

## RESEARCH TOPIC REVIEW:

### Financial Performance, Benchmarking and Management for mixed organic farming

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## 1 Executive summary

The financial performance of organic farms is dependent on their ability to either obtain premiums for their products or to reform their farming system into a low cost structured business. Comparing the performance of organic farms to conventional businesses, between 2002-3 and 2006-7 for four different farm types, shows that out of the 20 groups the organic businesses had a higher net farm income in 12 cases and lower tenant's capital in 17 instances. This picture is consistent with the financial performance of German organic businesses<sup>i</sup> where in 8 out of 11 years the organic business returned a higher net profit than the conventional business.

The dataset for organic farms is improving but still represents less than 5% of producers. Given the range of farming systems, it is difficult to obtain good cost of production information for anything other than broad farm types and care is needed in making specific decisions based on these general samples. There are good examples of organic farms that have developed systems that are outside the range of these surveys and these businesses are generating returns that may be better than anything recorded in conventional situations.

The sectors that have performed best are dairy and mixed farms which have been able to obtain a reliable premium price to help compensate for the lower level of stock and the inability to dilute overhead costs over higher levels of output. The ability to command a premium price is fundamental to the success of the majority of organic business. Developing lower cost and more reliable supply chains is of importance to all organic enterprises especially where the sector becomes over supplied and processors are able to pick and choose, as has been the case in the past with the dairy sector and is currently the situation with beef and lamb.

Organic farms have a greater proportion of their income arising from agri-environment schemes and in some cases a greater proportion from the Single Payment as well. This may be regarded as a strength in the current economic climate but in the longer term it may be viewed as a weakness with further CAP reform on the agenda.

Organic farms tend to have lower variable costs due to lack of fertiliser and spray costs and other inputs. The current high feed prices, whilst having a serious impact on many businesses, is in general not pushing up costs of production for the top performers to levels above the conventional herds. Feed costs show a greater degree of variance in almost all the benchmarked systems with the top dairy producer having feed costs of 57% of average producer, the top lamb producer having costs of 84% and the top beef producer having feed costs of just 10.3% of the average. However, this may be influenced by the dataset.

The range in costs of production of organic produce, specifically beef and lamb, recorded in the recent years has been greater than the conventional sector and this may in part be due to the dataset where lowland and LFA farms are combined. The variance in costs per kg produced between the average and best performer is 47% in the case of lamb and 63% in the case of beef.

The dairy costs of production are not as extreme with the range being only 7% and the average costs of production are 27.0p per litre. The Kingshay costs of organic milk production<sup>ii</sup> estimates the cost of production before imputed rent and finance charges at 31.2 ppl. It is claimed that some dairying systems (New Zealand styled grazing) are able to reduce the costs of production significantly however, the data is not available in quantity to support this argument.

## **2 The aims**

To provide organic advisers with a better understanding of the overall financial performance of livestock and mixed organic farming and in particular the factors which affect performance and the management implications.

## **3 Research Priorities**

The current information on farming systems in the Organic Farm Incomes survey<sup>iii</sup> is helpful in showing the results from systems. However, the dataset is not robust when it comes to identifying both the range of systems, especially dairy, and in identifying the differences within the lowland livestock farms as distinct from the LFA farms and the hill farms.

There is a lack of good financial information on the conversion process and in recent years many farms have entered simultaneous conversion without fully understanding the financial implications and without having researched appropriate markets or supply chains.

The Farm Business Survey<sup>iv</sup> has limited data for English farms. There is a crucial need for better regional information given that there are now in excess of 1500 organic farms in England and that the sector has been one of the strong growth sectors over the last 10 years.

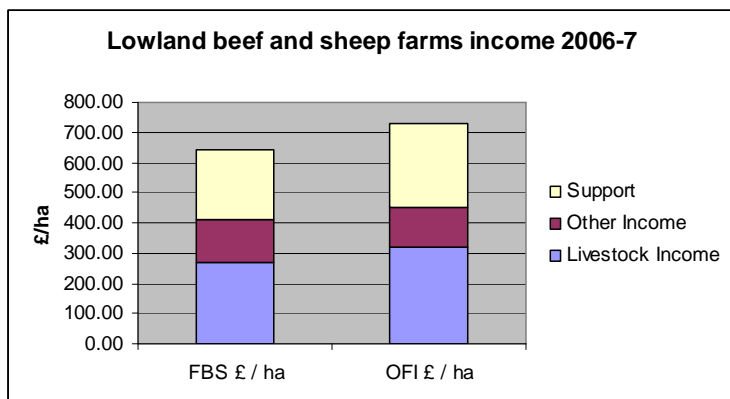
## **4 Enterprise:- Lowland Beef and Sheep Farms**

Information has been obtained from the Organic Farm Incomes in England and Wales between 2002/3 and 2006/07 and from Farm Business Survey<sup>v</sup>. The Organic Farm Income survey data covers 32 farms and the Farm Business Survey data was collected from 25 organic farms in England. Undoubtedly some of the data is the same. Comparisons between years are based on matched samples of farms and reference to the performance in any one year is based on the whole sample of organic farms.

### **4.1 Output**

Results from the Organic Farm Income survey between 2002 and 2007 show that output has increased by 49% over the five years, cattle sales are up 56% and Agri-environment schemes receipts are up 59%. At the same time other income has risen by 70% and direct support has only increased by 32%. Between 2005/06 and 2006/07 output on organic lowland cattle and sheep farms increased by 29% to £792 per hectare, mainly on the back of rising fat cattle income up 9% and other cattle numbers up by 9%. Beef cow and sheep numbers fell by 5% and 6% respectively. This is a trend over the past 3 years.

Figure 1 Comparison of Income between FBS and OFI survey



The 2006-7 Organic Farm Incomes report shows higher income per hectare at £729 / ha which is approximately £87 / ha higher than the FBS figures. This is made up from higher livestock sales, marginally higher other crop sales and significantly higher environment and organic grants at £106 / ha (43%) higher than the FBS figures. The OFI survey shows higher Single Payment scheme receipts at £171 / ha (10% higher than

FBS), probably reflecting the situation in Wales rather than in England.

The survey of all farms, rather than the matched identical set of results, from 2005/06 and 2006/07, shows that organic and Agri-environment payments account for 14.5% of income and total Single Payment / subsidy accounts for 23% of revenue.

#### 4.2 Variable costs

Both studies have very similar results for variable costs as a proportion of output with feed and purchased forage accounting for approximately 6.5%, other forage costs accounting for approximately 1% and other livestock costs accounting for 6.5% of output.

#### 4.3 Overhead costs

Total overhead costs account for approximately 50% of output with the major costs being machinery, which in both studies accounts for 22%, hired labour accounts for approximately 5%, other business overheads account for about 13% and rent accounts for about 9%.

In both studies net farm incomes amount to approximately 32% of total output, however imputed costs for rent and unpaid labour are included of £160 / ha. This leaves a Farm Business Income according to the FBS report of £47.00 / ha and a margin of £97 a hectare according to the Organic Farming Scheme Report.

