

Five-year financial analysis of two commercial farms converting to organic: 2000-2005

J F ROBERTSON¹, C DANIEL² & I E EDWARDS¹

¹*School of Biological Science, University of Aberdeen, AB24 3RY, Scotland*

²*North Lodge, Ardo, Whitecairns, Aberdeen AB23 8XN, Scotland*

Summary

The financial performance including input and output costs were analysed for two commercial Scottish farms converting to organic production. A comparative analysis for a five year period is provided using data from the Scottish Farm Accounts scheme, and demonstrates that both conversions had positive financial outcomes. Both farms applied strategic changes to their businesses.

Key words: Organic conversion, finance, dairy, general cropping

Introduction

There was substantial enthusiasm for organic production in the UK in the late 1990's, supported by a new regime of organic aid payments as subsidies, retailer pressure for supplies to fill a growing niche market, and concern in the conventional production sector about the small margins in commodity products. Market analysts were predicting significant growth per annum in sales of organic products, and the various UK organic quality assurance schemes were keen to recruit new farmer members. The number of registered UK organic producers rose from 2,322 in 1999 to 4,057 in 2002 (Lampkin *et al.*, 2004).

Farmers were encouraged to convert to organic production methods, and the retailers and the supporters of organic foods, particularly the Soil Association, were involved in promoting organic food consumption. However, a positive financial outcome for producers was always at risk. There had been no planning to match supply and demand in the UK organic sector, and the production sector was seldom involved in coordinated marketing strategies. Conversion to organic production routinely takes two years, with significant impact on cash flows at farm level before returns improve once organic produce are available for sale with organic premiums. The maintenance of premiums was essential to justify the changes required at farm level, but it was not long before some of the premiums disappeared as the influx of producers who entered the organic aid scheme became producers of certified organic products. The 9 p per litre premium for organic milk disappeared in 2003 when supply caught up and passed demand.

The University of Aberdeen collaborated from 2000 to 2005 with two commercial farms in Scotland that were converting to organic production. The projects covered a range of scientific, technical and production issues, and the financial aspects of the farm conversions were monitored. Edwards & Robertson (2003) reported financial information from the conversion periods of both farms, and highlighted the need for the OAS to maintain income during the conversion period.

There was also the need to consider the mix of enterprises on farm and the structure of the business, with possible restructuring helping to release capital and/or reduce fixed costs. The following paper gives detail on specific aspects of the financial performance of the farms over 5 years from the start of conversion, and compares the financial performances with standardised farm management data from the same period.

Materials and Methods

Farm 1 is a mixed unit on Grade 3 land (Bibby *et al.*, 1991) near Dundee in east Scotland, with cereals, seed potatoes, beef and sheep. The farm has used a seven year rotation of 4 years grass, potatoes, vegetables, and undersown barley. Farm 2 is a dairy unit also on Grade 3 land, near Dumfries in southwest Scotland, all in grass or whole crop cereals. Farm cash book records, balance sheet information and records from the tax accounts from both farms were compiled to produce management accounts according to the procedures of the Scottish Executive Farm Accounts Scheme (FAS). The FAS allows comparison of individual farm accounts with a range of average accounts, grouped by farm scale and type. Accounts are adjusted to take out the influence of the individual family labour, land ownership or tenancy, and capital situations. The assumptions are that all land is tenanted, with rental charged on owned land, that all family labour is charged at manual wage rates on hours worked, and that all interest charges are excluded. Data from farm 1 has been compared with the FAS data for each relevant year for general cropping farms – Scotland, as published in the Farm Management Handbook series (SAC, 2005). Data from farm 2 has been compared with the FAS data for dairy farms – Scotland.

Results

Table 1. *Summary of physical data from the project farms*

| Year | Farm 1 | | Farm 2 | |
|-------------------------------|--------|-------|--------|-------|
| | 1999 | 2004 | 2000 | 2004 |
| Crops | | | | |
| Barley | 29.6 | 3.6 | - | - |
| Potatoes | 31.9 | 32.4 | - | - |
| Other cash crops | - | 32.0* | - | - |
| Set aside/fallow | 25.9 | 0 | - | - |
| Roots & arable fodder | 3.8 | 5.7 | - | - |
| Arable silage | - | - | 14.5 | 29.0 |
| Grass - silage | 20.5 | 33.8 | 80.2 | 71.6 |
| Grass - grazing | 32.2 | 44.8 | 85.5 | 79.1 |
| Total cropping | 143.9 | 152.3 | 180.2 | 179.7 |
| Total adj. ha | 144.2 | 152.6 | 180.2 | 179.7 |
| Livestock | | | | |
| Adults cows | 64 | 52 | 298 | 216 |
| Cattle > 2 yrs | 13 | 4 | 28 | 46 |
| Cattle 1–2 yrs | 37 | 55 | 156 | 41 |
| Cattle < 1yr | 59 | 40 | 171 | 67 |
| Ewes | 198 | 200 | - | - |
| Other sheep | 205 | 259 | - | - |
| Total grazing livestock units | 140 | 134 | 479.9 | 301.5 |
| GLU's/forage ha | 2.46 | 1.6 | 2.66 | 1.68 |

