2,824**	**1,690**	**4,874**	**5,642**	**99,343**	**97,504**
Profit/(loss) on sale of fixed assets	(f)	48	-28							48	-28
Farm Business Income	(**g**=a-e+f)	**-21,339**	**-27,682**	**10,308**	**11,285**	**2,647**	**3,326**	**23,871**	**30,909**	**15,487**	**17,839**
Adjustment for unpaid manual labour	(h)	26,182	21,353	463	437	1,442	805	0	0	28,087	22,595
Farm Corporate Income	(**i**=g-h)	**-47,521**	**-49,035**	**9,844**	**10,848**	**1,206**	**2,521**	**23,871**	**30,909**	**-12,600**	**-4,756**
Interest payments (net of interest received)	(j)	2,985	2,293	108	103	84	39	139	121	3,316	2,557
Farm Investment Income	(**k**=i+j)	**-44,536**	**-46,742**	**9,952**	**10,951**	**1,289**	**2,560**	**24,010**	**31,031**	**-9,284**	**-2,200**
% contribution of centre total costs to total:		90%	90%	2%	3%	3%	2%	5%	6%		
								Imputed rent	(l)	11,506	17,412
								Ownership charges	(m)	3,772	5,030
								Director's remuneration	(n)	246	773
								Unpaid labour of principal farmer and spouse	(o)	22,657	20,496
								Net Farm Income	(**p**=k-l+m+n+o)	**5,886**	**6,688**
								Holding gains not included in farm income	(q)	-2,968	-16,083
								Breeding Livestock Appreciation (BLSA)	(r)	-5,603	-5,114
Non-organic Sample size (unweighted)	**192**							Revaluation of machinery, permananet crops, glasshouse, quota	(s)	1,977	2,692
Number (weighted)	**6,757**							Revalutation of land	(t)	658	-13,661
Organic Sample size (unweighted)	**20**							Manager's paid managerial input	(u)	52	39
Number (weighted)	**171**							**Management and Investment Income**	(**v**=p-o+u)	**-16,720**	**-13,770**

Table 7.4 Land use, Stocking, Outputs & Variable costs - Organic vs Non-organic

2018/19	The Average LFA Farm	
Land Use & Stocking	**Non-organic**	**Organic**
Number (unweighted)	192	20
Number (weighted)	6,757	171
Total Area (includes woodland and roads etc) (ha)	170.6	218.2
Area Farmed (ha)	167.0	215.7
Net Land Hired In (ha)	3.4	9.1
Utilised Agricultural Area (ha)	163.6	206.6
Of which Total cropping (ha)	1.5	3.2
Grass, fodder crops and rough grazing	162.1	203.4
Of which: rough grazing (unadjusted)	65.2	91.6
Adjusted rough grazing (sole occupation)	18.6	21.5
Adjusted rough grazing (shared)	9.4	0.5
Total Adjusted Utilised Agriculture Area (ha)	117.0	136.4
Area owner occupied (ha)	76.4	129.2
Area tenanted (ha)	94.2	89.0
Average age of farmer (years)	61	59
Agricultural labour units (ALU)	1.6	1.4
Standard Output size units (2010SO)	97,246	109,277
Land Use		
Temporary Grassland Area (ha)	3.1	12.1
Permanent Grassland Area (ha)	95.6	106.3
Stocking		
Total Beef cows	25.4	44.2
Total Cattle	81.6	119.7
Ewes (LFA and lowland)	385.5	286.9
Total Sheep	757.5	546.3
Livestock Units		
Total Cattle LU	48.2	73.3
Total Sheep LU	40.5	29.1
Grazing LU (cattle, sheep, horses and others)	89.2	103.2
Outputs & Variable Costs		
Farm Business Output	114,783	115,371
of which: Output from agriculture	67,819	59,972
Agri environment payment	12,747	13,831
Diversified output	5,471	5,016
Basic Payment	28,745	36,551
Livestock Enterprise Output	60,573	53,802
of which: Cattle Enterprise Output	27,360	30,679
Sheep Enterprise Output	33,087	23,071
Crop Enterprise Output	3,851	3,628
Non agriculture, no other category output	3,386	2,496
Variable Costs		
Farm Business Variable Costs	46,161	38,038
Of which: Agriculture Variable Costs	45,987	37,866
Agriculture Crop Costs	5,514	3,216
Agriculture Livestock Costs	34,242	22,605
of which: Purchased Fodder Feed	19,715	8,014
Home Produced Fodder Feed	767	1,531
Veterinary and medicines	4,405	3,924
Other Livestock Costs	9,355	9,136
Agriculture Contract Costs	3,844	9,909
Agriculture Casual Labour	2,316	1,895

