MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

CSG 15

Research and Development

Final Project Report

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Contractor organisation and location	Institute of Rural Studies University of Wales Aberystwyth SY23 3AL
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Executive summary (maximum 2 sides A4)

This project was an extension to OF0190 to cover completing the comparison data for 1997/98 and to extend the data collection by one further year (1998/99). The final reports for the two projects are therefore being submitted jointly. The OF0125 report covers the period 1995/96-1997/98, for which a detailed report was submitted to MAFF in July 1999, and a revised detailed report including a complete set of comparisons with conventional farms was submitted to MAFF, after revisions, in July 2000. That report has now been published at www.organic.aber.ac.uk/library/organic farm incomes.pdf. A detailed report for 1998/99 has been submitted to MAFF in March 2001, and will be published at the same internet site once accepted.

The report presents results from research work carried out for the Ministry of Agriculture, Fisheries and Food (MAFF) on the financial performance of organic farms in 1998/99. The aim of the research was to assess the financial performance of organic farms differentiated by farm type, in order to inform MAFF policy-making with respect to organic farming, and to provide a basis for assessments by farmers, advisers and other interested parties of the farm-level implications of conversion to and continued organic farming. To provide an idea of the trends over time, where possible data for continuous samples of farms are presented for 1997/98 and 1998/99.

The specific objectives were to extend the previous project (OF0125, covering 1995/96 to 1997/98) to collect and collate data on the financial performance of organic farms, differentiated by farm type[1]. This was achieved through the collation of financial data collected under three different MAFF-funded research projects supplemented by data collected on other farm types. The samples of organic farms are small because of the

[1] Fowler, S.M., Lampkin. N.H., and P Midmore. (2000) Organic Farm Incomes in England and Wales 1995/96 – 1997/98. Welsh Institute of Rural Studies, Aberystwyth. Report for MAFF contract ref. OF0190
URL www.organic.aber.ac.uk/library/Organic Farm Incomes.pdf.

limited number of organic holdings over 8 ESU (European Size Units) with identifiable holding numbers in 1996, when the previous study was started. As the sample is small there is limitation on how the results may be extrapolated to the wider population of organic farms, especially as the structure and objectives of those converting to organic production in the late 1990s may be different from those that converted in the 1970s and 1980s.

Detailed financial input, output, income, liabilities and assets and some physical performance measures are presented for 1998/99. Where an identical sample of five farms is available, data are presented for 1997/98 and 1998/99 for the sample.

The organic farm samples are so small that outliers (especially larger farms) have a large influence on the average. If the samples were larger, general trends would be more apparent and less influenced by individual farms; despite this, some explanation has been attempted of trends and changes in inputs, outputs and incomes. However, great care must be taken in extrapolating results.

Of those farm types for which a continuous identical sample of five farms was available, Net Farm Incomes (NFI) increased for cropping (£281/ha) and dairy farms (£487/ha) in 1998/99 compared with 1997/98; in both cases outputs as well as inputs increased between years. Mixed farms showed an average reduction in outputs and increase in inputs, lowering the average NFI to £15/ha in 1998/99. The five lowland cattle and sheep farms improved a negative NFI of £161/ha in 1997/98 to a positive £7/ha in 1998/99 through an increase in livestock outputs with a similar level of inputs to that of 1997/98.

Due to the high level of farmer and spouse labour on horticultural holdings, the average Management and Investment Income (MII) of the sample was negative, but the average NFI was £1,836/ha. On four holdings, 1998/99 average outputs were 92%, and inputs were 97% of the previous year, resulting in an average NFI in 1998/99 for that group of 75% of the 1997/98 result.

The group of LFA farms, consisting of four cattle and sheep and one mixed farm, achieved an average NFI of £72/ha in 1998/99.

Scientific report (maximum 20 sides A4)

Results highlights

The results presented cover two years during which the effect of the BSE crisis, which began in March 1996, was still being felt, and there was downward pressure on conventional farm-gate prices and support payments due to the increased value of the pound; however, there were significant improvements in the marketing conditions for organic products in 1997/98 and these were maintained in 1998/99.
The organic farms studied include a range from recently converted farms and farms with established organic areas but also with conventional land, to long-established entirely organic farms. The farms in the ADAS Terrington trial were the organic farms with the highest proportion of land not in conversion; in 1997/98 the cropping farms presented in Section 5 ranged from 59% of land to 100% of land under organic management, averaging at 84%.
Table 1 gives a summary breakdown of outputs and inputs as calculated for MII, and three other income measures (NFI, ONI and Cash Income) for 1998/99.