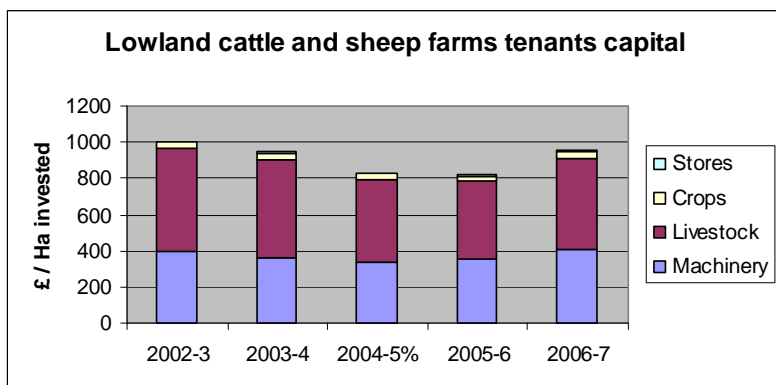
During the same period imputed rent, finance and family labour costs are up 46%.

#### 4.4 The Balance Sheet

The Organic Farms Income report shows a negative return on tenant's capital in 2006/07, a situation that has been only too familiar throughout the 2002 to 2007 period when neither organic herds nor conventional herds produced a positive return on tenant's capital and likewise negative returns on total capital were recorded.

Throughout the five year period it should be noted that the organic herds tended to perform less badly than their conventional counterparts in terms of return of tenant's capital and return on all capital. Organic beef enterprises also have less tenant's capital invested than their conventional counterparts.

Figure 2

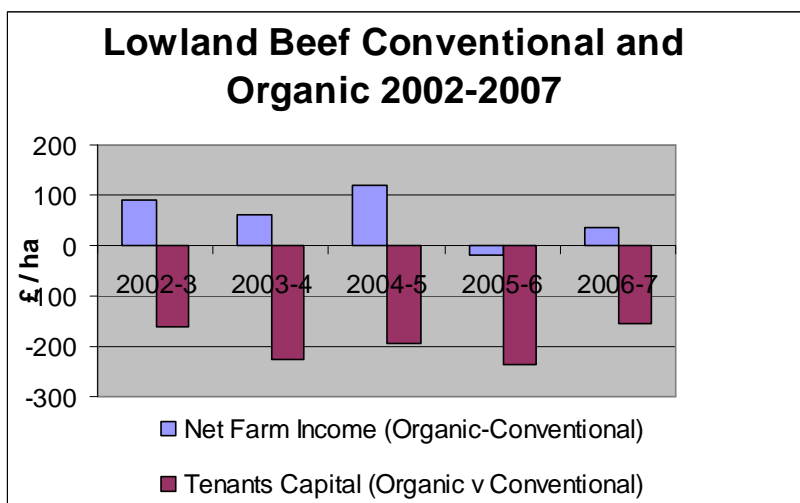


Throughout the period 2004 to 2007 the organic farms had lower investment in livestock due to lower levels of stocking, machinery and stores. The difference has tended to be between £150-£200 / ha. This reduced capital investment was one reason for the improved return on capital.

#### 4.5 Comparison with the conventional sector

Compared to the conventional sector, the organic farms have made higher Net Farm Income in all years except 2005. They consistently have lower tenants capital invested due to lower stock numbers.

Figure 3

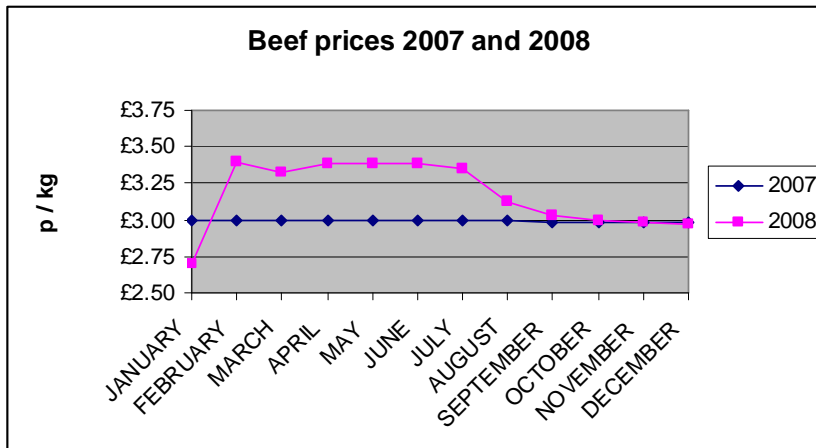


Organic businesses consistently have shown a higher Net Farm Income than similar conventional businesses and have lower tenant's capital invested due mainly to having lower stock numbers.

#### 4.6 Outlook for Prices

The economics of beef production is very dependent on the sale price being achieved. The graph below shows organic price movements as recorded by Graig Farm<sup>vi</sup> over the last 2 years.

Figure 4



Currently the conventional price has increased significantly reducing the differential and meaning that having to sell onto the conventional market will not have as much impact as when the conventional prices were much lower.

#### 4.7 Costs of production finished beef

A review of the current support mechanisms is imminent and there is no guarantee that the Single Payment will continue at the current levels. Therefore an understanding of the factors that influence the economics of individual enterprises becomes increasingly important. In recent years the Organic Farm Incomes reports have calculated the costs of production for finished beef production. The move away from headage payments towards a flat rate payments, whether linked to historical payments or a regional system as in England, removes any incentive to keep more cattle simply to receive more headage payments. Ideally when calculating the costs of production all support and agri-environmental scheme payments would be excluded, however for organic producers it is fair that receipts from agri-environmental schemes are included in the output.

Making direct comparisons between 2005/06 and 2006/07 is difficult because the earlier data refers to England and Wales and is recorded in pence per kilogram live weight and the data for 2006/07 refers to Welsh herds and is shown as pence per kilogram dead weight.

It is easy to conclude that increasing stocking rate is the solution when output from the top 33% of herds in the Welsh study is 6% higher than the average herds and 16% higher than the poorest performing herds. This increased output was achieved by the top herds adopting a more flexible approach to marketing, selling a greater proportion of their cattle as stores and selling at lighter weights but at a higher pence per kilo. However, in the 2005 study, output levels for the low cost performers were only 81% of the average. If agri-environmental receipts are excluded the low cost herds still have lower output.

Care has to be taken with the interpretation of this data because the benchmark groups includes herds from all farm types resulting in the likely hood that the premium groups may not represent the whole sample. The 2005/06 data indicates that the top performing English and Welsh herds produce significantly more kilograms of beef per hectare than the average. The average weights of finished cattle are lower in the premium group which may reflection of lower feed costs.

Significantly the top herds spend less concentrate and forage, but as a proportion they spend more on forage than the average herds. The comparative costs of forages are substantially lower and more stable than concentrates and systems built on high quality forages are likely to be more sustainable.