8 Appendix 3 – Organic dairy production

Table 8.1: Outputs, Inputs and Margins for All Farms, Organic and Non-organic

	All		Non-organic		Organic	
	17/18	18/19	*17/18*	18/19	*17/18*	18/19
Number of farms	*238*	238	*203*	198	*35*	40
Area (ha)	*157*	168	*157*	169	*158*	155
	£/ha		£/ha		£/ha	
Output						
Milk	*2726*	2734	*2759*	2772	*2078*	2012
Calf	*143*	133	*146*	135	*103*	93
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*10*	1	*10*	1	*14*	0
Herd Replacement	*-241*	-227	*-245*	-230	*-160*	-164
Total Dairy Output	***2639***	**2641**	***2670***	**2678**	***2035***	**1941**
Other Livestock	*536*	478	*543*	484	*382*	365
Other	*533*	550	*537*	558	*442*	406
Total Farm Output	***3707***	**3669**	***3751***	**3720**	***2859***	**2712**
Variable Costs						
Home-grown Concentrates	*68*	73	*67*	72	*102*	89
Purchased Concentrates	*786*	872	*796*	885	*578*	622
Coarse Fodder	*66*	101	*68*	103	*35*	63
Other Livestock Concs.	*3*	4	*3*	4	*0*	0
Vet and Medicine	*102*	104	*105*	106	*52*	55
Other Livestock Costs	*258*	268	*259*	268	*248*	257
Seed	*32*	37	*33*	38	*21*	21
Fertiliser	*98*	103	*102*	108	*12*	9
Crop Protection	*38*	40	*40*	42	*0*	0
Other Crop Costs	*24*	20	*24*	20	*11*	9
Total Variable Costs	***1476***	**1621**	***1498***	**1647**	***1058***	**1126**
Fixed Costs						
Labour	*411*	427	*416*	432	*326*	325
Contract	*182*	177	*184*	179	*129*	130
Machinery Depreciation	*186*	200	*188*	203	*139*	148
Other Machinery	*208*	226	*211*	229	*146*	163
Miscellaneous	*283*	309	*284*	312	*266*	267
Rent and Rental Equivalent	*320*	326	*322*	327	*294*	301
Total Fixed Costs	***1589***	**1665**	***1604***	**1682**	***1301***	**1334**
Net Farm Income	***642***	**383**	***649***	**390**	***500***	**252**
Farmer / Spouse Labour	*201*	190	*201*	189	*200*	211
Management and Investment Income (MII)	***440***	**197**	***448***	**205**	***300***	**41**
Farm Business Income (FBI)	***753***	**473**	***763***	**482**	***559***	**307**

Farm Level Results

- Farm Business Survey data from 2018/19 shows that the average Farm Business Income (FBI) from dairying was £473/ha, which at the average farm size equates to a FBI in the region of £79,700, representing a decrease in total FBI of over 33% from 2017/18 (Table 8.1).

- Average FBI on conventional dairy farms in 2018/19 was £482/ha (£81,458 per farm), whilst on organic farms average FBI was £307/ha (£47,585 per farm). In 2018/19, the gap widened between conventional and organic farms FBI/ha, to 57%, compared with 2017/18 when conventional farms were 36.5% higher than organic farms (Table 8.1).