Table 1 Organic farms data summary (£/ha), full samples, 1998/99

	Cropping	*Horti-culture*	*Dairy Dairy*	*Cattle & Sheep Lowland*	*LFA*	*Mixed*
	n=5	*n=5*	*n=8*	*n=9*	*n=5*	*n=5*
Livestock outputs	216	52	1,159	623	256	325
Livestock subsidies	65	10	4	93	193	81
Cropping and by-products	852	6,715	330	137	119	254
Crop subsidies	152	0	66	52	12	78
Other outputs	52	148	20	54	24	27
Agri-environment payments	26	19	24	40	31	13
TOTAL OUTPUTS	**1,363**	**6,945**	**1,603**	**999**	**634**	**777**
Livestock	68	101	418	269	119	110
Crop	120	1,909	134	36	67	70
Labour	398	3,514	376	372	100	214
Machinery	276	734	285	215	206	220
General	95	454	125	119	63	68
Land costs	189	308	174	204	77	134
TOTAL INPUTS	**1,147**	**7,020**	**1,512**	**1,216**	**632**	**816**
Add paid management input	26	0	0	35	0	19
Management & Investment Income	**243**	**-75**	**91**	**-182**	**2**	**-20**
Net Farm Income (ex.BLSA)	281	1,836	200	-81	72	15
Occupier's Net Income	295	1,455	-8	-40	96	34
Cash Income	444	2,323	245	222	156	110

Table 1 illustrates the high dependence on subsidies of LFA cattle and sheep farms; in 1998/99, 31% of their output was derived from livestock subsidies. The organic dairy farms and horticultural holdings had the lowest direct subsidies, making up less than 1% of their outputs. Cropping output made up 63% of total output of organic cropping farms, and 97% of the horticultural holdings; on the mixed farms, cropping and arable area payments made up 43% of outputs compared with livestock and livestock subsidies that comprised 52% of outputs.
Table 1 indicates the dominance of labour inputs on the organic farms, the proportion of total inputs ranging from 16% to 50% of costs for LFA cattle and sheep farms and horticultural holdings, respectively.

Surprisingly, machinery costs make up 33% of inputs on LFA cattle and sheep farms, compared with only 10% on horticultural holdings, but in terms of actual inputs per hectare, the LFA cattle and sheep farms spent less than 30% as much per hectare on machinery as did the horticultural holdings. Only lowland beef and sheep farms had lower machinery costs per hectare, of £215/ha, in line with the reduced proportion of land in cereals and cash crops (<1% compared with 11% of UAA on the LFA farms used for cereals and cash cropping).

Interpretation of results

The organic farm sample is so small that outliers (especially larger farms) will have an undue influence on the average. If the sample were larger, general trends would be more apparent and less influenced by individual farms. Despite this influence of individual organic farms on the average, some explanation is attempted of trends and changes in inputs, outputs and incomes, however, great care must be taken in extrapolating results.

1. Cropping farms

Sample

Four of this group of five farms were classified as general cropping farms, the fifth was classified as a cereals farm. Four of them managed all of their land to organic standards in 1998/99. They ranged in size from 75 to 250 ha, averaging at 130 ha UAA. Four of the farms had suckler cow enterprises, and the fifth a store cattle enterprise; one farm had store lambs and two had breeding sheep. Two of the farms also had poultry enterprises. Stocking rates for the livestock on these farms ranged from 1.1 to 2 GLU per forage hectare. All the farms were in England.
Four of the farms were owner occupied, and two of these rented extra land.