Table 1 Comparison in the cost of beef production 2005-6 and 2006-7

	2005-6 p/ kg LW		2006-7 Welsh Herds p/ kg DW	
	Average	Top 5	Average	Top 33%
<b>Feed</b>	<b>24.1</b>	<b>9.8</b>	<b>72.8</b>	<b>7.5</b>
<b>Other livestock costs</b>	<b>22.4</b>	<b>17.4</b>	<b>44.4</b>	<b>38.7</b>
<b>Forage costs</b>	<b>15.2</b>	<b>10.0</b>	<b>16.4</b>	<b>10.5</b>
<b>Total labour</b>	<b>100.0</b>	<b>109.9</b>	<b>159.8</b>	<b>122.4</b>
<b>Machinery</b>	<b>54.6</b>	<b>34.0</b>	<b>110.7</b>	<b>72.4</b>
<b>General overheads</b>	<b>53.2</b>	<b>29.4</b>	<b>109.9</b>	<b>77.9</b>
<b>Rent and Finance</b>	<b>74.2</b>	<b>59.3</b>	<b>42.9</b>	<b>12.3</b>
<b>Total fixed costs</b>	<b>282.0</b>	<b>232.6</b>	<b>423.3</b>	<b>285.0</b>
<b>Total costs</b>	<b>343.7</b>	<b>269.8</b>	<b>556.9</b>	<b>341.7</b>

The top performing beef herds were typified by being:

- Larger operators in 2005-6 and substantially larger in the Welsh survey which has a significant effect on overhead costs.
- Stocked at higher rate in both surveys - up to 40% higher in the 2005-6 survey.
- They were more predominately beef with less sheep.
- The Welsh survey showed a lower average sale weight, which could be an indicator of breed selection and supported by the fact that they used significantly less concentrate.
- A greater proportion of animals were sold as stores suggesting that the producers were able to be more flexible in their management.

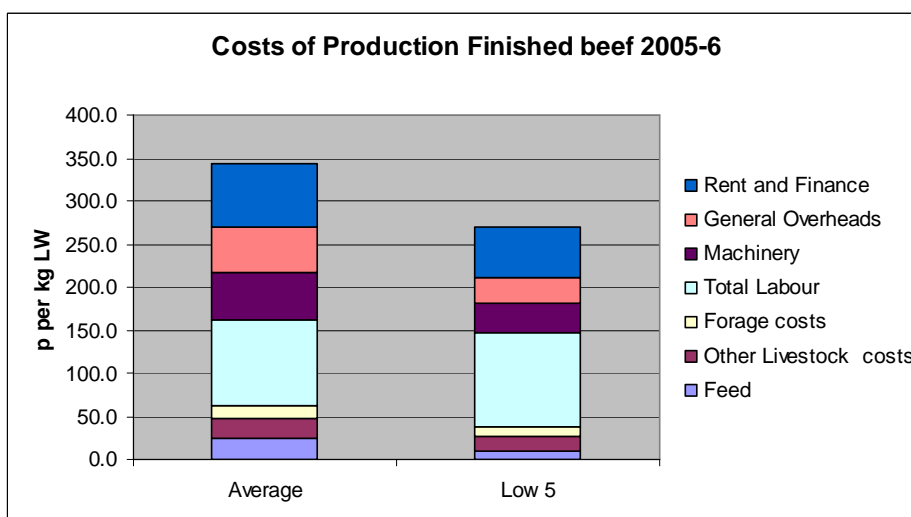


Figure 5

The average organic producer also has higher forage costs in both surveys compared to the top performer

The top performers use less concentrates and on average spend only 10% as much on concentrates as the average performer. The top herds spend a greater proportion of total feed costs on forage than the average herds.

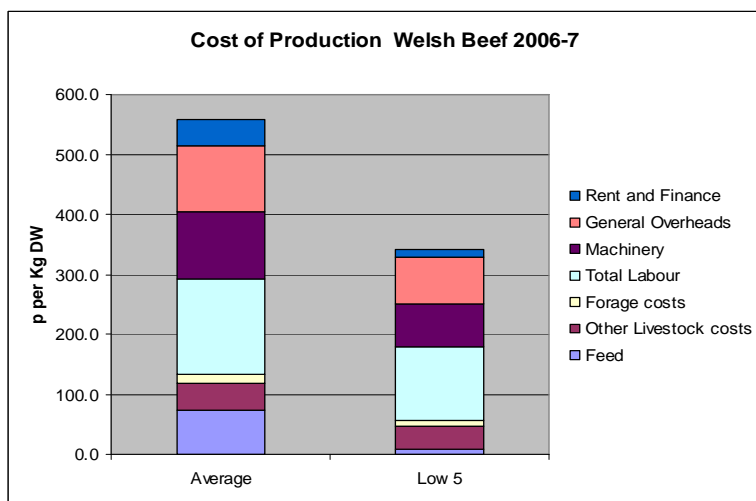
The top herds in the 2006-7 study also achieved a higher price per kilo which in terms of income per animal nearly compensated for the lower sale weights.



The top performing herds typically have:

- total costs of approximately 55% of the average,
- feeding costs of approximately 45% of the average
- power and machinery costs, including depreciation, of 40% of the average
- total fixed costs are approximately 60% of the average

Figure 6



Once family labour and imputed interest and rental charges are applied then even the top performing herds are unable to breakeven.

## 5 Enterprise:- LFA Cattle and Sheep

The Organic Farm Incomes reports have increased the number of farms surveyed between 2002-3 and 2006-7 from 22 to 29. The average farm area has increased from 124 UAA (Utilisable Agricultural Area) to 145 UAA and the business sizes from 27 ESU (Economic Standard Units) to 36 ESU.

### 5.1 Output

During the period 2002-2007 the farm incomes have increased significantly but this is mainly due to low incomes in 2002 on the back of FMD. Since 2003-4 net farm incomes per hectare have remained almost static at around £130 / ha but because of increased farm size, farm incomes have risen from £72,600 to £108,972. The breakdown of the output has remained almost constant through the period with support and agric-environment receipts remaining the largest proportion of income at 42% of output.

Table 2 Proportional analysis of income for Non LFA farms

Cattle sales	20.8%
Sheep sales	20.5%
Misc Income	16.1%
Agric environment	16.2%
SPS	26.3%
<b>Total Support</b>	<b>42.5%</b>
<b>Total</b>	<b>100.0%</b>



Over the whole 2002- 2007 period there has been little change in the stocking density or pattern of stocking within the survey, with a stocking rate of about 0.9 LU / ha and an equal split between cattle and sheep. As the English move towards a flat rate payment with the introduction of the Single Farm Payment it is difficult to say if this picture is the same for England and Wales. The long term Redesdale<sup>vii</sup> project showed the importance of correct stocking levels and the integration of both enterprises if the quality of forage on the hill is not to deteriorate. The project also showed the significant health benefits to be derived from a mixed stocking system.