- Management and Investment Income (MII) across all dairy farms decreased by £243/ha to £197/ha in 2018/19. This equates to an average MII of £33,096 per farm, compared with £69,080 in 2017/18 (Table 8.1).

Table 8.2: Gross Margin Results for All Farms, Non-organic and Organic

	All		Non-organic		Organic	
	17/18	18/19	*17/18*	18/19	*17/18*	18/19
Number of farms	*227*	214	*192*	176	*35*	38
Average number cows	*186*	188	*188*	192	*139*	134
Average yield (litres)	7794	8090	7861	8179	6113	6067
Milk price (ppl)	29.6	30.3	29.3	30.0	38.7	38.7
	£/cow		£/cow		£/cow	
Output						
Milk	*2309*	2451	*2306*	2456	*2368*	2345
Calf	*122*	119	*122*	120	*118*	107
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*9*	1	*9*	1	*16*	0
Herd Replacement	*-202*	-203	*-203*	-203	*-183*	-193
Total Dairy Output	***2237***	**2368**	***2234***	**2373**	***2319***	**2260**
Variable costs						
Concentrates	*608*	700	*609*	702	*597*	658
Coarse Fodder	*42*	77	*43*	78	*27*	56
Vet and Medicine	*73*	80	*74*	81	*50*	53
Other Livestock Costs	*170*	191	*168*	190	*215*	227
Forage Costs	*75*	81	*77*	84	*27*	24
Total Variable Costs	***968***	**1130**	***971***	**1135**	***917***	**1018**
Total Gross Margin	*1269*	1238	*1264*	1238	*1402*	1241

Dairy Enterprise Results: Gross Margin for Non-organic and Organic Farms

- Enterprise-level analysis in 2018/19 shows that the conventional herd total dairy output exceeded organic total dairy output by £113/cow. Conventional herd dairy output increased by £139/cow, as a result of an increase in both yield (318lpc) and milk price (+0.7ppl), whilst organic herds total dairy output decreased by £59/cow, due solely to a reduction in milk yield (-46lpc), as milk price remained static at 38.7ppl. The average number of cows per herd increased by 4 cows for the conventional herd, and decreased by 5 cows for the organic herd (Table 8.2).

- The lower organic dairy output was offset by lower variable costs, resulting in a gross margin of £1,241/cow compared with £1,238/cow for the conventional dairy herds. The difference between the organic and conventional dairy herd gross margins was much wider in 2017/18, whereby conventional herds produced a gross margin of £1264/cow compared with the organic herd gross margin of £1,402/cow (Table 8.2).

Figure 8.1: Key Gross Margin Components by Organic and Non-organic Herds

- The higher milk price achieved by organic herds, coupled with their lower concentrate feed costs, resulted in organic herds achieving a margin over concentrate performance that exceeded that of conventional herds by 6.43ppl, which was lower than the previous year's excess of 7.38ppl (Figure 8.1).

9 Appendix 4 – Reports in this series

Crop Production in England

Dairy Farming in England

Hill Farming in England

Horticulture Production in England (Horticultural Business Data)

Lowland Grazing Livestock Production

Pig Production in England

Poultry Production in England

Details available at: www.ruralbusinessresearch.co.uk

10 Appendix 5 – Definition of terms

I. BUSINESS OUTPUTS, INPUTS, COSTS AND INCOME

1. ***Farm Business Income*** for sole traders and partnerships represents the financial return to all unpaid labour (farmers and spouses, non-principal partners and directors and their spouses and family workers) and on all their capital invested in the farm business, including land and buildings. For corporate businesses it represents the financial return on the shareholders capital invested in the farm business. It is used when assessing the impact of new policies or regulations on the individual farm business. Although Farm Business Income is equivalent to financial Net Profit, in practice they are likely to differ because Net Profit is derived from financial accounting principles whereas Farm Business Income is derived from management accounting principles. For example in financial accounting output stocks are usually valued at cost of production, whereas in management accounting they are usually valued at market price. In financial accounting depreciation is usually calculated at historic cost whereas in management accounting it is often calculated at replacement cost.