Table 2 Summary data for five organic general cropping farms, (£/farm and £/ha), identical sample, 1997/98 – 1998/99

	1997/98		*1998/99*	
	£/farm	*£/ha*	*£/farm*	*£/ha*
Livestock outputs	20,878	162	27,990	216
Livestock subsidies	10,656	83	8,384	65
Cropping outputs	90,143	698	110,464	852
Arable area payments	21,795	169	19,753	152
Miscellaneous	4,713	37	6,695	52
Agri-env. payments	2,388	19	3,416	26
TOTAL OUTPUTS	150,572	1,167	176,702	1,363
Livestock inputs	11,359	88	8,854	68
Crop inputs	16,079	125	15,614	120
Labour	43,654	338	51,583	398
Machinery	28,110	218	35,782	276
General	14,270	111	12,294	95
Land	22,630	175	24,461	189
TOTAL INPUTS	136,102	1,054	148,589	1,147
Add paid management	3,240	25	3,400	26
MII	17,711	137	31,513	243
NFI	23,401	181	36,374	281
ONI	26,253	203	38,281	295
Cash Income	44,191	342	57,510	444

Outputs

Despite the presence of livestock enterprises on all of these farms, cropping and arable area outputs generated 74% of outputs in 1998/99. Between 1997/98 and 1998/99 outputs from livestock and cropping enterprises increased (by 34% and 22% respectively) but subsidies for both categories decreased. The total outputs increased by 17% from £1,167/ha to £1,363/ha.

Inputs

Overall inputs, including allowances for unpaid labour and rental value, did not change much between years, increasing by 9% from £1,054/ha to £1,147/ha (see Table 2). Machinery costs increased by 27%, largely due to large depreciation increases on two of the farms. Labour costs increased on four of the five farms so that

the average rose by 18%. Largely due to considerably lower expenditure on purchased fodder by two farms in 1998/99, average livestock inputs fell by over 20% and general costs and crop inputs fell slightly.

Incomes

The slight adjustments in outputs and inputs resulted in a 77% increase in MII to £243 per hectare (see Table 2). Other income measures increased to a lesser extent, with Cash Income rising from £342 to £444/ha, an increase of 30%.

Discussion

There is no consistent pattern from this varied group of organic cropping farms to account for the average improvement of incomes. The general price rises for organic cereals between 1997/98 and 1998/99 will have contributed to the average increase in cropping revenues, although average yields appeared lower in 1998/99 than the previous year. Many of the cereals gained an extra £10/t in 1998/99 (the average winter wheat price increased from £180 to £195/t in 1998/99, and the price achieved for potatoes increased by £80/tonne to an average of £330/tonne).

Two of the farms studied increased the land area under organic management in 1998/99. On one farm there was a 34% increase in machinery costs, largely through a trebling of contractor costs. The same farm achieved substantial increases in both livestock and cropping outputs in the 1998/99. A second farm with some land managed conventionally in both years, reduced both outputs and inputs in 1998/99, and achieved very similar income figures in both years. An entirely organic farm maintained outputs in 1998/99, but had large increases in labour and machinery costs (repairs and depreciation), resulting in sharply reduced income.

2. Horticultural holdings

Sample

Only one of the organic horticultural units was situated on ideal vegetable growing land. Out of the organic holdings classified by MAFF as Robust Type 3 (Horticulture) in 1996, only one third were in the eastern counties of England, where the majority of conventional horticultural units were located. Within the sample for this study, the majority of organic holdings were in the south-west and west of England and in Wales, and one was in a Less Favoured Area.
A new farm was recruited in 1998/99 to replace the one farm that dropped out of the survey, and therefore an identical sample of five holdings is not available. The additional holding in the 1998/99 survey had three times the average cropping area of the average of the other four holdings, and belonged to ESU size group 6 (60–99.9 ESUs) contrasting with the other holdings in size groups 2 and 3 (between 8 and 27.9 ESUs).

Table 3 Summary data for five organic horticultural holdings (£/holding and £/ha), 1998/99

	1998/99	
	£/holding	*£/ha*
Livestock outputs	462	52
Livestock subsidies	90	10
Cropping outputs	59,506	6,715
Arable area payments	0	0
Miscellaneous	1,316	148
Agri-env. payments	171	19
TOTAL OUTPUTS	61,545	6,945
Livestock inputs	892	101
Crop inputs	16,920	1,909
Labour	31,140	3,514
Machinery	6,502	734
General	4,024	454
Land	2,730	308
TOTAL INPUTS	62,209	7,020
Add paid management	0	0
MII	-664	-75
NFI	16,268	1,836
ONI	12,894	1,455
Cash Income	20,583	2,323

All the organic holdings in the survey grew predominantly outdoor field vegetables. A wide range of vegetables was grown, commonly 20-30 different types. The area of protected cropping was small. Their method of marketing was mixed; the survey contains 60% of organic holdings selling through their own direct marketing scheme (box scheme), 30% wholesale and 10% to a packer. Most of those with box schemes bought in vegetables to enable them to continue the box scheme through the year.

