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Rural Business Research

Farm Business Survey

2019/2020

Dairy Farming in England

Davina Smith, Helen McHoul
and Paul Wilson

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independent research, data and analysis

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Foreword to the First Series

This report is one of a series being produced based on the results of the Farm Business Survey (FBS) for England. The annual Farm Business Survey is the most comprehensive and independent survey of farm incomes and provides a definitive data source on the economic and physical performance of farm businesses in England. It is conducted by a Consortium comprising the Universities of Cambridge, Newcastle upon Tyne, Nottingham and Reading, and Askham Bryan, Duchy and Imperial Colleges. The Consortium is led by the University of Nottingham and its members work in partnership, using uniform and standard practices in reporting on their findings to ensure consistent data quality, accuracy and validity. The Survey is financed by Defra and the Consortium values greatly the input of their staff.

These detailed reports for various farm types and enterprises are in addition to the comprehensive Farm Business Survey Reports for Government Office Regions published at www.farmbusinesssurvey.co.uk. The Consortium is seeking by these additional reports to ensure that timely and relevant information is available to farmers, consultants, advisers and other organisations and individuals interested in farming and land management. The analysis and publication of these reports uses data from farm businesses across England, with an individual member of the Consortium undertaking the research analysis. In line with the ethos of the Consortium, these reports present results in such a way as to ensure a significant element of continuity and consistency from one report to the other, whilst also ensuring that each report captures the contemporary issues of relevance to the sector of agriculture in England to which it relates.

We believe these reports will make a valuable and useful contribution to the farming industry and we commend them to you.

Prof. Martin Seabrook

(Chief Executive of the Consortium)

Spring 2007

Foreword to the Fifteenth Series

Welcome to the fifteenth series of reports on the economics of agriculture and horticulture in England from *Rural Business Research (RBR).* At a time of change, uncertainty and opportunity, planning ahead on the basis of data and evidence is crucial. Some key points below outline the market, policy, physical and biological environments through which agriculture and horticulture have operated in the last 12 months. These also highlight the importance of our work on the Farm Business Survey (FBS) that is only achieved through the highly valued co-operation of participating agricultural and horticultural businesses.

The new Agriculture Act that received Royal Ascent in the closing weeks of 2020 now means that the sector no longer operates within the Common Agricultural Policy. The development of the Agriculture Act relied extensively on evidence from the FBS that demonstrated the reliance of key sectors on the Basic Payment Scheme (BPS) and the need for a longer 'transition period' than was initially proposed. The recently published Path to Sustainable Farming outlines the broad direction of the policy environment over the 2021-2027 period, as the phased decline in BPS support makes way for increased payments for public goods. There will be opportunities for businesses to be supported to increase farm efficiency and productivity, enhance animal welfare and reduce agriculture's 'carbon footprint'. The UK-EU trade agreement has been broadly welcomed by the industry. During the last 12 months our industry has endured an exceptionally wet winter of 19/20 that impacted crop establishment and gave way to a spring drought followed by a low yielding and sometimes difficult harvest. The impact of challenging weather and the Covid-19 pandemic have been felt in very diverse ways across agricultural and horticultural businesses. While the full impact of these challenges on the economics of agriculture and horticulture won't be collected and analysed until later in 2021, the FBS was once again drawn upon by Government to evidence the need for specific Covid-19 related support packages including the Dairy Response Fund.

For the 2019/20 financial year, which covers the 2019 harvest, average Farm Business Income (FBI), derived from our work on the FBS, fell to £46,000 per business, from £50,400 in 2018/19. Seldom are the fortunes of the different agricultural and horticultural sectors aligned. In 2019/20 Upland Grazing Livestock saw an increase of 47% in FBI, from a low base to a slightly higher one (£22,800); by contrast the average Mixed farm business income fell by 36% to £28,900. Generally lower cereal prices negatively impacted Cereals farm businesses, while livestock farms, in particular Pig and Poultry businesses, benefited from lower feed costs.

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 2021

www.ruralbusinessresearch.co.uk

Acknowledgements

Rural Business Research 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.

It is important to note that all surveys are subject to sampling error as they are not measuring the whole population, the FBS is no exception. It is common practice to publish 95% confidence intervals and error bars alongside any published estimated figures to give the reader an indication of the size of the sampling error. These signify that we are 95% confident that this range contains the true value. For simplicity within these reports, the confidence intervals have not always been published. Readers should be aware that the figures calculated from the FBS data have a level of uncertainty around them and that all figures are estimates. Generally, the smaller the sample size the greater the sampling error and the less confidence we have in the estimates. For details on the FBS confidence intervals, please refer to Defra FBS publications;

https://www.gov.uk/government/collections/farm-business-survey

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Summary: Key Findings

The Dairying Sector

- During 2019/20, milk prices in the UK decreased slightly, with a yearly average price of 28.8 pence per litre (ppl); prices peaked in November 2019 at 29.9ppl, returning to 28.6ppl by the end of the milk year.

- Average milk yield increased by 0.36% in 2019/20 to 8,003 litres per cow (lpc), the highest levels seen to date.

- The national herd size for 2019/20 decreased by 10,000 to 1,870,000 cows.

- 258 producers left the industry from October 2019 to October 2020 compared to the notably high number of 675 producers that left the industry in the previous 12 months.

Farm level results

- Farm Business Survey data from 2019/20 shows that the average Farm Business Income (FBI) from dairying was £516/ha, which at the average farm size equates to a FBI in the region of £84,800, representing an increase in total FBI of almost 6.5% from 2018/19.

- Average FBI on conventional dairy farms in 2019/20 was £530/ha (£87,450 per farm), whilst on organic farms average FBI was £298/ha (£44,700 per farm). In 2019/20, the gap again widened between conventional and organic farms FBI/ha, to almost 78%, compared with 2018/19 when conventional farms were 57% higher than organic farms.

- Management and Investment Income (MII) across all dairy farms increased by £23/ha to £220/ha in 2019/20. This equates to an average MII of £36,080 per farm, compared with £33,096 in 2018/19.

Dairy Enterprise Results

- Enterprise-level analysis shows that in 2019/20 the conventional herds' total dairy output remained almost static at £2,369/cow, with a small increase in yield (+169lpc) offset by a fall in milk price of 0.6ppl. Organic herds' total dairy output also remained fairly static, with a small increase of £12/cow taking the figure to £2,272/cow; the increase in yield (+223lpc) was again offset by a fall in milk price of 1.2ppl.

- Lowland and LFA herds saw a small decrease in average milk price, of 0.6ppl and 0.7ppl respectively; in spite of the decrease in milk price, GM/cow increased by £48 for lowland and £108 for LFA herds, as both saw higher yields per cow coupled with lower variable costs, notably feed costs. In 2019/20, at the average herd sizes, the total farm GM for lowland herds saw a slight rise to £269,076 compared with £250,387 in 2018/19, whilst the total LFA herd GM rose to £199,248 compared with £183,260 in 2018/19 (Table 3.8).