2. ***Farm Corporate Income (FCI)*** represents the return on own capital invested in the farm business, to risk and to entrepreneurship. It is derived by deducting unpaid labour, both manual and managerial, from Farm Business Income. This allows the profitability of sole traders and partnerships to be compared directly with that of companies. Currently we are able to deduct an estimate of unpaid manual labour but not of unpaid managerial labour and so the data are only approximate. However, we plan to undertake a research project to produce a method for deriving an estimate of unpaid managerial labour, so that we can produce better data for this measure in future.

3. ***Farm Investment Income (FII)*** represents the return on ***all*** capital invested in the farm business ***whether borrowed or not***, to risk and to entrepreneurship. It is a general measure of the profitability of farming as an activity rather than of a particular business. It is derived by adding net interest payments to Farm Corporate Income. Since currently the data for Farm Corporate income are only approximate, so too are the data for Farm Investment Income.

4. ***Net Farm Income (NFI)*** is intended as a consistent measure of the profitability of tenant-type farming [2] that allows farms of different business organisation, tenure and

[2] Tenant-type farming was never conceived of as including non-agricultural activities on farm (using farm resources) except perhaps for value added activities such as small-scale food processing, e.g. sales of farm produced butter and cream and retail sales of farm produced liquid milk. However, recent research has revealed that many of the more varied non-agricultural activities which have been increasing on farms over the years have been inadvertently included in the calculation of NFI, with the result that about three-quarters of non-agricultural activities on farm by value are currently included and one-quarter excluded, without any clear basis for this division. Although this means that the definition of NFI has become untenable on the current basis, it has been decided to continue with historical practice for reasons of continuity, rather than to change the definition, pending the introduction of a wider measure to include all on-farm business activities.

indebtedness to be compared. It represents the return to the farmer and spouse alone for their manual and managerial labour and on the tenant-type capital[3] invested in the farm business. To represent the return to farmer and spouse alone, a notional deduction is made for any unpaid labour provided by non-principal partners and directors, their spouses and by others; this unpaid labour is valued at average local market rates for manual agricultural work.

To confine the measure to the tenant-type activities and assets of the business, an imputed rent is deducted for owner-occupied land and buildings and for landlord-type improvements made by the tenant. No deduction is made for interest payments on any farming loans, overdrafts or mortgages; interest earned on financial assets is also excluded.

5. ***Cash income*** is the difference between total revenue and total expenditure. Revenue is: receipts adjusted for debtors; and expenditure is: purchases adjusted for creditors. It is assumed, therefore, that all end of year debtor and creditor payments are settled in full, even though this may happen beyond the end of the accounting year. Cash income represents the cash return to the group with an entrepreneurial interest in the business (farmers and spouses, non-principal partners and directors and their spouses and family workers) for their manual and managerial labour and on all their investment in the business.

6. ***Family farm income*** is a measure of farm income used by the European Commission. It is based upon actual tenure and indebtedness. However, it is a broader measure than net farm income in that it represents the return to all unpaid labour (farmers and spouses, non-principal partners and directors and their spouses and family workers). It also includes breeding livestock stock appreciation although it cannot be realised without reducing the productive capacity of the farm.

II. CROPPING, STOCKING AND LABOUR TABLES

7. ***Utilised agricultural area*** is the crop area, including fodder, set-aside land, temporary and permanent grass and rough grazing in sole occupation (but not shared rough grazing) i.e. the agricultural area of the farm. It includes bare land and forage let out for less than one year.

8. ***Total area of farm*** is the utilised agricultural area plus woodland and other areas of the farm not used for agriculture (e.g. buildings, roads, water, household gardens).