Outputs

The five holdings achieved an average output of nearly £7,000/ha, ranging from £3,000 to over £10,500/ha in 1998/99; cropping outputs accounted for 97% of outputs. The four holdings studied for both years achieved very consistent cropping and total outputs in both years.

Inputs

Labour costs (including farmer and spouse labour) accounted for 50% of total inputs; cropping inputs accounting for a further 27%, with machinery costs accounting for only 10% of inputs. Within the identical sample of four holdings, there was an overall increase in outputs of 6%, largely relating to a 22% increase in cropping inputs.

Incomes

Because of the increase in costs the average incomes on the identical sample (not shown) decreased in 1998/99. Of the five holdings studied in 1998/99, whole-farm MII was –£664 (–£75/ha), ONI was £12,894 and Cash Income £20,583 (see Table 3).

Discussion

On average, the holdings used 1.9 labour units of family labour per holding. Of all six farm types, horticultural holdings had the highest average tenant's capital at £2,130/ha, and the average return on this was negative, although the two larger holdings achieved positive returns on tenant's and all capital.
It should be noted that the organic holdings presented in this sample are not representative of larger, field scale, vegetable operations entering conversion in the late 1990s and their performance does not reflect the potential of larger operations. The complexity of cropping on these holdings, and the lack of detailed crop information, especially of yield and price data limits the interpretation of increases in outputs. Output changes may relate to changes in marketing, prices, yields, and/or crops grown.
Increases in both outputs and inputs seen on the four farms studied for both years are related to intensification of production on a number of the sample farms (e.g. one farmer has gone out of livestock and into intensive vegetable production and another farmer has reduced vegetable production and expanded into organic transplant production). The small-scale horticultural units use considerable amounts of labour for crop production and marketing; marketing time should not be included as 'labour' but in practice it is difficult to differentiate on small units such as these.

3. Dairy farms

Sample

Two groups of data are presented here. The identical sample for two years of five farms consists of three long-established organic dairy farms and two farms that started selling organic milk in 1998; two of the five farms were in less-favoured areas. The full sample of eight farms, for which data are presented for 1998/99 only, includes three other dairy farms each of which has individual characteristics that made them less representative of the performance of organic dairy farms in the late 1990s.

Table 4 Summary data for organic dairy farms (£/farm and £/ha), 1997/98–1998/99

	1997/98		*1998/99*		*1998/99*	
	identical sample (n=5)				*full sample (n=8)*	
	£/farm	*£/ha*	*£/farm*	*£/ha*	*£/farm*	*£/ha*
Livestock outputs	89,582	1,385	95,615	1,477	153,811	1,159
Livestock subsidies	198	3	202	3	531	4
Cropping outputs	8,917	138	7,741	120	43,859	330
Arable area payments	1,792	28	1,069	17	8,777	66
Miscellaneous	2,647	41	1,297	20	2,653	20
Agri-env. payments	1,556	24	2,318	36	3,137	24
TOTAL OUTPUTS	104,693	1,619	108,240	1,672	212,768	1,603
Livestock inputs	22,394	346	31,377	485	55,505	418
Crop inputs	4,278	66	3,752	58	17,778	134
Labour	21,111	326	21,555	333	49,930	376
Machinery	19,321	299	16,222	251	37,821	285
General	9,215	143	7,599	117	16,534	125
Land	10,909	169	10,615	164	23,085	174
TOTAL INPUTS	87,228	1,349	91,119	1,408	200,652	1,512
Add paid management	0	0	0	0	0	0
MII	17,481	270	17,121	265	12,116	91
NFI	28,732	444	31,517	487	26,566	200
ONI	24,380	377	28,095	434	-1,115	-8
Cash Income	34,226	529	40,803	630	32,572	245

Outputs

On average, livestock outputs accounted for 88% of outputs of the identical sample of five farms in 1998/99, and 72% of the outputs of the full sample that included larger farms with cropping land. Two of the farms only started selling organic milk during the 1997/98 year; the established organic farms averaged 27 pence per litre (ppl) in 1997/98, the newly converted farms averaged 21 ppl in that year. In 1998/99 the average price for milk for the five farms in the identical sample was 29 ppl; the average price was 27 ppl for the eight farms, largely due to a very low price achieved on one farm. Whole farm livestock outputs on the identical sample farms increased by 7% in 1998/99 compared with the previous year; but an average fall in cropping output restricted the increase in total output to 3%.