Chapter 1: The Dairying Sector

1.1: Overview

- During 2019/20, milk prices in the UK were lower than the previous two years, peaking at an average of 29.9 pence per litre (ppl) in Nov 2019, followed by a decline from Dec to March 2020. This resulted in a yearly average price of 28.8ppl, which was 0.5ppl lower than the average milk price in 2018/19 (Figure 1.1).

- For the third consecutive year, 2019/20 saw an increase in the key input costs of feed, vet and medicines, fertiliser and energy (Figure 1.2), albeit a relatively small increase in feed costs.

- UK annual milk production in 2019/20 increased by 97 million litres (+0.65%) to 14,969 million litres (a smaller increase than the previous year's figure of 158 million litres) (Figure 1.3).

- Average milk yield saw a small increase of 0.36% (+29 litres) in 2019/20 to 8,003 litres per cow (lpc), the highest average yields seen to date (Figure 1.4).

- The national herd saw a decrease of 10,000 cows, to 1,870,000 cows (Figure 1.4).

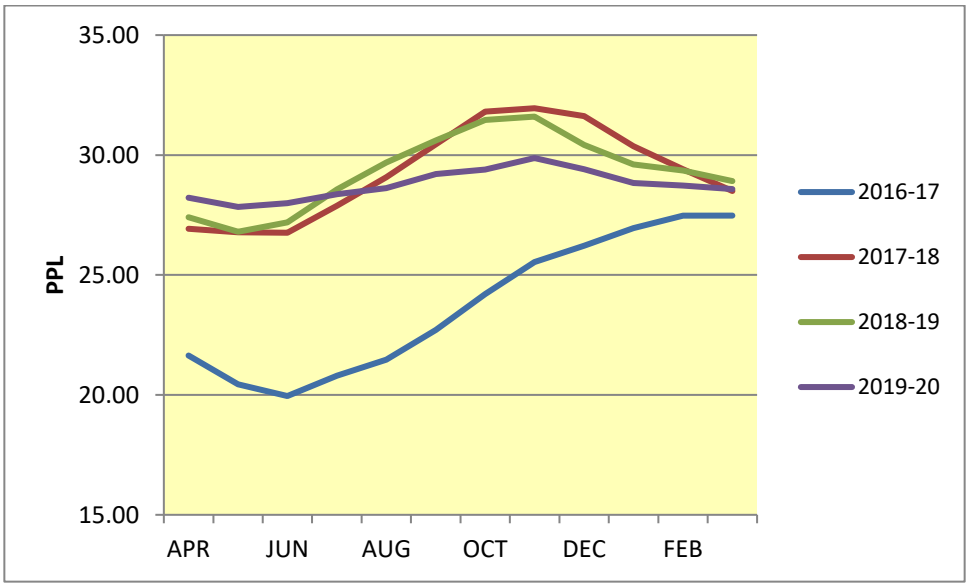
- In October 2020, there were approximately 258 fewer milk producers in England and Wales than a year earlier; a fall of 3% and the lowest number of producers on record. Since October 2011, numbers have fallen by 2,427, a decrease of over 22% (Figure 1.5).

Table 1.1: Average Annual Milk Prices

	2016/17	2017/18	2018/19	2019/20
Average annual price (ppl) (excluding bonus')	23.7	29.3	29.3	28.8

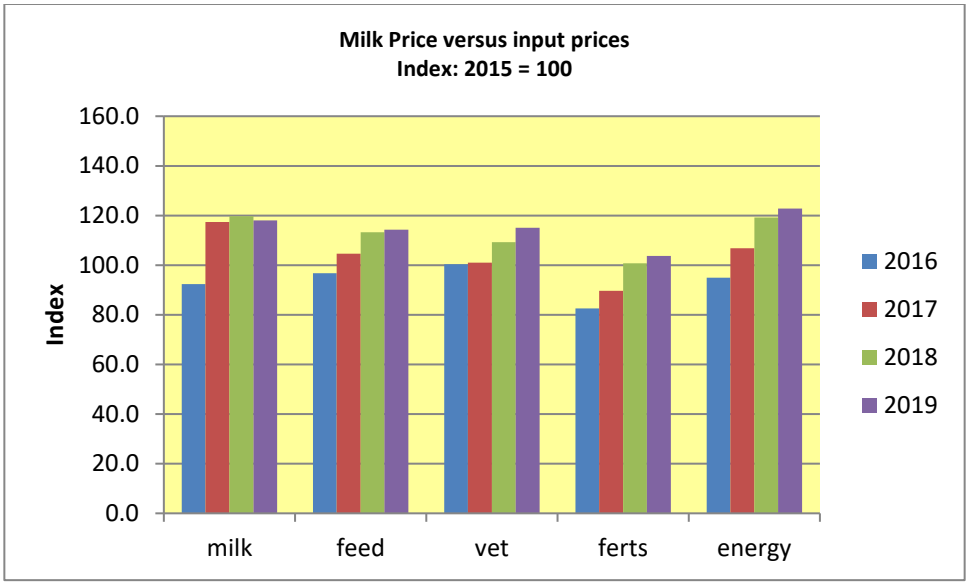
Source: Defra (2021a); Milk Price Surveys

Figure 1.1: Average Farmgate Milk Prices (UK)



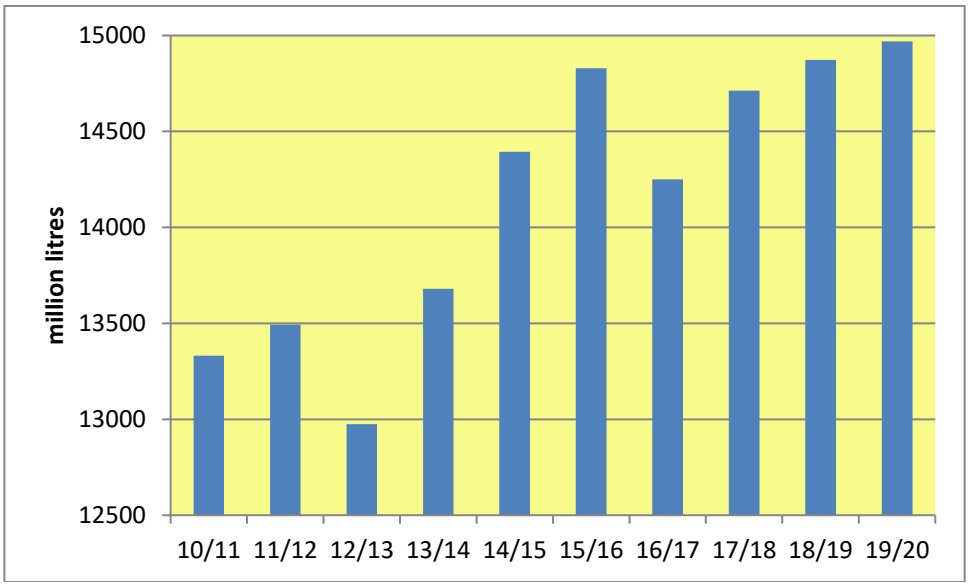
Source: Defra (2021b); Milk Price Surveys

Figure 1.2: Milk and Input Prices (UK)