9. ***Total tillage*** comprises the utilised agricultural area, plus bare land and forage hired in from others in the accounting period, minus temporary and permanent grass and rough grazing in sole occupation (but not shared rough grazing).

10. ***Total area farmed*** comprises the total area of the farm minus woodlands and buildings, etc. plus net land hired in.

[3] Tenant-type capital comprises livestock, machinery, crops in store, stocks of consumables, work in progress, orchards, other permanent crops, glasshouses, cash and other assets needed to run the business. It does not include land and buildings.

11. ***Adjusted utilised agricultural area*** comprises the utilised agricultural area with rough grazing in sole occupation converted to a permanent pasture equivalent.

12. ***Stocking*** figures are the average annual level of stocking based on estimated average livestock numbers on the farm for the year, including fractions for livestock on the farm for less than a year.

13. ***Total livestock units*** are used as an approximate measure of stocking intensity and are based on the estimated energy requirements of different species and ages of livestock. The factors used are set out in Appendix 2 of *'Farm Incomes in the United Kingdom 1999/00'.*

14. ***Annual labour units (ALU)*** are the estimated number of full time worker equivalents of persons working on the holding during the year. Part-time workers are converted to full-time equivalents in proportion to their actual working time related to that of a full-time worker. One ALU represents one person employed for 2,200 hours.
Standard labour requirements (SLR) are theoretical measures of representative labour requirements under typical conditions for enterprises of average size and performance. Used in the classification of farms by type and size there are 6 SLR size groups measured in Full Time Equivalents (FTE) where 1 FTE equals 1900 hours per year. Farms considered "Spare time" SLR band 1, less than 0.5 FTE or less than 949 imputed hours are excluded from the Farm Business Survey. The 6 SLR size groups are:

SLR band	Descriptive	FTE	Hours/year
1	Very small, Spare time	<0.5	1 - 949
2	Very small, Part time	0.5 to <1	950 – 1899
3	Small, Full time	1 to <2	1900 – 3799
4	Medium, Full time	2 to <3	3800 – 5699
5	Large, Full time	3 to <5	5700 – 9499
6	Very large, Full time	>5	>9500

III. OUTPUTS, INPUTS AND FARM BUSINESS INCOME TABLES

15. ***Agricultural output*** is the main measure of individual crop and livestock output. It comprises:

(a) ***Livestock enterprise output*** comprises the total sales of livestock and livestock products including *direct livestock subsidies* and production grants received, part of the valuation change (see below), produce consumed in the farmhouse and by labour and the value of milk and milk products fed on the farm (excluding direct suckling) adjusted for debtors at the beginning and end of the year (except for direct livestock subsidies) and transfers between enterprises; less purchases of livestock and livestock products from outside the farm business. Stock appreciation for breeding livestock (cattle, sheep and pigs) has been excluded from individual livestock enterprise outputs. However, changes in the numbers of breeding livestock between the opening and closing valuation and the

total valuation change of trading livestock are included. Unlike crop enterprise output, livestock enterprise output is calculated on an accounting year basis.

(b) ***By-products, forage and cultivations***, which cover the value of output of the by-products of agricultural activity, sales of fodder, valuation changes for fodder and cultivations. It also covers revenue from the letting of bare land or forage on a short-term lease.

(c) C***rop enterprise output***, which is the total value of crops produced by the farm (other than losses in the field and in store). It includes crops used for feed and seed by the farm business and those consumed in the farmhouse and by farm labour. Crop enterprise output is calculated on a "harvest year" as distinct from an "accounting year" basis; that is, it refers only to those crops (with the exception of certain horticultural crops) wholly or partly harvested during the accounting year and excludes any crop carried over from the previous year. Thus valuation changes (between the previous and current crops) are not relevant and the total harvested yield of the crop is valued at market prices (plus any subsidies). However, any difference between the opening valuation of any stocks of previous crops and their ultimate disposal value (sales, used on farm and any end-year stocks) is included in total farm output.