Inputs

The increase of livestock variable costs between years (see Table 4) is partly related to the change to organic concentrates on the two farms gaining full organic status in 1998, but a greater effect is caused by the increase in other livestock costs on each of the farms in the identical sample, the increase in costs ranged from 45% to 146%. Despite this increase, variable costs on the identical sample farms in 1998/99 accounted for 32% of total inputs, and labour and machinery charges were 20% and 16% of total inputs, respectively. The 40% increase in livestock inputs between the years was ameliorated somewhat by reductions in costs for other categories save labour, which increased by 2%, resulting in an overall increase in inputs of 6%.

Income

Table 4 shows that the full sample of eight farms achieved an average MII of £91/ha, NFI of £200/ha and Cash Income of £245/ha in 1998/99. The contrast with negative ONI (-£8/ha) results from the inclusion of buildings and works depreciation in this figure; one farm had extremely high values, resulting in the negative result for the group average.
Income changes on the group of five farms (see Table 4) between the years resulted from the greater increase in inputs than outputs, so that the whole-farm MII was 2% lower in 1998/99; adjustments for BLSA that are included in the calculation of MII, and the lower figure for farmer and spouse labour in the second year resulted in an improvement in average NFI (excluding BLSA), ONI and Cash Income for the five farms in 1998/99.

Discussion

In 1998/99 the average UAA on the five farms decreased slightly, and the number of dairy cows and livestock carried increased, resulting in a slight increase in stocking rate to 1.5 grazing LU per forage hectare; milk yields per cow ranged from 4,900 l to 5,900 l, averaging at 5,400 l. Milk yields per cow combined with stocking rate, gives a better indication of productivity - litres per hectare, which ranged from 6,250 l/ha to 11,500 l/ha, with an average of 8,500 l/ha for the eight farms in 1998/99. The average milk yield per hectare on the identical group of five farms in 1998/99 was 99% of that of the previous year, so the improvement in livestock outputs related to the price received for the milk (in the second year all five farms received the organic price for the whole year), outputs per cow from cull and calf sales and valuation changes declined by 25% in 1998/99 for this group. The dairy gross margins collected reflect these changes; on nine dairy enterprises, average milk outputs per cow were very similar over two years, but other dairy outputs dropped by 20% in 1998/99 compared with 1997/98.
Table 4 indicates outputs and inputs as used for calculating average MII for the full sample of eight dairy farms (£91/ha, in 1998/99). Average NFI for the group was £200/ha, but if one farm that was severely affected by very high quota leasing costs is excluded, the NFI per ha on the other farms in 1998/99 ranged from £250 to £720.

4. Lowland cattle and sheep farms

Sample

Two groups of farms are presented; an identical sample of five specialist cattle and sheep farms for 1997/98 and 1998/99, and a larger sample of nine farms for 1998/99 only, which includes a farm with a dairy enterprise and a farm with other livestock enterprises, but all falling within the lowland cattle and sheep farm category. The identical group ranged in size from 27 to 115 ha; three of the farms were smaller than 50 ha, with an average of 58.5 ha located in central and southwest England. Two of the farms grew some concentrates for stock feed. The geographic spread of the larger sample was wider, but there were no farms from the north of England.

Table 5 Summary data for lowland organic cattle and sheep farms (£/farm and £/ha), 1997/98 – 1998/99

	1997/98		*1998/99*		*1998/99*	
	identical sample (n=5)				*full sample (n=9)*	
	£/farm	*£/ha*	*£/farm*	*£/ha*	*£/farm*	*£/ha*
Livestock outputs	21,049	362	23,939	409	62,049	623
Livestock subsidies	8,898	153	10,256	175	9,271	93
Cropping outputs	1,772	31	1,115	19	13,672	137
Arable area payments	980	17	570	10	5,192	52
Miscellaneous	2,354	41	4,533	77	5,331	54
Agri-env. payments	3,502	60	4,308	74	3,957	40
TOTAL OUTPUTS	38,556	664	44,720	764	99,471	999
Livestock inputs	8,935	154	10,674	182	26,788	269
Crop inputs	1,294	22	1,020	17	3,598	36
Labour	17,279	297	16,293	278	37,070	372
Machinery	8,922	154	9,492	162	21,404	215
General	6,200	107	5,370	92	11,880	119
Land	13,275	228	13,286	227	20,286	204
TOTAL INPUTS	55,906	962	56,135	960	121,026	1,216
Add paid management	0	0	0	0	3,443	35
MII	-17,350	-299	-11,415	-195	-18,112	-182
NFI	-9,370	-161	412	7	-8,077	-81
ONI	-6,690	-115	2,417	41	-3,969	-40
Cash Income	-6,766	-116	15,898	272	22,140	222