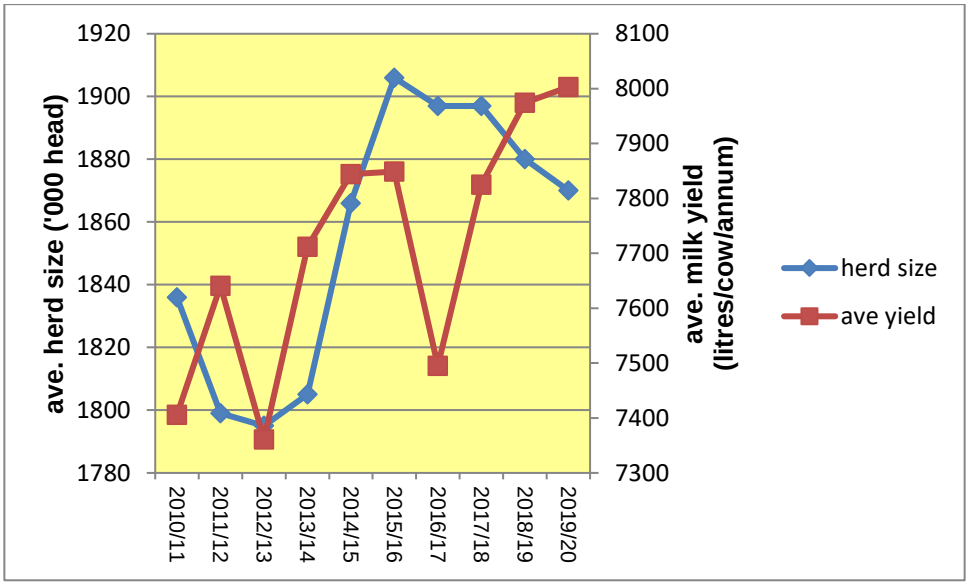
Source: Defra (2021c); Agriculture in the UK 2019

Figure 1.3: Annual Milk Production (UK)



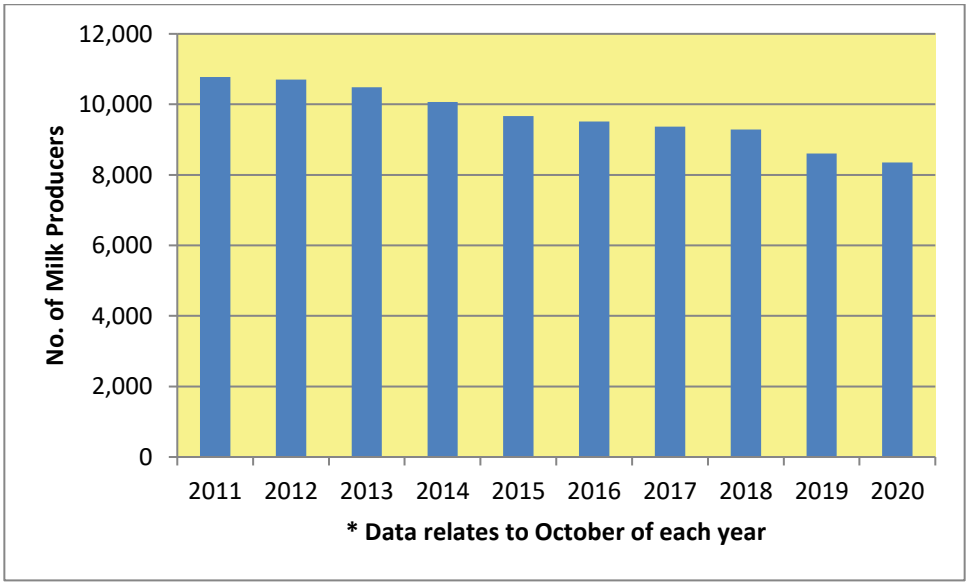
Source: AHDB Dairy (2021a)

Figure 1.4: Herd Size and Average Milk Yield (UK)



Source: AHDB Dairy (2021b)

Figure 1.5: Number of Milk Producers (England & Wales)



Source: AHDB Dairy (2021c)

1.2: Structure of Report

The above sections have described the market environment in which the dairy sector has been operating during the 2019/20 financial year, whilst making reference to the economic and market conditions over recent years. The remaining chapters of this report are as follows:

- Chapter 2 details the data source and data analysis undertaken
- Chapter 3 provides the results of the data analysis

Chapter 2: Data and Methodology

2.1: Data

The data used in this report are derived from the Farm Business Survey returns for England for those farms classed as Dairy Farms[1] and relate to the outputs, inputs and returns to each farm, together with total farm area and farm size data. Table 2.1 below details the number of observations for the per hectare farm results, in each category by farm type (All, Lowland Conventional, Less Favoured Area (LFA) Conventional and Organic), by farm size categories and by lower and upper performance quartiles. Table 2.2 details the number of observations for the enterprise level results, in each category by farm type (All, Lowland Conventional, LFA Conventional and Organic), by herd size categories and by lower and upper performance quartiles.

From 2018/19, the classification of farms is based on 2013 standard output coefficients. The results published here are therefore not directly comparable with those published in earlier years which are based on previous standard output coefficients. For more information please see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/365564/fbs-uk-farmclassification-2014-21oct14.pdf"

Table 2.1: Observations by Category: Farm-Level Data 2019/20

Category		All	Lowland Conventional	LFA Conventional[1]	Fully Organic [2]
Number of farms		228	131	59	38
Farm Size	<60 hectares	-	13*	6*	-
	60-120 hectares	-	50	24	-
	>120 hectares	-	68	29	-
Performance by ratio output:costs	Lower quartile	-	38	16	-
	Upper quartile	-	32	15*	-

1. Holdings on which dairy cows account for more than two thirds of the total Standard Output for the farm. A holding is classified as a Less Favoured Area (LFA) holding if 50 percent or more of its total area is in the LFA and a lowland holding if less than 50 per cent of its total area is in the LFA.

2. In-conversion organic farms are included in the conventional groups.

*Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

Table 2.2: Observations by Category: Enterprise-Level Data 2019/20

Category		All	Lowland Conventional	LFA Conventional [1]	Fully Organic [2]
Number of farms		223	127	58	38
Farm Size	<80 cows	-	20	12*	-
	80-130 cows	-	30	18	-
	>130 cows	-	77	28	-
Performance by GM/cow	Lower quartile	-	38	16	-
	Upper quartile	-	24	13*	-

1. Holdings on which dairy cows account for more than two thirds of the total Standard Output for the farm. A holding is classified as a Less Favoured Area (LFA) holding if 50 percent or more of its total area is in the LFA and a lowland holding if less than 50 per cent of its total area is in the LFA.

2. In-conversion organic farms are included in the conventional groups.

*Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

2.2: Methodology

The farm and enterprise level data were weighted using the Farm Business Survey weights and the subsequent results presented per hectare (farm level analysis) or per cow (gross margin analysis) basis. Descriptive results with the mean (average) for each category are reported as detailed in Chapter 3.