## **5.2 Price**

Over the 5 year period it is difficult to draw any firm conclusion on price trends except to say that cattle prices have tended to rise more than sheep prices. Over the period there have been a number of years when a significant proportion of lambs have ended up being sold into the conventional sector, either when conventional prices have been close to the organic prices as in 2007 and 2008 or when there has been an over supply of organic lambs.

Most hill and upland farmers are unable to finish a high proportion of lambs and this means that they are often forced into selling store lambs on the conventional store market in the autumn.

All these business receive a significant element of their income from other non farming sources and this has been increasing over the years.

## **5.3 Variable costs**

The average variable costs amount to £150 / ha or about 22% of total costs. The major cost is purchased feed at £64 / ha. Other variable costs are £57 / ha, 8% of total output and forage costs excluding contractors amount to £19 / ha or 3% output.

## **5.4 Fixed costs labour, depreciation, capital, etc.**

On average fixed costs account for 52% of output.

When the notional value of family labour is included in the fixed costs, labour amounts to £77 / ha or 11% of output.

Power and machinery are £153 / ha (including depreciation). General overheads are £71 / ha. When a notional rent is included, property costs amount to £172 / ha of which notional rent accounts for £116 / ha.

Overhead cost control has been maintained by increasing the average farm size from 118 ha and a business size of 26 Economic Standard Units in 2002-3 to 126 ha and 36 ESU in 2006-7.

## **5.5 Net Farm Income and returns on capital**

Overall the LFA beef and sheep enterprises have managed to return a positive net farm income throughout the period and in 2006-7 this amounted to £133 / ha. Not until 2005-6 was this figure above the benchmark conventional farms.

Figure 7 Differences between conventional and organic farms in Net Farm Income and Tenant's capital

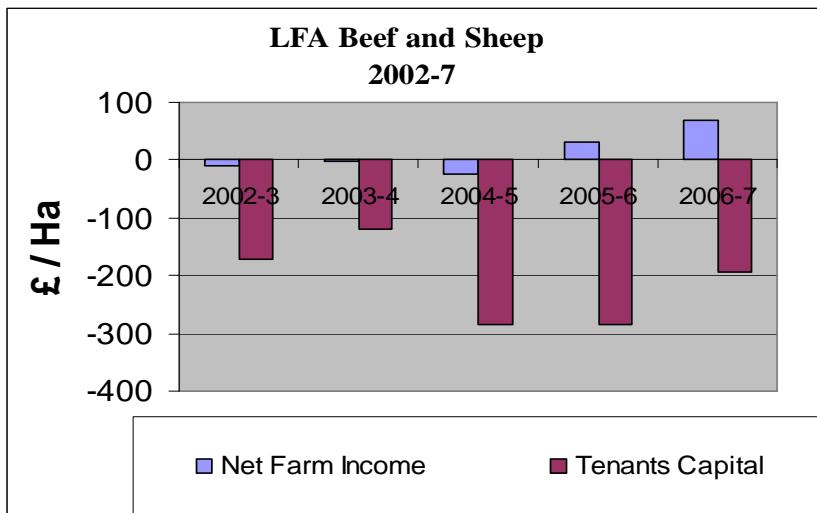


Figure 7 illustrates that when comparing the organic enterprises with similar conventional enterprises that over the last 5 years the organic businesses have a lower investment in tenants capital and in the last 2 years have produced higher Net Farm Income .

## 6 Benchmark costs of suckler store production

There are two studies into the costs of production of suckler stores, the 2005/06 OFI study of England and Wales and the 2006/07 study of Welsh herds. Both studies have a premium group of producers based on the lowest costs of production of a Kg of live weaned calf. In the 2005-6 survey these are referred to the low 5 group i.e. The 5 herds with the lowest costs of production, in the 2006-7 they are referred to as the top 33% as the group that produces the highest net margin per kg of live weight gain.

In both cases the difference in total costs between the average and the top 33%, or the low 5 herds in 2005-6 study, is in the region of 35%. In both studies it is only the top 33% of Welsh herds that have a positive margin if family labour was included. In terms of margin before imputed costs the difference is greater.

The top herds receive a lower proportion of their income from agri-environmental schemes and have lower output.

The top herds have variable costs that are less than 50% of the average and they have overhead costs that are up to 40% lower.

*Table 3 Suckler store costs of production (p per kg LW)*

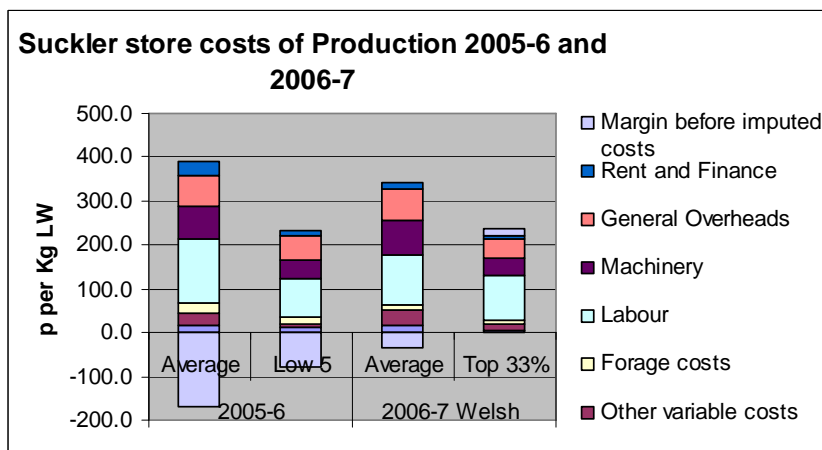
	2005-6		2006-7 Welsh	
	Average	Low 5	Average	Top 33%
<b>Beef output</b>	104.8	96.9	116.0	114.6
<b>Organic and Agri -Environment receipts</b>	114.6	60.4	192.6	120.7
<b>Total outputs</b>	<b>219.4</b>	<b>157.3</b>	<b>308.6</b>	<b>235.3</b>
<b>Feed</b>	17.1	10.8	17.1	5.4
<b>Other variable costs</b>	26.8	9.3	35.2	14.1
<b>Forage costs</b>	24.6	14.8	10.6	9.3
	68.5	34.9	62.9	28.8
<b>Labour including family</b>	145.9	86.8	116.5	100.5
<b>Machinery</b>	74.1	45.3	78.3	41.5
<b>General overheads</b>	71.6	54.1	70.7	43.9
<b>Rent and Finance</b>	28.2	13.3	14.1	7.6
<b>Total fixed costs</b>	<b>319.8</b>	<b>199.5</b>	<b>279.6</b>	<b>193.5</b>
<b>Total costs</b>	<b>388.3</b>	<b>234.4</b>	<b>342.5</b>	<b>222.3</b>
<b>Margin before imputed costs</b>	-168.9	-77.1	-33.9	13.0

The top performing herds are typified as

- selling a greater weight of calf per cow
- not necessarily being larger units
- being more productive having higher stocking rates, +13% compared to the average
- tending to have a greater proportion of their livestock as beef.