Outputs

Table 5 shows that the identical sample of farms increased their livestock outputs and livestock subsidies by 13% and 14% respectively between 1997/98 and 1998/99; cropping outputs decreased, but were compensated by increases in miscellaneous and agri-environmental outputs, resulting in an overall improvement in total output of 15%.

In 1997/98, livestock outputs made up 76% of total outputs on the group of five farms, and 72% on the larger group because of higher cropping outputs in the larger group.

Inputs

Only 25% of inputs on the nine farms were variable inputs (21% in the identical group); for both groups the largest category of inputs in 1998/99 was labour costs, at around 30% of inputs (including farmer and spouse labour and unpaid labour). Proportions of expenditure of different categories were similar in both groups in 1998/99, for the larger sample, variable costs were 25%, labour 31%, machinery 18%, general 10% and land costs 17% of total inputs.
For the identical sample, livestock and machinery costs increased in 1998/99 (19% and 6% respectively); other categories of costs reduced slightly, resulting in very similar total inputs for both years.

Incomes

Because of the increase in outputs and maintenance of input costs on the identical sample of farms, income measures improved between 1997/98 and 1998/99. Average MII was negative both years, but average NFI, ONI and Cash Income became positive in 1998/99. Three of the five farms had negative MII and NFI, only two had negative ONI, and all had positive Cash Incomes.
In the larger group (which included the identical group mentioned above) in 1998/98, average MII, NFI and ONI were negative. Within the group, seven of the farms returned negative MII, six negative NFI and four negative ONI; only one farm showed a negative Cash Income.

Discussion

These results confirm the poor profitability found in previous work (Fowler, 2000, OF0125*)*. For the full group of farms in 1998/99 livestock variable inputs were around 43% of outputs (excluding subsidies), and labour costs were 60% of livestock outputs. Despite improvements in total outputs, the inputs were too high to produce adequate returns; seven of the farms failed to achieve a positive return to tenants' capital.

5. LFA cattle and sheep farms

Sample

These LFA farms range in size from less than 50 ha UAA to one farm over 300 ha. One farm was classified as a mixed farm, but is presented with the LFA cattle and sheep farms as well as the mixed group (see Chapter 10) to bring the sample to five, and because of its hill characteristics. One other farm in this group had a small area in cash cropping. An identical sample of five farms was not available for both years, so results for 1997/98 are not presented.

Table 6 Summary results for five LFA organic farms (£/farm and £/ha), full sample, 1998/99

	1998/99	
	£/farm	*£/ha*
Livestock outputs	43,749	256
Livestock subsidies	33,082	193
Cropping outputs	20,303	119
Arable area payments	2,009	12
Miscellaneous	4,074	24
Agri-env. payments	5,238	31
TOTAL OUTPUTS	108,456	634
Livestock inputs	20,351	119
Crop inputs	11,524	67
Labour	17,090	100
Machinery	35,255	206
General	10,738	63
Land	13,187	77
TOTAL INPUTS	108,145	632
Add paid management	0	0
MII	311	2
NFI	12,267	72
ONI	16,451	96
Cash Income	26,768	156

Outputs

Livestock subsidies comprised 43% of total livestock outputs, and 31% of total outputs of these LFA farms in 1998/99. For the four farms surveyed in two years, livestock outputs for each category except sheep outputs increased in 1998/99.

Inputs

Average input costs per hectare were around half those on lowland cattle and sheep farms, but the proportion of expenditure on machinery was greater on the LFA farms, accounting for 33% of total inputs. Labour costs were less than one third of costs on lowland farms, and only accounted for 16% of total inputs. An identical sample of four farms (not shown) indicated a 71% in increase in livestock inputs between 1997/98 and 1998/99, most of which related to more than doubling expenditure on feeds on each farm.