From 2018/19, the classification of farms is based on 2013 standard output (SO) coefficients. The results published here are therefore not directly comparable with those published in reports in earlier years which are based on previous SO coefficients. For more information please see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/365564/fbs-uk-farmclassification-2014-21oct14.pdf"

Chapter 3: Results

3.1: Farm Level Results

- Farm Business Survey data from 2019/20 shows that the average Farm Business Income (FBI) from dairying was £516/ha, which at the average farm size equates to a FBI in the region of £84,800, representing an increase in total FBI of almost 6.5% from 2018/19 (Table 3.1).

- Average FBI on conventional dairy farms in 2019/20 was £530/ha (£87,450 per farm), whilst on organic farms average FBI was £298/ha (£44,700 per farm), resulting in an increase in total FBI per farm of almost 7.4% for conventional farms and a decrease of just over 6% for organic farms total FBI per farm (in comparison to a substantial decrease for both in the previous year) (Table 3.1).

- 2019/20 saw a further increase in the gap between conventional and organic farms FBI; at £530/ha, FBI/ha on conventional farms was almost 78% higher than on organic farms (£298/ha), compared with 2018/19 when FBI on conventional farms was 57% higher than organic farms (Table 3.1).

- Management and Investment Income (MII) across all dairy farms saw a small increase of £23/ha, to £220/ha in 2019/20. This equates to an average MII of £36,080 per farm, compared with £33,096 in 2018/19 (Table 3.1).

- Average MII on conventional dairy farms increased from £205/ha in 2018/19 to £232/ha (£38,280 per farm) in 2019/20, whilst on organic farms average MII decreased by more than 44% to £23/ha (£3,450 per farm) (Table 3.1).

- Average FBI on lowland dairy farms was £508/ha, an increase of over 6% from £476/ha in 2018/19. For LFA dairy farms, average FBI increased to £639/ha (from £513/ha in 2018/19) (Table 3.2). This equates to a FBI on a farm level for lowland dairy farms of £85,852 and LFA dairy farms of £95,850 in 2019/20.

- Table 3.3 illustrates the reliance on Farmer / Spouse labour typically found on the smaller lowland dairy farms, i.e. less than 60 hectares, resulting in a familiar, substantially lower MII than was achieved for the two larger size groups presented. The smaller size group achieved a MII of -£396/ha, compared with -£44/ha and £295/ha for the 60 to 120 hectares and greater than 120 hectares groups respectively.

- As previously reported, a regular feature of LFA income results shows that LFA dairy farms within the largest size group operated less intensive systems, achieving the lowest total farm output per hectare, whilst incurring the lowest variable and fixed costs. The respective FBIs at farm level for the less than 60 hectares, the 60 to 120 hectares and the greater than 120 hectares size groups are £23,956, £57,510 and £133,722.

- Profitability analysis reveals a widening gap for FBI between the upper and lower quartiles in 2019/20; FBI for the upper quartile of lowland dairy farms was £1080/ha (£916/ha in 2018/19) compared with -£117/ha (-£29/ha in 2018/19) for the lower quartile. The upper quartile group has a larger average farm size at 183ha, compared to 123ha for the lower quartile, with both showing a decrease in farmed area (Table 3.5), albeit a small decrease for the lower quartile.

- An analysis of FBI by LFA quartile groupings reveals that the upper quartile achieved a milk output that was £633/ha greater than that achieved by the lower quartile (in comparison with £1015/ha greater in 2018/19). Variable costs for the lower quartile decreased by over 11% to £1551/ha, whilst the upper quartile decreased by almost 16% to £1324/ha, with lower feed costs accounting for the majority of the savings. At the average farm size, the lower and upper quartiles achieved FBI returns of £12,420 and £210,936 respectively (Table 3.6), an improvement on last year's figures of £4,104 and £180,796.

Table 3.1: Outputs, Inputs and Margins for All Farms, Conventional and Organic

	All		Conventional		Organic	
	18/19	19/20	*18/19*	19/20	*18/19*	19/20
Number of farms	*238*	228	*198*	190	*40*	38
Area (ha)[#]	*168*	164	*169*	165	*155*	150
	£/ha		£/ha		£/ha	
Output						
Milk	*2734*	2848	*2772*	2904	*2012*	1947
Calf	*133*	141	*135*	144	*93*	83
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*1*	5	*1*	5	*0*	1
Herd Replacement	*-227*	-245	*-230*	-251	*-164*	-153
Total Dairy Output	***2641***	**2749**	***2678***	**2803**	***1941***	**1878**
Other Livestock	*478*	504	*484*	513	*365*	360
Other	*550*	544	*558*	550	*406*	436
Total Farm Output	***3669***	**3797**	***3720***	**3866**	***2712***	**2674**
Variable Costs						
Home-grown Concentrates	*73*	67	*72*	65	*89*	93
Purchased Concentrates	*872*	874	*885*	891	*622*	593
Coarse Fodder	*101*	78	*103*	80	*63*	48
Other Livestock Concentrates	*4*	1	*4*	1	*0*	0
Vet and Medicine	*104*	105	*106*	109	*55*	51
Other Livestock Costs	*268*	273	*268*	276	*257*	223
Seed	*37*	36	*38*	37	*21*	27
Fertiliser	*103*	123	*108*	130	*9*	8
Crop Protection	*40*	35	*42*	37	*0*	1
Other Crop Costs	*20*	22	*20*	23	*9*	11
Total Variable Costs	***1621***	**1613**	***1647***	**1648**	***1126***	**1053**
Fixed Costs						
Labour	*427*	448	*432*	456	*325*	318
Contract	*177*	194	*179*	197	*130*	142
Machinery Depreciation	*200*	215	*203*	219	*148*	152
Other Machinery	*226*	226	*229*	231	*163*	150
Miscellaneous	*309*	342	*312*	344	*267*	300
Rent and Rental Equivalent	*326*	339	*327*	341	*301*	304
Total Fixed Costs	***1665***	**1764**	***1682***	**1789**	***1334***	**1366**
Net Farm Income	***383***	**420**	***390***	**430**	***252***	**254**
Farmer / Spouse Labour	*190*	199	*189*	197	*211*	231
Management and Investment Income (MII)	***197***	**220**	***205***	**232**	***41***	**23**
Farm Business Income (FBI)	***473***	**516**	***482***	**530**	***307***	**298**

The area used is the total farm area including woodland, roads, water, area not used for agriculture