The situation with the sheep enterprise is that the top performing flocks tend to have more cattle so perhaps the old adage that a sheep's worst enemy is another sheep is correct.

Figure 8



The top performing herds

- have lower feed and forage costs suggesting that these businesses are better forage managers
- have machinery costs that are between 40% and 50% of the average
- have lower rent and finance costs and a higher degree of owned land
- have lower general overheads.

## 7 Benchmark costs of lamb production.

Sheep are an integral part of many organic mixed farming systems both in the lowland and also in the LFA (upland and hill). The costs of production in the LFA are always substantially greater than the value of sheep sold and it is only after the inclusion of Agric-environment payments and the Single Payment that these enterprises stand a chance of making a positive margin and then it is not always sufficient to cover a reasonable level of drawings for the operators.

The lowland sheep enterprises are nearly always combined with other livestock and in many cases arable crops as well. The benchmarking studies over the last few years have taken their sample from both LFA and lowland farms. With this in mind it is likely that the lowland farms will be more productive compared to the LFA units. The top 5 group is weighted towards the lowland farms which compound the situation further.

### 7.1 Output

These results show that the difference in output is relatively low in the 2005-6 sample of flocks in England and Wales. The 2006-7 report highlights the difference in output with the top 33% achieving significantly higher prices per kg, greater weight of lamb sold per ewe arising from less sold as stores and a higher finished weight.

The top performing flocks (low cost) receive less in Agri-environment payments than the average probably reflecting their lowland situation.

Table 4 Benchmark costs of production lambs 2005-6 and 2006-7

	2005-6		2006-7	
	Average (p/ kg LW)	Top 5 (p/ kg LW)	Average (p/kg DW)	Top 33% (p/kg DW)
Output	113.9	125.7	280.6	339.4
Subsidies	0.0	0.0		
Wool	3.1	3.1	5.5	5.1
Valuation change	-2.6	-0.7	7	17.1
<b>Sheep Output</b>	<b>114.4</b>	<b>128.1</b>	<b>293.1</b>	<b>361.6</b>
<b>Other outputs</b>	<b>58.1</b>	<b>35.7</b>	<b>189.4</b>	<b>119.6</b>
<b>Total outputs</b>	<b>172.5</b>	<b>163.8</b>	<b>482.5</b>	<b>481.2</b>
Feed costs	18.3	14.3	42.6	36.0
Other variable costs	34.40	22.8	80.4	50.9
Forage costs	11.2	8.3	15.7	21.2
Labour	78.0	59.4	118.3	86.4
Machinery	37.4	34.9	80.4	53.7
General overheads	36.3	33.2	67.4	39.1
Rent and finance	52.6	44.5	41.8	15.1
<b>Total fixed costs</b>	<b>204.3</b>	<b>172.0</b>	<b>307.9</b>	<b>194.3</b>
<b>Total costs</b>	<b>268.2</b>	<b>217.4</b>	<b>446.6</b>	<b>302.4</b>
<b>Margin</b>	<b>-95.7</b>	<b>-53.6</b>	<b>35.9</b>	<b>178.8</b>

## 7.2 Variable costs

The top performing flocks have lower variable costs notably feed and other variable costs reflecting the lowland situation.

The only situation where the top flocks have higher variable costs is in the case of the 2006-7 Welsh flock who have higher forage costs per kg or lamb produced but this is off set by lower concentrate feed costs.

## 7.3 Fixed costs

The higher level of output achieved by a higher lambing percentage, 1.52 compared to 1.24, and a greater carcass weight means that there is a dilution of overhead costs.

## 7.4 Organic lamb costs of production

Figure 9

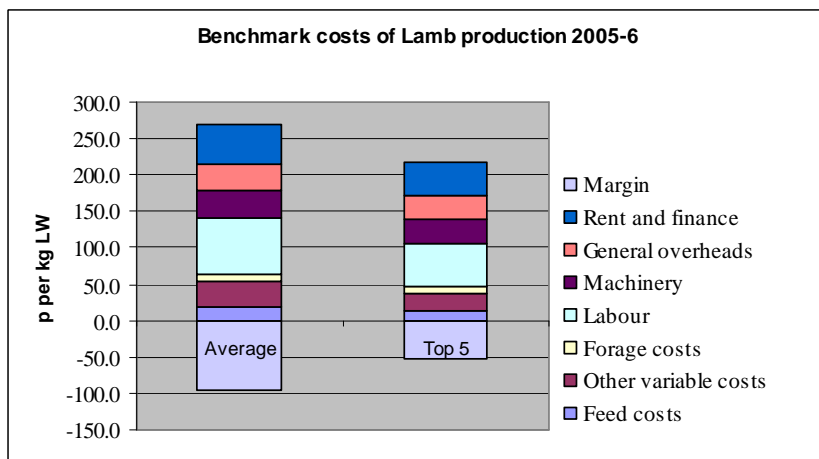


Figure 9 illustrates that including family labour in the 2005-6 study (64.8p/kg LW and 55.5p / kg LW for the average and top 5 producers respectively) results in the both groups failing to cover their costs of production.

Single Payment receipts have been excluded but receipts from Agri-environment schemes are included.