(d) ***Miscellaneous output*** covers the value of output from those activities that are still within the agricultural cost centre but do not fall within either livestock or crop enterprise output. These will include revenue from wayleaves, agricultural hirework, sundry woodland sales, contract farming rent, miscellaneous insurance receipts, and compensation payments.

16. ***Agricultural costs*** comprise payments and the estimated value of non-cash inputs, including home-grown feed and seed, adjusted for changes in stocks and creditors between the beginning and end of the year.

Total variable costs	These are taken to be costs of feed, veterinary fees and medicines, other livestock costs, seeds, fertilisers, crop protection and other crop costs.
Purchased concentrate feed and fodder	This represents expenditure on feeds and feed additives, including charges for agistment.
Home-grown concentrate feed and fodder	This includes ex-farm value of all home produced cereals, beans, milk (excluding direct suckling), etc. fed on the farm both from the current and previous years' crops
Veterinary fees and medicines	This consists of veterinary fees and the cost of all medicines.
Other livestock costs	This comprises straw bought specifically for costs bedding materials, breeding costs (including AI and stud fees), miscellaneous dairy expenses, disinfectants, marketing and storage costs of animal products, Milk Development Council levy and other livestock costs not separately identified.

Purchased and home-grown seeds	This comprises expenditure on purchased seeds, plants and trees adjusted for changes in stocks. Home-grown seed from the previous crop is included and charged at estimated market price: any seeds from current crops and sown for a succeeding crop are excluded, but are included in the closing valuation of the crop and hence in enterprise output. This enables the value of home-grown seed used in the production of the current crop to be identified.
Fertilizers	This includes lime, fertilisers and other manures, and is adjusted for changes in stock. Fertilisers sown for next year's crops are treated as if they were still in store and are included in the closing valuation.
Crop protection	This includes costs of pre-emergent sprays, fungicides, herbicides, dusts and insecticides and other crop sprays.
Other crop costs	These comprise all crop inputs not separately specified, e.g. marketing charges, packing materials, British Potato Council levy, baling twine and wire (though not fencing wire).
Total fixed costs	These are the costs of labour, machinery, contract work, land and buildings, other general farming costs and depreciation.
Labour (excluding farmer and spouse)	This comprises wages and employer's insurance contributions, payments in kind, and salaried management. To calculate net farm income an imputed charge for unpaid labour is made, excluding that of the farmer and spouse, valued at the rate of comparable paid labour. The value of the manual labour of the farmer and spouse is not charged as an input in calculating net farm income (i.e. it is a component of net farm income).
Contract costs	These costs include expenditure on work carried out by agricultural contractors, including the costs of materials employed, such as fertilisers, unless these can be allocated to the specific heading. Costs of hiring machines to be used by the farm's own labour are also included. Expenditure on contract labour is only included here if it is associated with the hiring of a machine. Otherwise it is entered under (casual) labour.
Machinery running costs	These represent the cost of machinery and equipment repairs, fuel and oil and car mileage expenses. It excludes depreciation.
Land and building inputs	For the calculation of farm business income these comprise any rent paid, insurance, rates and repairs to land and buildings incurred by the whole business. In the derivation of net farm income land and building costs also include an imputed rental charge for owner occupiers but exclude those costs associated with land ownership such as the insurance of farm buildings, and landlord-type repairs and upkeep.
Depreciation of machinery, glasshouses and permanent crops	Depreciation provisions in respect of machinery, glasshouses and permanent crops (e.g. orchards) are shown on a current cost basis. The rates of depreciation used (generally on a diminishing balance basis for machinery and straight line for glasshouses and permanent crops) are intended to reflect the degree of deterioration of the assets.
Other general farming costs	These consist of electricity, heating fuel, water for all farming purposes, insurance (excluding labour and farm buildings), bank charges, professional fees, vehicle licences, and other miscellaneous expenses not recorded elsewhere.
Interest payments	Interest charges on loans taken out for business purposes, net of interest receipts on monies invested temporarily outside the business, are deducted in the calculation of farm business income.