Table 3.2: Outputs, Inputs and Margins: Lowland and LFA Farms

	Lowland		LFA	
	18/19	19/20	*18/19*	19/20
Number of farms	*140*	131	*58*	59
Area (ha)#	*175*	169	*143*	150
	£/ha		£/ha	
Output				
Milk	*2788*	2977	*2686*	2551
Calf	*130*	143	*167*	150
Lease Quota (net)	*0*	0	*0*	0
Other Dairy	*1*	6	*0*	1
Herd Replacement	*-226*	-252	*-250*	-246
Total Dairy Output	***2692***	**2874**	***2602***	**2455**
Other Livestock	*484*	507	*487*	542
Other	*599*	596	*334*	326
Total Farm Output	***3774***	**3978**	***3423***	**3323**
Variable Costs				
Home-grown Concentrates	*79*	71	*38*	34
Purchased Concentrates	*873*	906	*950*	818
Coarse Fodder	*101*	82	*115*	67
Other Livestock Concentrates	*5*	1	*0*	0
Vet and Medicine	*107*	112	*103*	93
Other Livestock Costs	*272*	282	*250*	247
Seed	*43*	42	*13*	11
Fertiliser	*107*	133	*113*	113
Crop Protection	*48*	43	*12*	10
Other Crop Costs	*21*	24	*18*	18
Total Variable Costs	***1654***	**1697**	***1610***	**1411**
Fixed Costs				
Labour	*445*	475	*363*	365
Contract	*188*	213	*132*	118
Machinery Depreciation	*203*	226	*199*	186
Other Machinery	*236*	239	*194*	191
Miscellaneous	*315*	358	*294*	278
Rent and Rental Equivalent	*340*	357	*261*	266
Total Fixed Costs	***1726***	**1867**	***1443***	**1405**
Net Farm Income	***394***	**414**	***370***	**508**
Farmer / Spouse Labour	*180*	191	*236*	229
Management and Investment Income (MII)	***218***	**223**	***134***	**278**
Farm Business Income (FBI)	***476***	**508**	***513***	**639**

The area used is the total farm area including woodland, roads, water, area not used for agriculture

Table 3.3: Outputs, Inputs and Margins: Lowland by Farm Size

Lowland	< 60 ha [small]		60 – 120 ha [medium]		>120 ha [large]	
	*18/19**	19/20*	*18/19*	19/20	*18/19*	19/20
Number of farms	*13*	13	*52*	50	*75*	68
Area (ha) #	45	47	*86*	88	*241*	227
	£/ha		£/ha		£/ha	
Output						
Milk	*2537*	2700	*3600*	3416	*2630*	2885
Calf	*167*	194	*194*	174	*116*	135
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*13*	3	*3*	3	*0*	7
Herd Replacement	*-220*	-188	*-309*	-312	*-210*	-240
Total Dairy Output	***2497***	**2708**	***3487***	**3281**	***2536***	**2788**
Other Livestock	*434*	475	*591*	588	*463*	490
Other	*315*	340	*385*	434	*648*	638
Total Farm Output	***3246***	**3524**	***4463***	**4302**	***3647***	**3916**
Variable Costs						
Home-grown Concentrates	*57*	53	*64*	62	*82*	74
Purchased Concentrates	*827*	825	*1119*	1033	*825*	880
Coarse Fodder	*116*	134	*153*	87	*90*	80
Other Livestock Concentrates	*3*	2	*0*	0	*6*	2
Vet and Medicine	*105*	111	*119*	120	*104*	110
Other Livestock Costs	*283*	311	*351*	351	*256*	266
Seed	*7*	9	*32*	35	*46*	44
Fertiliser	*101*	101	*124*	142	*103*	132
Crop Protection	*6*	3	*21*	25	*54*	47
Other Crop Costs	*20*	21	*22*	29	*21*	22
Total Variable Costs	***1524***	**1570**	***2004***	**1884**	***1587***	**1658**
Fixed Costs						
Labour	*202*	215	*479*	489	*443*	477
Contract	*157*	186	*202*	228	*186*	210
Machinery Depreciation	*223*	196	*268*	278	*190*	215
Other Machinery	*183*	189	*242*	251	*236*	237
Miscellaneous	*331*	401	*411*	420	*295*	343
Rent and Rental Equivalent	*346*	382	*382*	381	*331*	351
Total Fixed Costs	***1441***	**1569**	***1983***	**2048**	***1680***	**1834**
Net Farm Income	***281***	**385**	***476***	**370**	***380***	**424**
Farmer / Spouse Labour	*697*	780	*412*	413	*122*	129
Management and Investment Income (MII)	***-417***	**-396**	***64***	**-44**	***263***	**295**
Farm Business Income (FBI)	***418***	**554**	***658***	**548**	***441***	**498**

The area used is the total farm area including woodland, roads, water, area not used for agriculture

* Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

Table 3.4: Outputs, Inputs and Margins: LFA by Farm Size

LFA	< 60 ha [small]		60 – 120 ha [medium]		>120 ha [large]	
	*18/19**	19/20*	*18/19*	19/20	*18/19*	19/20
Number of farms	*6*	6	*26*	24	*26*	29
Area (ha)#	*52*	53	*91*	90	*205*	207
	£/ha		£/ha		£/ha	
Output						
Milk	*3366*	3331	*2828*	2521	*2598*	2527
Calf	*220*	191	*190*	165	*155*	144
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*0*	0	*0*	0	*0*	2
Herd Replacement	*-406*	-416	*-259*	-207	*-239*	-251
Total Dairy Output	***3180***	**3106**	***2759***	**2479**	***2514***	**2421**
Other Livestock	*344*	423	*514*	475	*485*	567
Other	*716*	420	*355*	386	*306*	305
Total Farm Output	***4239***	**3949**	***3629***	**3339**	***3305***	**3292**
Variable Costs						
Home-grown Concentrates	*65*	47	*49*	34	*33*	34
Purchased Concentrates	*1290*	1226	*1064*	881	*890*	782
Coarse Fodder	*123*	137	*99*	54	*120*	69
Other Livestock Concentrates	*0*	0	*0*	0	*0*	0
Vet and Medicine	*97*	111	*106*	101	*101*	90
Other Livestock Costs	*313*	327	*294*	268	*230*	238
Seed	*11*	2	*11*	7	*14*	12
Fertiliser	*126*	144	*105*	112	*116*	111
Crop Protection	*3*	8	*6*	9	*14*	10
Other Crop Costs	*6*	13	*24*	23	*16*	16
Total Variable Costs	***2034***	**2016**	***1758***	**1489**	***1533***	**1363**
Fixed Costs						
Labour	*314*	324	*339*	328	*375*	378
Contract	*152*	147	*128*	129	*133*	114
Machinery Depreciation	*270*	281	*234*	218	*182*	172
Other Machinery	*221*	293	*218*	209	*183*	181
Miscellaneous	*528*	443	*327*	336	*270*	254
Rent and Rental Equivalent	*208*	220	*247*	250	*268*	273
Total Fixed Costs	***1693***	**1709**	***1494***	**1471**	***1411***	**1372**
Net Farm Income	***513***	**224**	***376***	**379**	***361***	**557**
Farmer / Spouse Labour	*630*	632	*384*	387	*160*	166
Management and Investment Income (MII)	***-117***	**-408**	***-8***	**-9**	***200***	**392**
Farm Business Income (FBI)	***734***	**452**	***629***	**639**	***458***	**646**

The area used is the total farm area including woodland, roads, water, area not used for agriculture

*Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

Table 3.5: Outputs, Inputs and Margins: Lowland by Profitability Quartiles

Lowland	Lower quartile		Upper quartile	
	18/19	19/20	*18/19*	19/20
Number of farms	*41*	38	*34*	32
Area (ha)[#]	*126*	123	*205*	183
Output	£/ha		£/ha	
Milk	*2170*	2460	*2564*	2889
Calf	*111*	164	*114*	135
Lease Quota (net)	*0*	0	*0*	0
Other Dairy	*2*	0	*1*	8
Herd Replacement	*-217*	-247	*-195*	-239
Total Dairy Output	***2066***	**2378**	***2484***	**2792**
Other Livestock	*455*	370	*433*	469
Other	*572*	496	*803*	798
Total Farm Output	***3093***	**3244**	***3720***	**4060**
Variable Costs				
Home-grown Concentrates	*107*	51	*88*	94
Purchased Concentrates	*790*	862	*681*	680
Coarse Fodder	*66*	66	*89*	71
Other Livestock Concentrates	*21*	1	*0*	4
Vet and Medicine	*93*	88	*79*	87
Other Livestock Costs	*255*	295	*231*	239
Seed	*38*	42	*44*	42
Fertiliser	*100*	106	*122*	140
Crop Protection	*54*	43	*67*	56
Other Crop Costs	*21*	20	*19*	19
Total Variable Costs	***1547***	**1573**	***1420***	**1435**
Fixed Costs				
Labour	*391*	426	*376*	416
Contract	*160*	205	*216*	229
Machinery Depreciation	*221*	229	*170*	209
Other Machinery	*243*	278	*186*	185
Miscellaneous	*308*	424	*241*	317
Rent and Rental Equivalent	*299*	311	*319*	353
Total Fixed Costs	***1622***	**1873**	***1507***	**1709**
Net Farm Income	***-76***	**-202**	***792***	**917**
Farmer / Spouse Labour	*289*	285	*138*	155
Management and Investment Income (MII)	***-365***	**-488**	***668***	**761**
Farm Business Income (FBI)	***-29***	**-117**	***916***	**1080**

The area used is the total farm area including woodland, roads, water, area not used for agriculture. The upper and lower quartiles represent the top and bottom 25% of the total population, which can produce sample numbers per quartile that are not equal.

Table 3.6: Outputs, Inputs and Margins: LFA by Profitability Quartiles

LFA	Lower quartile		Upper quartile	
	*18/19**	19/20	*18/19**	19/20*
Number of farms	*14*	16	*14*	15
Area (ha)[#]	*108*	90	*154*	187
Output	£/ha		£/ha	
Milk	*2350*	2279	*3365*	2912
Calf	*162*	139	*177*	157
Lease Quota (net)	*0*	0	*0*	0
Other Dairy	*0*	0	*0*	3
Herd Replacement	*-239*	-269	*-245*	-253
Total Dairy Output	***2274***	**2149**	***3297***	**2818**
Other Livestock	*477*	502	*490*	584
Other	*324*	285	*379*	304
Total Farm Output	***3075***	**2935**	***4166***	**3706**
Variable Costs				
Home-grown Concentrates	*40*	45	*38*	32
Purchased Concentrates	*1035*	929	*965*	755
Coarse Fodder	*184*	86	*72*	53
Other Livestock Concentrates	*0*	0	*0*	0
Vet and Medicine	*99*	94	*98*	84
Other Livestock Costs	*241*	238	*213*	233
Seed	*9*	7	*19*	13
Fertiliser	*104*	123	*130*	130
Crop Protection	*9*	9	*18*	10
Other Crop Costs	*20*	21	*20*	14
Total Variable Costs	***1741***	**1551**	***1573***	**1324**
Fixed Costs				
Labour	*397*	341	*397*	388
Contract	*97*	110	*154*	136
Machinery Depreciation	*214*	204	*199*	177
Other Machinery	*241*	233	*183*	165
Miscellaneous	*326*	322	*328*	231
Rent and Rental Equivalent	*228*	257	*317*	295
Total Fixed Costs	***1503***	**1467**	***1578***	**1390**
Net Farm Income	***-169***	**-83**	***1015***	**992**
Farmer / Spouse Labour	*329*	414	*215*	166
Management and Investment Income (MII)	***-499***	**-498**	***800***	**826**
Farm Business Income (FBI)	***38***	**138**	***1174***	**1128**

The area used is the total farm area including woodland, roads, water, area not used for agriculture. The upper and lower quartiles represent the top and bottom 25% of the total population, which can produce sample numbers per quartile that are not equal.

*Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

3.2: Dairy Enterprise Results: Gross Margins

- Enterprise-level analysis in 2019/20 shows that the conventional herd total dairy output exceeded organic total dairy output by £97/cow. Conventional herd dairy output remained static, decreasing by only £4/cow, with an increase in yield (+169lpc) being offset by a lower milk price (-0.6ppl). Organic herds total dairy output increased by £12/cow, again the increase in milk yield (+223lpc) was offset by a reduction in milk price of 1.2ppl. The average number of cows per herd increased by 6 cows for the conventional herd, and decreased by 10 cows for the organic herd (Table 3.7).

- The lower organic dairy output was offset by lower variable costs, resulting in a gross margin of £1,271/cow compared with £1,298/cow for the conventional dairy herds. The difference between the organic and conventional dairy herd gross margins is slightly wider than in 2018/19, whereby conventional herds produced a gross margin of £1,238/cow compared with the organic herd gross margin of £1,241/cow (Table 3.7).

- 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 6.05ppl, which was slightly lower than the previous year's excess of 6.43ppl (Figure 3.1).

- Lowland and LFA herds saw a decrease in average milk price, of 0.6ppl and 0.7ppl respectively; together with larger decreases in variable costs, notably concentrate and coarse fodder costs, this resulted in increases in GM/cow of £48 for lowland and £108 for LFA herds. In 2019/20, at the average herd sizes, the total farm GM for lowland herds was £269,076 compared with £250,387 in 2018/19, whilst the total LFA herd GM increased to £199,248 compared with £183,260 in 2018/19 (Table 3.8).

- For lowland herds in 2019/20, as herd size increases so do milk price, output/cow, total dairy output/cow and total gross margin/cow. Gross margins per cow for the less than 80 cows, the 80 to 130 cows and the greater than 130 cows groups were £971, £1,151 and £1,352 respectively. These margins per cow equate to gross margins per litre of 14.72ppl, 15.22ppl and 15.66ppl respectively, i.e. the smallest sized group achieved the lowest gross margin per litre (Table 3.9).

- For LFA dairy herds in 2019/20, milk price is lowest in the 80 – 130 cows group, with the highest dairy output and gross margin per cow being achieved by the more than 130 cows group. 2019/20 saw a decrease in average milk price; for the less than 80 cows, 80 – 130 cows and more than 130 cows this was 0.6ppl, 1.5ppl and 0.6ppl. Only the 80 to 130 cow group saw a GM decrease (of £79/cow); the less than 80 cows and more than 130 cows groups both saw an increase in GM of £59 and £160 per cow respectively. As was seen last year, the GM for the LFA less than 80 cows was the only group which exceeded that of the lowland herd for the same group size and was greater by £72/cow (Table 3.10).

- In 2019/20, lowland dairy farms in the upper quartile (based on GM/cow) produced on average 3,361lpc more than those in the lower quartile, with average milk prices for the upper quartile exceeding those of the lower quartile by 2.9ppl (Table 3.11).