Figure 10

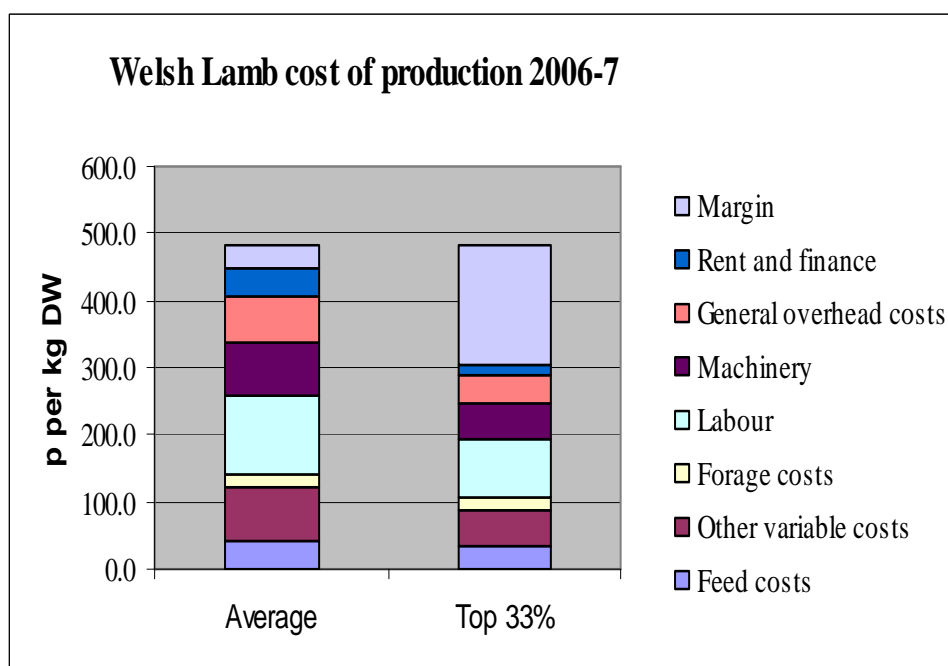


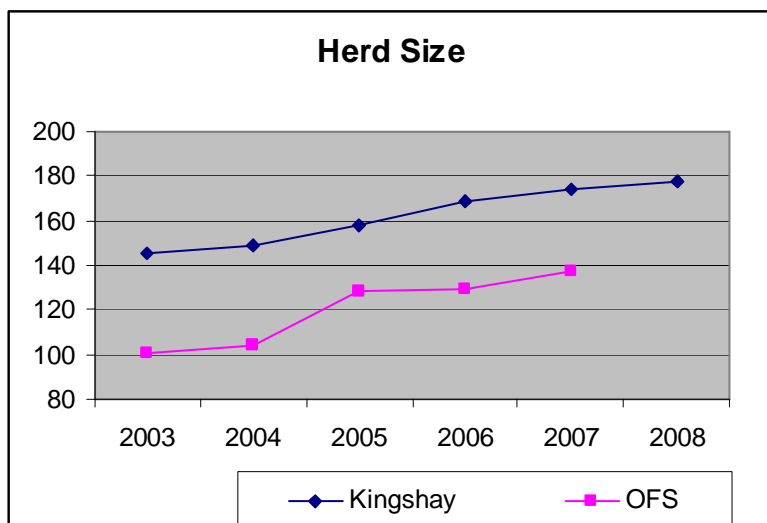
Figure 10 shows that in 2006-7 the average Welsh organic lamb producer was able to cover the costs of production as long as Agri-environment scheme receipts are included in the output. These were worth 189p / kg for the average producer and 119p for the top 33% of producers excluding this income source would result in average producer losing £1.53 / kg DW.

## 8 Enterprise:- Dairy

### 8.1 Output

The average organic dairy herd is increasing in size. Kingshay<sup>viii</sup> report that between 2003 and 2007 average herd size increased by 20% to 174 cows. The Organic Farm Incomes survey<sup>ix</sup> shows an increase in herd size of 35% between 2002-3 and 2006-7<sup>x</sup> to a herd size of 140 cows and a decrease in yield per cow of 2% to 5442 litres per cow. Kingshay report shows an increase of 3.3% to a yield of 6641 litres per cow between 2003 and 2008.

Figure 11



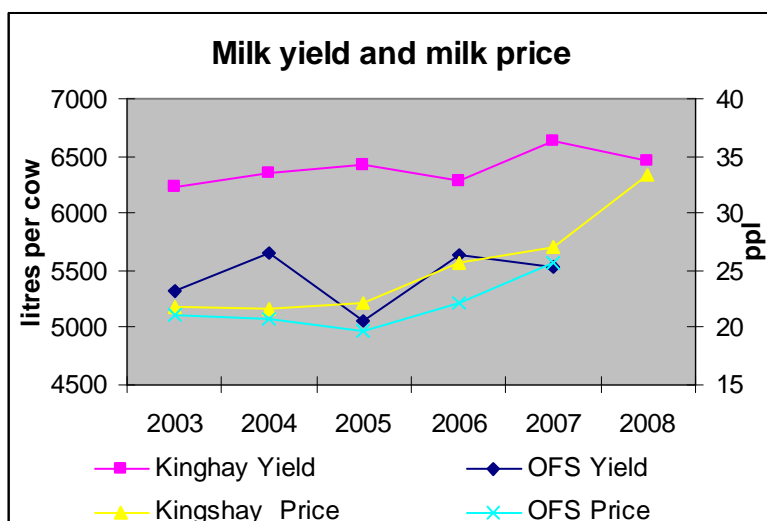
Over the period 2002/03 to 2006/07 total income has increased by 3.93 pence per litre, whilst total costs have increased by 5.75 pence per litre (total costs are before imputed costs).

Total dairy output accounts for in excess of 90% of the total output, other income coming from Agri-environment schemes and miscellaneous revenue.

### 8.2 Yields

The 2005-6 organic report shows the top 5 herds out yielding the average herd by 770 litres per cow and by 2006-7 this difference had increased to 1885 litres. Trends in yield per cow, as reported by Kingshay, shows an increase of 213 litres (3.3%) over the same period which when combined with increasing herd size results in the milk income increasing by 13.8 % between 2005- and 2007.

Figure 12



The Organic Farm Incomes surveys shows a regional variation in yield per cow with the South West consistently being highest at 5598 litres per cow and central England being the lowest at 5083 litres in 2006-7. This is somewhat at odds with the normal perception of the lower yielding grass based systems of the South West and this may in part be due to sample size.



Figure 13

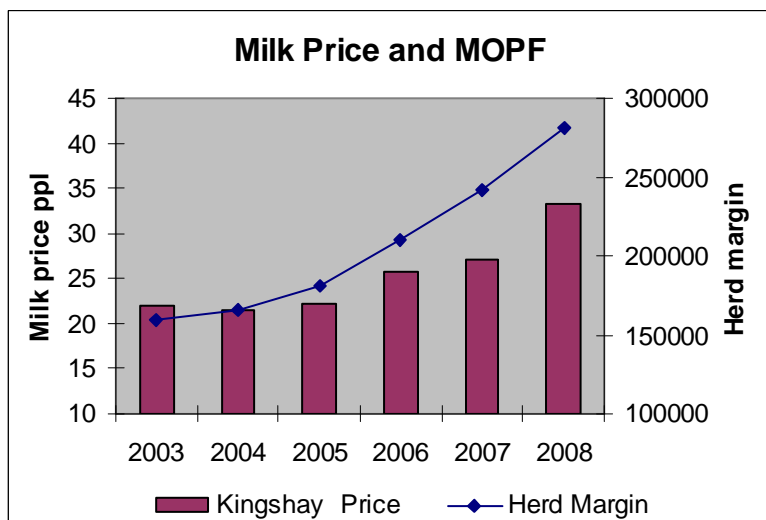
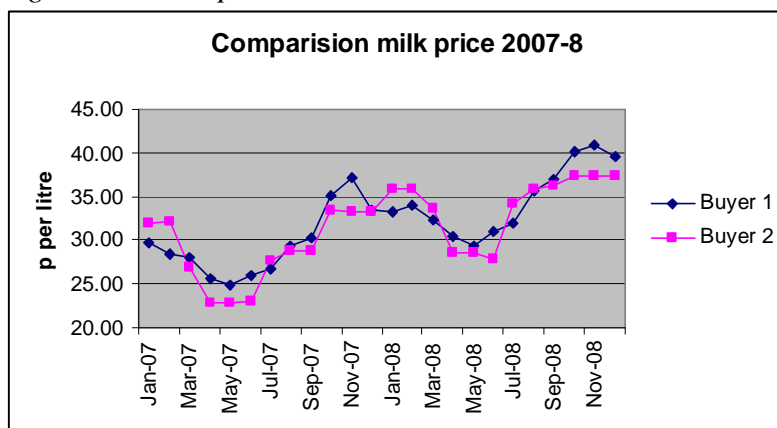


Figure 13 shows how over the past 6 years herd margin has risen faster than milk price on the back of increasing herd size.