Incomes

Approximately equal average outputs and inputs on these farms resulted in a small positive average MII of £2/ha in 1998/99 (£311 per farm); however, three of the farms showed negative MII (see Table 6). NFI, ONI and Cash Incomes were positive on all farms, and the average ONI was £96/ha, £16,451 per farm.

Discussion

The identical sample (four farms) is too small and heterogeneous to allow much information on trends of outputs, inputs or incomes to be gathered.
These results indicate that this sample of LFA organic cattle and sheep farms, whilst heavily dependent on subsidies, was able to achieve profitability in 1998/99. As on lowland cattle and sheep farms, livestock variable inputs amount to a high proportion of direct livestock outputs excluding subsidies (46%).

6. Mixed farms

Sample

Data are presented from an identical sample of five farms for 1997/98 and 1998/99. The sample comprises four cropping, cattle and sheep farms, and one cropping and dairy farm. All farms had cattle and sheep enterprises, all had breeding sheep, and four had suckler cows. One farm had other livestock enterprises, and one was within an LFA. The farms were from a wide geographic spread, including north, south, east and central England and Wales. The farms ranged from 40 to over 500ha, and from 14 to 235 ESUs.

Table 7 Summary data for five organic mixed farms (£/farm and £/ha), identical sample, 1997/98–1998/99

	1997/98		*1998/99*	
	£/farm	*£/ha*	*£/farm*	*£/ha*
Livestock outputs	74,812	288	82,964	325
Livestock subsidies	16,631	64	20,638	81
Cropping outputs	76,626	295	64,910	254
Arable area payments	22,459	86	20,041	78
Miscellaneous	14,487	56	6,825	27
Agri-env. payments	3,645	14	3,303	13
TOTAL OUTPUTS	208,661	802	198,681	777
Livestock inputs	19,182	74	28,110	110
Crop inputs	15,080	58	17,823	70
Labour	55,499	213	54,803	214
Machinery	51,867	199	56,361	220
General	18,838	72	17,308	68
Land	34,888	134	34,226	134
TOTAL INPUTS	195,353	751	208,630	816
Add paid management	3,326	13	4,902	19
MII	16,633	64	-5,047	-20
NFI	22,571	87	3,869	15
ONI	30,137	116	8,783	34
Cash Income	34,244	132	28,129	110

Outputs

Livestock outputs accounted for 52% of total farm outputs in 1998/99, and cropping accounted for 43% of total outputs. Between 1997/98 and 1998/99, whole farm livestock outputs increased, by 11% for direct outputs, and 24% for livestock subsidies. Despite an increase in average area under cereals and cash cropping, whole-farm cropping outputs dropped by 15% in 1998/99, and area payments dropped by 11%. Average total farm outputs dropped by 5% from nearly £208,630 to £195,353 in 1998/99; individual outputs dropped on three farms, increased slightly on one and was maintained at the same level by the fifth.
Two of the farms received agri-environmental payments, in both cases this included Organic Aid payments.

Inputs

Labour and machinery inputs accounted for 26% and 27% of inputs respectively in 1998/99, and variable costs accounted for 21% of inputs. Average whole-farm livestock inputs increased by 47% and cropping

inputs by 18% in 1998/99; only general costs were reduced in the second year, and overall inputs were up by 7%.

Incomes

The combination of average reduced outputs and increased inputs reduced all income measures in 1998/99 compared with the previous year, resulting in an average negative MII of £5,047 per farm (-£20/ha) in 1998/99 (see Table 7); this figure reflects negative MIIs on three of the five farms. Average NFI, ONI and Cash Income was positive, and individual NFI, ONI and Cash Incomes were positive for four of the five farms.

Discussion

Variable livestock costs were 34% of direct livestock outputs, and variable cropping costs were 27% of direct cropping outputs in 1998/99.
The two largest farms in the group achieved positive returns on tenants' capital.
The change in average ESU between years resulted from changes in cropping on one of the farms. This change also accounts for a 44% reduction in cropping outputs from that farm between 1997/98 and 1998/99, which, in turn, decreased the average cropping output.