* including rented ground

The physical data from both farms is in Table 1, showing the change in the crop and livestock resources from the time of entry into the conversion period until 2004, when both farms were fully organic. The major changes in farm 1 were a move out of set-aside (which had been part of the planning for conversion) into other cash crops (mostly organic vegetables), and a change from cereals to more grass. Both farms needed a significant reduction in livestock numbers to meet organic standards, with grazing livestock units (GLU's) per forage hectare reduced from 2.46 to 1.60 on farm 1, and 2.66 to 1.68 on farm 2. Farm 2 increased arable silage area from 14.5 ha to 29.0 ha, reflecting the need to produce more feed and especially protein on farm.

The average physical data from the other units in the FAS scheme, which were all conventional units is summarised in Table 2. Farm 1 was classified as a general cropping farm because more than two thirds of the total standard gross margin came from all crops, reflecting the higher than average area of potatoes. However farm 1 carried substantially more livestock than the average general cropping farm although farm size was very similar. Farm 2 was significantly larger in area than the average Scottish dairy farm in the FAS data, with more cows producing higher yields. Tables 3 and 4 show summary data from the management accounts of farms 1 and 2 respectively, and comparison with relevant FAS data.

Table 2. *Summary of physical data from conventional farms in FAS scheme, 2000 & 2004*

| Year | Scotland – general cropping farms | | Scotland – dairy farms | |
|-----------------------------------|-----------------------------------|------|------------------------|------|
| | 1999 | 2004 | 2000 | 2004 |
| No. of farms in sample | 77 | 41 | 75 | 63 |
| Average farm size: adjusted ha | 141 | 150 | 96 | 113 |
| Cereals | 79 | 81 | - | - |
| Potatoes | 13 | 15 | - | - |
| No of ewes per farm | 32 | 47 | - | - |
| No. of breeding/dairy cows | 10 | 16 | 92 | 107 |
| Average milk yield/cow (litres) | - | - | 5884 | 7068 |
| No. of other cattle, incl. calves | 27 | 45 | 148 | 168 |

(from SAC, 2005)

Table 3. *Summary management account data (£/adj.ha) for farm 1 and FAS general cropping farms, Scotland.*

| | Farm 1 | FAS | Farm 1 | FAS | Farm 1 | FAS | Farm 1 | FAS | Farm 1 | FAS |
|------------------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|
| | 1999/00 | | 2000/01 | | 2001/02 | | 2002/03 | | 2003/04 | |
| Total variable costs | 509 | 307 | 532 | 302 | 526 | 313 | 325 | 312 | 412 | 330 |
| Farm gross margin | 860 | 716 | 922 | 766 | 1101 | 737 | 1414 | 713 | 1424 | 909 |
| Fixed costs | | | | | | | | | | |
| Total farm labour | 173 | 222 | 190 | 214 | 231 | 200 | 325 | 223 | 299 | 228 |
| Fuel oil & electricity | 20 | 40 | 38 | 54 | 44 | 50 | 51 | 46 | 81 | 49 |
| Crop contract work | 175 | 86 | 250 | 94 | 300 | 92 | 226 | 103 | 299 | 89 |
| Total fixed costs | 757 | 786 | 953 | 798 | 1048 | 765 | 1030 | 823 | 1137 | 835 |
| Net farm income | 195 | 25 | 67 | 50 | 147 | 46 | 480 | -9 | 368 | 183 |