Figure 14 Milk prices



The effect of supply profile on milk income is substantial as the example below shows.

The headline average milk price is similar but because of the supply profile the difference in milk income would be £13,500 on a 1 million litre supply.

	Average	Weighted
Farmer 1	34.66	33.31
Farmer 2	34.04	34.13

### 8.3 Price

The two sources report a similar milk price, but the herd output is significantly different due to cow numbers and herd size. Kingshay shows a milk price differential between the top 25% of herd and the bottom 25% of herd of 1.9 ppl in the year to December 2008.

### 8.4 Variable costs

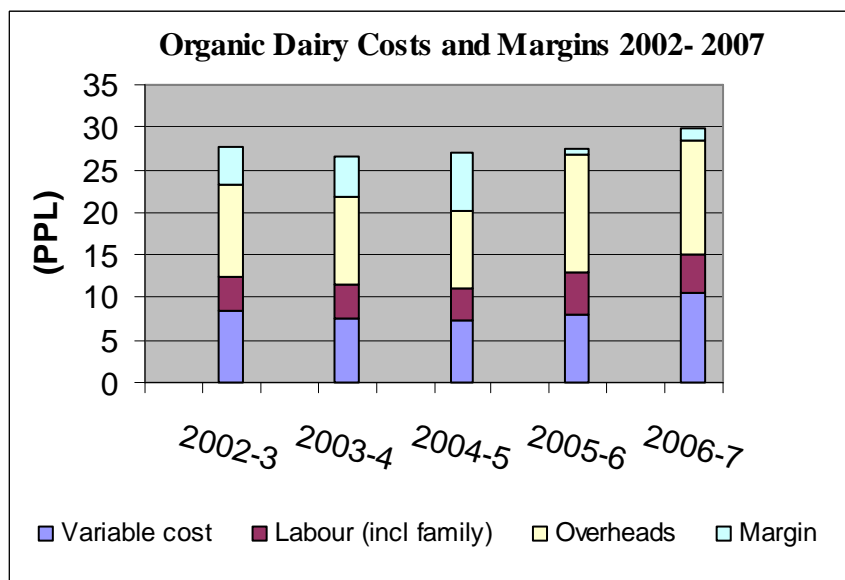
Feed costs have been subject to a significant increase between 2005-6 and 2007-8 with the ending of the non-organic allowance in January 2008. The 2005-6 organic report records an average feed cost per litre in 2004-5 of 2.9ppl, 4.3ppl in 2005-6 and rising in 2006-7 to 5.7ppl. Kingshay figures show that over the same period 2004-5 to 2006-7 feed costs per litre increased by 1.8ppl to 6.2ppl.

Vet and med costs are reported to have risen from 0.4ppl in 2004-5 to 0.7ppl in 2006-7.

Total variable costs rose between 2004-5 and 2006-7 from 6.0ppl to 10.1ppl. Variable costs including costs of forage account for between 48% and 50% of total costs.

Margin before imputed costs has varied from a high of 7.22 pence per litre in 2003 to a low in 2006/07 of 6 pence per litre. (see figure 14)

Figure 15



### 8.5 Fixed costs labour, depreciation, capital, etc.

Between 2005-6 and 2006-7 Organic Farm Incomes reports show overhead costs rising by 10% on the whole sample and 7.5% on the matched sample bases. The difference between the matched sample and the whole sample is £88 / ha.

Table 5 Costs of production for organic dairy herds 2006 and 2007

	2005-6		2006-7	
	Average	Top 5	Average	Top 5
Dairy Output	22.5	22.8	25.2	27.9
Other outputs	3.5	3.5	2.6	2.5
<b>Total outputs</b>	<b>26.0</b>	<b>26.3</b>	<b>27.8</b>	<b>30.4</b>
Feed Costs	4.5	4.5	8.8	5.6
Other LS costs	3.1	3.3	3.9	4.7
Forage costs	0.4	0.3	0.5	0.4
Labour	5	4.5	4.6	4
Machinery	4.4	3.7	3.5	3.3
Overhead costs	2.9	2.4	3.5	3.7
Overhead costs	2.9	2.4	3.5	3.7
Rent and Finance	3.3	3.6	2.2	3.4
Total fixed costs	15.6	14.2	13.8	14.4
Total Costs	23.6	22.3	27	25.1
<b>Margin</b>	<b>2.4</b>	<b>4</b>	<b>0.8</b>	<b>5.3</b>

## 9 Benchmark costs of milk production

The top 5 herds when defined by Gross Margin after forage costs, have had consistently higher output with a larger herd size, +6 cows, a milk yield that is 1884 litres higher, 34%, and a milk price that is 2.4 ppl higher which is worth £130 / cow. The high gross margin herds have feed costs that are 2.56 ppl above the average. Total variable costs per cow are £389 higher leaving a gross margin that is £251 / cow higher but lower per litre by 0.4 ppl.

Overhead costs are higher on the high gross margin herds by £145 / cow mainly due to higher paid labour, plus £60 / cow, but due to higher milk output, costs per litre are 0.8 ppl lower.

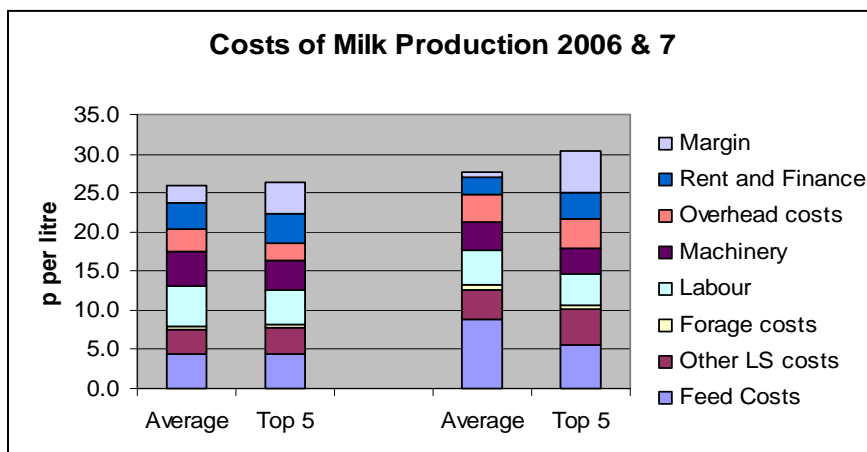
Higher performing herds have significantly higher depreciation (+£49 /cow) and machinery costs (+£64 / cow) perhaps reflecting the higher milk output.