Depreciation of buildings and works	This is calculated on a current cost basis (generally on a straight line basis over 10 years) with an adjustment to allow for the effect of capital grants.

17. ***Breeding livestock stock appreciation*** represents the change in market prices of breeding cattle, sheep and pigs between the opening and closing valuations. It is not included in the calculation of farm business income but is shown separately within table 3.

IV. BALANCE SHEET TABLES

18. ***Total fixed assets*** include milk and livestock quotas, as well as land, buildings, breeding livestock, and machinery and equipment. For tenanted farmers, assets can include farm buildings, cottages, quotas, etc., where these are owned by the occupier.

19. ***Liquid assets*** comprise cash and sundry debtors.

20. ***Bank term loans*** and ***other long and medium term loans*** are loans which exceed 12 months.

21. ***Net Worth*** represents the residual claim or interest of the owner in the business. It is the balance sheet value of assets available to the owner of the business after all other claims against these assets have been met.

V. IMPLIED OUTPUT PRICES

22. ***Implied output prices*** are average unit returns excluding direct subsidies. For crops they are calculated by dividing the value of sales, closing stocks, farm house consumption, benefits in kind and own-produced feed by total production. Sales are value at prices actually received at the farm gate before the deduction of marketing charges paid direct by the farmer such as drying and cleaning costs. More detailed information about sales volumes is collected for livestock and, in this case, the unit returns refer to sales of livestock including casualties. In both cases, any compensation payments or insurance payouts for output produced in the current year and destroyed are included.

Source: DEFRA – Farm Accounts in England 2006/2007
http://webarchive.nationalarchives.gov.uk/20130315143000/http://www.defra.gov.uk/statistics/foodfarm/farmmanage/fbs/publications/farmaccounts/

Standard Output (SO)

SOs are representative of the level of output that could be expected on the average farm under "normal" conditions (i.e. no disease outbreaks or adverse weather). Different SOs are calculated for North England, East England, West England, Wales, Scotland and Northern Ireland to allow for the differences in output in different areas.

Standard outputs measure the total value of output of any one enterprise - per head for

livestock and per hectare for crops. For crops this will be the main product (e.g. wheat, barley, peas) plus any by-product that is sold, for example straw. For livestock it will be the value of the main product (milk, eggs, lamb, pork) plus the value of any secondary product (calf, wool) minus the cost of replacement.
Up until 2010, Standard Gross Margins were used for the classification of farms. The difference between standard outputs and standard gross margins is that no variable costs are deducted in the derivation of standard outputs. A Defra note looking at the effects on the population by farm type as a result of the change from SGM's to SO's is available at:
http://webarchive.nationalarchives.gov.uk/20130123162956/http:/www.defra.gov.uk/statistics/files/defra-stats-foodfarm-farmmanage-fbs-reviseclass_111221.pdf/
The SOs now in use are based on a five-year average centred on 2013. SO's are based on a five-year average in order to lessen the impact of yearly fluctuations on calculated SOs.
The 2013 SO's for England can be seen on Annex 1 under UK Farm Classification on the above site.

Source:
http://webarchive.nationalarchives.gov.uk/20130123162956/http:/www.defra.gov.uk/statistics/files/defra-stats-foodfarm-farmmanage-fbs-UK_Farm_Classification.pdf/

Adjusted Forage Area (adj. for. Ha)
The adjusted forage area allows an area of rough grazing to be equated to an equivalent area of flat mowable land. This therefore reflects the true stock carrying capacity of a parcel of land and allows meaningful comparisons on true farm stocking rates to be presented. This measure is particularly important for LFA farms with large tracts of poor quality land.

Total Adjusted Area (TAA)
The total adjusted area includes; adjusted UAA, adjusted common grazing and short term rentals (less than 1 year).

References

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Cover photo: *Courtesy of an organic beef herd in Northumberland*