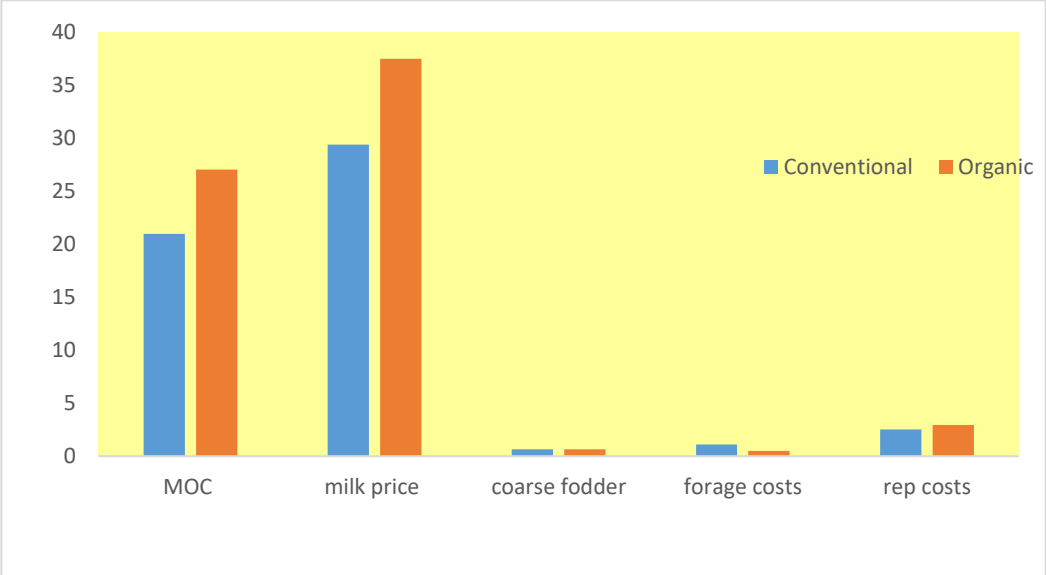
- Feed concentrate to milk conversion rates rose to 8.1ppl for the GM lowland upper quartile and reduced to 8.1ppl for the lower quartile farms (from 7.8ppl and 9.2ppl for 2018/19); the upper quartile increase was due to an increase in concentrate cost, although this was partially offset by higher yields, whilst for the lower quartile the lower concentrate cost coupled with a slight increase in yield led to the lower figure. Gross margin per litre results decreased slightly to 16.4ppl (upper quartile) and 11.6ppl (lower quartile) compared to 17.2ppl (upper quartile) and 11.9ppl (lower quartile) in 2018/19 (Table 3.11).

- Gross margin performance quartile analysis of LFA dairy farms reveals that the better performers have larger herds and achieve considerably higher yields (+2,631lpc) as well as receiving higher milk prices (+4.7 ppl) than the lowest quartile, leading to a disparity of £1028 between the two quartile's relative gross margin per cow performances (compared with £921 in 2018/19) (Table 3.12).

Table 3.7: Gross Margin Results for All Farms, Conventional and Organic

	All		Conventional		Organic	
	18/19	19/20	*18/19*	19/20	*18/19*	19/20
Number of farms	*214*	223	*176*	185	*38*	38
Average number cows	*188*	193	*192*	198	*134*	124
Average yield (litres)	*8090*	8262	*8179*	8348	*6067*	6290
Milk price (ppl)	*30.3*	29.7	*30.0*	29.4	*38.7*	37.5
	£/cow		£/cow		£/cow	
Output						
Milk	*2451*	2450	*2456*	2454	*2345*	2356
Calf	*119*	121	*120*	122	*107*	100
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*1*	4	*1*	5	*0*	1
Herd Replacement	*-203*	-210	*-203*	-211	*-193*	-185
Total Dairy Output	***2368***	**2365**	***2373***	**2369**	***2260***	**2272**
Variable costs						
Concentrates	*700*	660	*702*	660	*658*	673
Coarse Fodder	*77*	54	*78*	55	*56*	40
Vet and Medicine	*80*	76	*81*	77	*53*	51
Other Livestock Costs	*191*	188	*190*	188	*227*	206
Forage Costs	*81*	89	*84*	91	*24*	31
Total Variable Costs	***1130***	**1068**	***1135***	**1071**	***1018***	**1001**
Total Gross Margin	***1238***	**1297**	***1238***	**1298**	***1241***	**1271**

Figure 3.1: Key Gross Margin Components by Conventional and Organic Herds



MOC = margin over concentrates; rep costs = replacement costs

Table 3.8: Gross Margin Results: Conventional Lowland and LFA Farms

	Lowland		LFA	
	18/19	19/20	*18/19*	19/20
Number of farms	*122*	127	*54*	58
Average number cows	*197*	204	*170*	168
Average yield (litres)	*8310*	8459	*7547*	7756
Milk price (ppl)	*30.0*	29.4	*30.0*	29.3
	£/cow		£/cow	
Output				
Milk	*2495*	2488	*2267*	2272
Calf	*116*	120	*139*	132
Lease Quota (net)	*0*	0	*0*	0
Other Dairy	*1*	5	*0*	1
Herd Replacement	*-202*	-210	*-209*	-219
Total Dairy Output	***2409***	**2403**	***2197***	**2186**
Variable costs				
Concentrates	*698*	666	*720*	629
Coarse Fodder	*78*	56	*79*	47
Vet and Medicine	*83*	79	*72*	68
Other Livestock Costs	*195*	191	*164*	172
Forage Costs	*84*	93	*84*	84
Total Variable Costs	***1138***	**1084**	***1119***	**1000**
Total Gross Margin	***1271***	**1319**	***1078***	**1186**

Table 3.9: Gross Margin Results: Conventional Lowland by Herd Size

Lowland	< 80 cows [small]		80 – 130 cows [medium]		>130 cows [large]	
	18/19	19/20	*18/19*	19/20	*18/19*	19/20
Number of farms	*17*	20	*30*	30	*75*	77
Average number cows	*60*	64	*103*	110	*245*	251
Average yield (litres)	*6239*	6597	*7361*	7563	*8500*	8635
Milk price (ppl)	*29.5*	28.6	*29.2*	29.0	*30.1*	29.5
Output	£/cow		£/cow		£/cow	
Milk	*1842*	1889	*2148*	2196	*2560*	2545
Calf	*119*	132	*133*	115	*114*	120
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*8*	1	*2*	1	*0*	6
Herd Replacement	*-163*	-184	*-227*	-201	*-200*	-212
Total Dairy Output	***1806***	**1840**	***2055***	**2110**	***2474***	**2459**
Variable costs						
Concentrates	*496*	517	*571*	557	*721*	684
Coarse Fodder	*27*	30	*43*	43	*84*	59
Vet and Medicine	*66*	64	*72*	74	*85*	80
Other Livestock Costs	*212*	181	*183*	191	*196*	191
Forage Costs	*84*	76	*88*	93	*83*	93
Total Variable Costs	***885***	**869**	***957***	**959**	***1169***	**1107**
Total Gross Margin	***921***	**971**	***1098***	**1151**	***1305***	**1352**