Labour costs including family labour amount to 4.6ppl on average herds and 4.0ppl on the top herds.

The top dairy producers can be typified as follows:

- Always having higher milk price - by as much as 2.3p per litre
- Since 2004, always producing more litres per cow - by as much as 20% in 2004/05 but as little as 2% more in 2006/07
- Receiving higher other income, notably miscellaneous revenue
- Spend less on forage per litre and per cow than the average herd
- Having lower costs in total, typically by up to 10%.
- Having lower imputed costs, especially labour.

Figure 16 Benchmark costs of milk production 2005-6 and 2006-7



Since 2005 the top five herds have been significantly larger however, this increased herd size has not resulted in significantly lower costs of production. Typically variable costs are 96% of the average herds and total overhead costs are 92% of average. Combined family labour and total labour is significantly lower at 87%.

Kingshay Dairy Manager reports highlight the top 25% of herds by margin over purchased feed per cow as typically being:

- Larger herds 206 cows compared to 173 average
- Higher yields 7500 litres compared to 6450 litres
- Producing more from forage - 3110 litres per cow compared to 2950 and therefore using less concentrates
- Using cheaper concentrates by on average £12 / tonne

When ranked by margin per litre the difference in production is not so great, but the high margin herds produce an increased proportion from forage.

### **9.1 LFA Dairy herd**

The LFA dairy herd, of which a limited number are recorded by both the 2005-6 and 2006-7 Organic Farm Incomes surveys, shows that compared to non LFA units the farms are significantly smaller with a business size (ESU) of 76.1 compared to 148.5 for the non LFA farms. Milk yield was marginally lower at 5648 litres.

Stocking rates in the LFA was 1.3 LU / ha compared to 1.6 LU / ha in the lowland herds. Output levels have risen substantially (25% between 2004-5 and 2006-7) due to increased prices. Agri- environmental payments of £86 / ha and Single Payment £126 / ha give a total of £212 compared to a total non LFA payment totalling £301 of which £78 was for Agric-environmental and organic grants.

### **9.2 All dairy herds compared to conventional farms**

Over the 5 year period, 2002 - 2007 the Organic Farm Incomes reports throw up some interesting information.

- Net farm incomes in the period, on a per hectare basis, have been higher on the organic farms than conventional by on average £114 per hectare / year
- The tenant's capital invested is on average £282 per hectare lower than the conventional units.
- The organic farms have shown marginally higher annual increases in net worth of £1,500.
- The combination of improved net farm income and lower tenant's capital results in the average return on tenant's capital being 9.8% higher on organic farms than conventional farms. The return on all capital is 4.2% higher on the organic units.

### **9.3 Analysis of information by region**

The 2005/06 and 2006/07 Organic Farm Incomes reports have analysis by region, however, the number of herds available is relatively small, particularly in 2005/06, resulting in probably some fairly unreliable data.

In 2006/07 it is interesting to note that the 19 herds in the southwest of England and 10 herds in Wales had higher average yields than those in northern and central England and correspondingly the southwest herds had higher enterprise output. The Welsh herds had significantly lower milk price, 22.4p compared to 26.0p for herds in the south west, resulting in significantly lower enterprise output and margin over concentrates and gross margin, both before and after forage costs.

Overhead costs were significantly lower for the Welsh herds at £490 per cow, compared to £709 in central England, £613 in south west and £582 in northern England. This resulted in the Welsh herds having a net margin over actual costs of £206, south west England at £269 and north of England at £271. The difference in overhead costs arose from significantly lower paid labour costs in Wales and the north

of England, lower power and machinery costs, including contractors in Wales and lower finance costs in Wales. Imputed labour costs were not correspondingly higher in Wales than other regions.

#### **9.4 Outlook for dairy herds**

Organic dairy herds have benefitted over the past four years from significant increases in milk price. The increase in feed costs in 2007-8 has slowed the increase in herd margin returns but the most efficient producers have continued to increase margins and dilute overheads.

Increasing feed costs has greatest impact on those producers who do not make good use of forage and especially grazed grass.

Understanding the buyers pricing profile and the effects that has on the performance of the business is likely to become increasingly important. The difference in feed cost between the top performing herd and the average is currently approximately 3.3 ppl whilst the Organic Farm Incomes survey put the difference in the total costs of production in 2006-7 at about 2.ppl.

Controlling overhead costs without the ability to dilute costs over ever increasing volumes is a problem for an increasing number of organic farmers and therefore there is a need for these businesses to develop a lower cost approach to dairying which will require better use of grazed and conserved forage.

### **10 Enterprise:- Mixed farms**

The Organic Farm Incomes survey categorises this group of farmers as those with no dominate enterprise. They tend to have between 25% and 35% of the farm area in arable crops. Cattle are the main livestock enterprise.

The livestock enterprise accounts for between 30% and 40% of income with Agri-environment and Single Payment making up about 30% and crops often account for less than 20% of income.

These farms have tended to generate a higher net farm income than the comparable group of conventional farms.

### **11 Arable crops**

The area of crops grown in the sample is relatively small. The largest area of crop grown was winter wheat with an average area of 31 ha.

The average gross margin and overhead costs for a selection of combinable crops over the three years 2004-5 to 2006-7 is shown in table 6 below.

*Table 6 Average crop performance for organic arable crops 2005 and 6*

Crop	Average Yield t/ ha	Average Gross margin	Average variable cost	Overhead costs 2 year average 2006-7
Winter wheat	4.75	£700	£88	£700
Winter Triticale (2 years)	3.6	£618	£93	£669
Spring wheat	3.86	£591	£84	£590
Spring Barley	3.5	£489	£73	£632
Spring Oats	3.3	£451	£95	£531
Beans	2.56	£335	£86	£448

The variable costs are significantly lower than the comparable conventional farms because of no fertilisers and sprays.

The figures above include machinery depreciation but exclude family labour, imputed rent and finance. Machinery costs typically account for £340 / ha or up to 60% the total overhead costs.

It is clear from these figures that the very high overhead costs compared to conventional farms arises from the small scale of most of the farms in the sample and the complex nature of the mixed organic farming enterprises.

## References

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- <sup>i</sup> *Financial success of organic farms in Germany Niebeug and Offemann*
  - <sup>ii</sup> *Kingshay OMSCo Full costs report 2008*
  - <sup>iii</sup> *Jackson Moakes and Lampkin Organic Farm Incomes in England and Wales 2006-07*
  - <sup>iv</sup> *Farm Business Survey 2006/07 Lowland Grazing Livestock Production in England*
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  - <sup>vi</sup> *Graig Farm Organic Producers pricing.*
  - <sup>vii</sup> *Long term performance of organic farming in the Hills and Uplands – Redesdale and Pwllpeiran DEFRA 2007 OFO 368*
  - <sup>viii</sup> *Kingshay Dairy Manager results 2003 to 2008*
  - <sup>ix</sup> *Jackson and Lampkin Organic Farm Incomes 2002-3*
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