7. Gross margins

Gross margin results for specific livestock and crop enterprises from the organic study farms from 1995/96 to 1998/99 were presented. It should be noted that the gross margin tables do not necessarily contain data from the same farms in all years.
Where gross margin data are not shown for crops in some years, it is because less than five farms in the study grew the crops in those years, or data were insufficiently reliable.
Separate gross margin tables were presented for four years of results for suckler cows, separate results for lowland and LFA suckler cow enterprises for 1998/99, finishing beef and for lowland and upland sheep.

Dairy

Results shown were from commercial organic dairy farms, including results from mixed farms and lowland cattle and sheep farms with dairy enterprises; not an identical sample of farms in each year.
Changes in livestock purchases and sales and transfers, together with increased expenditure on quota in 1998/98 account for most of the reduction in average output in 1998/99 (£1,556/cow) compared with 1997/98 (£1,671).
Compared with the previous year, increased expenditure on concentrates (£206 in 1998/99 and £163 in 1997/98) relates to an average increase in the amount fed per cow, but the increase in dairy other livestock costs accounts for more than half of the £93 increase in variable costs.
The result of average decreased outputs and increased inputs was a 15% drop in gross margin before forage costs (£1,301/cow in 1997/98 and £1,094/cow in 1998/99). Combined with the reduction in stocking rate, average gross margins per ha declined by 27% in 1998/99 compared with the previous year.
The farms with dairy enterprises in the top 50% by gross margin before forage costs were well-established organic farms; the bottom 50% includes farms that had recently converted and one farm that had very high quota leasing costs.

Beef

An average increase in subsidies, sales and transfers out, and cull stock in 1998/99 compared with 1997/98 balanced higher replacement costs and negative valuation changes. However, feed costs increased, but not to the level of 1996/97 costs and sundry costs remained at a similar level, overall resulting in a similar average gross margin (£289/cow before forage costs) to the previous year. Forage costs were lower in 1998/99.
There is a the clear contrast in subsidy receipts on LFA and lowland farms, but also higher average sales per cow on the LFA farms. Feed, veterinary and medicine and sundry costs were higher, and forage costs lower, on the LFA farms, but the gross margin on the LFA farms was higher both including and excluding forage costs.. Average finishing beef output was also reduced (£327/head, compared with £382/head in 1997/98) because of a greater reduction in subsidies and higher transfers in, compared with the higher sales/transfers out. Average sundry costs also increased sharply compared with 1997/98, to give the lowest average gross margin per head since 1995/96.

Sheep

The sample for lowland farms includes farms with direct sales; on those farms the final price received has been recorded, and on-farm direct costs of sales included in sundry inputs. Increased subsidies and sales were balanced by a negative valuation changes to bring a very slight increase in average output per ewe in 1998/99. An increase in feed and sundry costs caused an average increase of over £4 in inputs per ewe, and average reductions in gross margins including and excluding forage costs. Average output per upland ewe increased in 1998/99 because of increased subsidies, that balanced reduced prices for cull stock and wool. Average variable costs for upland ewes were lower in 1998/99 than in the previous two years. The average of 11 farms breeding sheep gross margin, before forage costs was £44.5/ewe.

Crops

Twenty-one different crop enterprise gross margins were collected, but few crops had sufficient samples to validate results. Gross margins are presented for six crops for the 1998/99 harvest year. There was no clear pattern in yield changes between 1997 and 1998 crop harvests over the different enterprises. The data exclude subsidy income to enable production factors and price trends to be studied in isolation from subsidy income. For conversion to actual enterprise gross margins the relevant subsidy level can be added. The gross margin trends for crop enterprises are strongly influenced by the combination of yield levels and price received.

Table 8. Crop gross margins (£/ha), 1998/99

	Winter Wheat	Spring Wheat	Winter Oats	Spring Oats	Spring Barley	Potatotes
No of farms	14	10	6	7	6	11
Size (ha)	21	21	18	12	7	11
Yield (t/ha)	3.6	3.1	4.2	3.9	3.2	16
Value (£/t)	191	179	153	167	175	331
Total outputs	**694**	**553**	**634**	**648**	**563**	**5,252**
Seeds	64	71	54	60	54	550
Fertilisers	2	0	0	0	0	62
Sprays	0	5	0	0	0	49
Casual labour	n/a	n/a	n/a	n/a	n/a	135
Other	3	6	0	3	0	169
Total variable costs	**69**	**83**	**54**	**63**	**54**	**965**
Gross Margin	**624**	**470**	**580**	**585**	**509**	**4,287**

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