Table 3.10: Gross Margin Results: Conventional LFA by Herd Size

LFA	< 80 cows [small]		80 – 130 cows [medium]		>130 cows [large]	
	*18/19**	19/20*	*18/19*	19/20	*18/19*	19/20
Number of farms	*9*	12	*18*	18	*27*	28
Average number cows	*61*	59	*108*	108	*238*	243
Average yield (litres)	*6337*	6838	*7836*	7850	*7561*	7820
Milk price (ppl)	*28.9*	28.3	*29.1*	27.6	*30.4*	29.8
Output	£/cow		£/cow		£/cow	
Milk	*1829*	1937	*2277*	2167	*2298*	2330
Calf	*136*	136	*139*	156	*139*	126
Lease Quota (net)	*0*	0	*0*	0	*0*	0
Other Dairy	*0*	0	*0*	2	*0*	1
Herd Replacement	*-135*	-177	*-242*	-210	*-206*	-226
Total Dairy Output	***1829***	**1896**	***2175***	**2114**	***2230***	**2231**
Variable costs						
Concentrates	*565*	534	*760*	785	*721*	600
Coarse Fodder	*43*	21	*60*	37	*87*	53
Vet and Medicine	*53*	60	*68*	80	*74*	66
Other Livestock Costs	*119*	154	*173*	179	*166*	171
Forage Costs	*65*	83	*72*	70	*88*	88
Total Variable Costs	***846***	**853**	***1133***	**1151**	***1136***	**978**
Total Gross Margin	***984***	**1043**	***1042***	**963**	***1094***	**1254**

*Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

Table 3.11: Gross Margin Results: Conventional Lowland by Performance Quartiles

Lowland	Lower Quartile		Upper Quartile	
	18/19	19/20	*18/19*	19/20
Number of farms	*35*	38	*25*	24
Average number cows	*172*	164	*238*	266
Average yield (litres)	*6827*	6997	*9795*	10358
Milk price (ppl)	*29.2*	27.3	*30.5*	30.2
	£/cow		£/cow	
Output				
Milk	*1990*	1909	*2986*	3133
Calf	*86*	91	*127*	115
Lease Quota (net)	*0*	0	*0*	0
Other Dairy	*1*	0	*1*	15
Herd Replacement	*-249*	-244	*-182*	-215
Total Dairy Output	***1829***	**1757**	***2933***	**3048**
Variable costs				
Concentrates	*630*	568	*762*	839
Coarse Fodder	*51*	48	*108*	82
Vet and Medicine	*78*	65	*79*	100
Other Livestock Costs	*180*	176	*220*	230
Forage Costs	*79*	91	*84*	96
Total Variable Costs	***1017***	**948**	***1253***	**1347**
Total Gross Margin	***812***	**809**	***1680***	**1700**

Table 3.12: Gross Margin Results: Conventional LFA by Performance Quartiles

LFA	Lower Quartile		Upper Quartile	
	*18/19**	19/20	18/19*	19/20*
Number of farms	*14*	16	*12*	13
Average number cows	*136*	129	*187*	188
Average yield (litres)	*6648*	6150	*8310*	8781
Milk price (ppl)	*27.9*	25.7	*31.7*	30.4
	£/cow		£/cow	
Output				
Milk	*1858*	1580	*2631*	2673
Calf	*140*	134	*121*	132
Lease Quota (net)	*0*	0	*0*	0
Other Dairy	*0*	0	*0*	4
Herd Replacement	*-241*	-252	*-164*	-175
Total Dairy Output	***1757***	**1462**	***2589***	**2634**
Variable costs				
Concentrates	*701*	581	*748*	690
Coarse Fodder	*173*	43	*29*	14
Vet and Medicine	*62*	58	*65*	65
Other Livestock Costs	*145*	136	*131*	165
Forage Costs	*68*	66	*87*	92
Total Variable Costs	***1149***	**883**	***1060***	**1027**
Total Gross Margin	***607***	**579**	***1528***	**1607**

*Data are derived from a modest sample size and thus there is a lower degree of confidence in the figures

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Glossary

Output: Other Livestock is comprised of sales of non-dairy livestock and livestock products adjusted for valuation changes plus the value of produce used on the farm and consumed in the farmhouse or by the workers, less livestock purchases. Miscellaneous livestock receipts are also included.

Output: Other is the sales of crops adjusted for valuation changes, plus the value of produce used on the farm (other than forage crops and straw) and produce consumed in the farmhouse or by the workers. Income from land let and buildings let, hirework, non-allocated grants e.g. for environmental schemes, single farm payment, profit on resale of purchased agricultural produce and other miscellaneous farm income including the change in valuation of cultivations is also included.

Other livestock costs include livestock haulage, marketing charges, AI charges, straw and wood shavings for bedding and dairy sundries.

Other crop costs include silage bags, twine, all marketing costs including crop haulage, purchase of standing crops, soil analysis and potato sacks.

Labour is comprised of the gross cost of regular paid employees including an allowance for perquisites together with unpaid family labour (other than the farmer and spouse) manual labour.

Machinery depreciation is calculated using the current cost accounting method whereby each item of equipment is revalued by an index prior to the depreciation calculation.

Rent and Rental Equivalent consist of gross rent, imputed rent on the net cost of the tenant's own improvements, drainage rates and for owner-occupied land a rental value based on what a tenant would be paying for similar land with an equal length of occupancy.

Miscellaneous costs include water charges, vehicle tax, insurance, professional fees, bank commission, telephone charges, subscriptions, office expenses and pest control, general repairs.

Net Farm Income (NFI) is total output less total inputs as defined above. It represents the reward to the farmer and spouse for their own manual labour, management and a return on tenant's capital.

Farmer's and spouse's manual labour is the estimated value of their manual labour.

Management and Investment Income (MII) is Net Farm Income less the allowance made for the farmer's and spouse's manual labour. It represents the reward for management and a return on tenant's capital. MII therefore represents the return to management after all costs have been deducted, including the imputed cost of all unpaid manual labour and a notional rent on owner occupied land and buildings.

Farm Business Income (FBI) represents the return to all unpaid labour (farmers, spouses and others with an entrepreneurial interest in the farm business) and to all their capital invested in the farm business including land and farm buildings. It is defined as Total Farm Output (TFO) minus cost (C): where TFO is defined as the sum of output from: crop enterprises, adjustment for disposal of previous crops, livestock enterprises, separable non-agricultural diversification, single farm payment, agri-environmental payments, other grants and subsidies, miscellaneous receipts; C is defined as variable costs plus fixed costs. [*For 2006/07 the definition of FBI included the profit / loss on sale of assets as part of the total farm output*]

Total Gross Margin, presented for the dairy enterprise results, is total dairy output minus total variable costs.

Appendix 1: Reports in Series

Reports in this series:

Crop Production in England

Dairying Farming in England

Hill Farming in England

Horticulture Production in England (Horticultural Business Data)

Lowland Grazing Livestock Production in England

Pig Production in England

Poultry Production in England

Organic Farming in England

Details available at www.ruralbusinessresearch.co.uk