Table 4. *Summary management account data (£/adj.ha) for farm 2 and FAS dairy farms, Scotland*

| | Farm 2 | FAS | Farm 2 | FAS | Farm 2 | FAS | Farm 2 | FAS | Farm 2 | FAS |
|-------------------------|---------|------|---------|------|---------|-----|---------|------|---------|-----|
| | 2000/01 | | 2001/02 | | 2002/03 | | 2003/04 | | 2004/05 | |
| Fertiliser & lime | 110 | 87 | 78 | 88 | 26 | 78 | 0 | 84 | 20 | - |
| Total variable costs | 1050 | 621 | 1053 | 662 | 775 | 637 | 943 | 667 | 774 | - |
| Farm gross margin | 1547 | 976 | 1670 | 1156 | 1233 | 843 | 1290 | 1028 | 1623 | - |
| Fixed costs | | | | | | | | | | |
| Total farm labour | 483 | 460 | 465 | 426 | 394 | 382 | 409 | 413 | 425 | - |
| Crop contract work | 115 | 53 | 118 | 61 | 109 | 55 | 94 | 57 | 94 | - |
| Total machinery & power | 422 | 277 | 403 | 271 | 389 | 273 | 399 | 290 | 389 | - |
| Total fixed costs | 1182 | 1057 | 1219 | 1039 | 1154 | 953 | 1146 | 1022 | 1156 | - |
| Net farm income | 410 | 145 | 496 | 327 | 128 | 71 | 192 | 208 | 513 | - |

The relatively high variable costs of farm 1 reflect higher concentrate costs than the conventional farms, higher roughage and keep taken costs, and higher sundry livestock expenses. Lower variable costs were seen with fertiliser and lime (5 year average £39.4/ha yr⁻¹ vs £73.4/ha yr⁻¹), and crop protection (5 year average £28/ha yr⁻¹ vs £128/ha yr⁻¹), although other crop expenses including casual labour were considerably higher, peaking at £208 ha⁻¹ in the second year of conversion. Fixed costs increased from the second year of conversion, with labour and other crop contract work making up most of the annual differences. The crop contract costs involve the grading and storage on the farm of seed potatoes for other producers. Net farm income has been significantly higher than the conventional general cropping farms reported in the FAS apart from year 2 of the conversion.

The summary for farm 2 shows the fluctuating annual variable costs, associated with initially high fertiliser costs, high and variable concentrate costs, and increasing seed costs as the organic rotation takes effect. Veterinary, medicine, and sundry livestock costs were approximately double the FAS average through the whole period, with the reduction in medicine costs being offset by a high level of herd monitoring for health and quality parameters. Higher fixed costs were associated with higher crop contract costs (all grass/silage establishment and harvesting operations) and above average machinery depreciation costs. Labour costs were high until the business was restructured and one less person employed. Net farm income has remained positive compared with conventional Scottish dairy farms in the FAS scheme, although income was greatly reduced when the organic milk price was cut in 2002/2003.

Discussion

The comparison between the project farms and FAS data provides a measure of the validity of the decision to move to organic production in the first instance. It also provides an indication of the impact of the changes on the financial performance during and after the conversion, albeit confounded by changes in output prices. Net farm income for farm 1 were depressed in 2000/01, reflecting an increase in the costs of the contract potato grading and storage operation that was one of the structural changes of the business. The farm has consistently shown good overall performance and in spite of high labour and power costs, the maintenance of steady property costs and other overheads has contributed to healthy gross margins. Farm 2 also carried out structural changes to meet the challenge of converting to organic. The two diary herds were merged, allowing the release of capital, redundancy of one member of staff, investment in the parlour and reduction in stocking density. The changes allowed the farm to manage the expected drop in yield per cow and per hectare that occurs during conversion, and the gross margin figures compare very favourably

with the data presented by Lampkin *et al.* (2004), where whole farm gross margins for organic dairying are £1421 ha⁻¹, £1038 ha⁻¹ and £973 ha⁻¹ for 2001, 2002 and 2004 respectively.

Acknowledgments

The authors wish to thank the participating farmers for their kind collaboration with this study, and the Kintail Land Research Foundation who provided financial support to the organic programme at the University of Aberdeen. The Farm Accounts Scheme is funded by the Scottish Executive's Environment and Rural Affairs Department and conducted on their behalf by the Scottish Agricultural College.

References

- Bibby J S, Douglas H M, Thomasson A J, Robertson J S. 1991.** *Land capability classification for agriculture*. Macaulay Land Research Institute, Aberdeen Scotland. ISBN 0 7084 0508 8.
- Edwards I E and Robertson J F 2003.** The profitability of conversion to organic farming systems. In *Proceedings of the 14th International Farm Management Congress*. Perth, Australia.
- Lampkin N, Measures M, Padel S 2004.** 2004 *Organic Farm Management handbook*. 226 pp. University of Wales. Aberystwyth, SY23 3AL. ISBN 1 872064 38 8.
- SAC. 2005.** The Farm Management Handbook 2005/6. Ed. Linda Chadwick. 552 pp. Scottish Agricultural College, Edinburgh, EH9 3JG. ISBN 1 85482 845 2.