# The Economics of Conversion to Organic Field Vegetable Production

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**ABSTRACT**
Lack of data and knowledge of the transition to and the economics of organic vegetable production is often cited as a major reason why farmers have been reluctant to convert to organic systems with vegetables. This paper outlines the initial results of a DEFRA funded project investigating the economic implications of conversion to organic vegetable production. Whole farm financial data has been collected and analysed for a group of 5 farms from 1996-2001. The findings show that net farm income declined by an average of 66% during conversion, although it recovered to within 36% of pre-conversion levels once organic vegetable production began. This was a result of falls in output and smaller overall reductions in costs. In contrast costs of casual labour rose sharply following conversion. The costs of conversion, for this group of farms, is estimated at a total of £556/ha in comparison with organic aid payments available at £450/ha over 5 yrs. In conclusion the economics of conversion are very much dependent on the starting financial position of the farm prior to conversion, the rate at which the farms converts and the price of organic vegetables received once conversion is completed.

## INTRODUCTION

Despite the growing organic vegetable market, which grew by an average 30% per annum in the late 1990s (Firth, 2003), UK farmers, especially field vegetable growers, have until recently, been reluctant to convert their land to organic production. One of the major reasons often cited is the lack of data and knowledge on the economic performance of organic vegetable production.

What are the costs of converting to organic vegetable systems, and how economic is organic vegetable production once you are converted? The conversion (or transition) from conventional to organic farming systems is subject to several physical and financial influences. The process is complex, involving a significant number of innovations and restructuring of the farm system as well as changes in the production system. Previous studies indicate that costs of conversion may include, output reductions, new investments, information and experience gathering, variable costs reductions, and fixed costs increases (Lampkin et al. 2002), although up until now specific studies of farm systems including vegetables have not been completed.

This paper is based on some initial results obtained from a DEFRA funded 'Conversion to Organic Field Vegetable Production Project'. This project has monitored the agronomic and economic performance of 10 farms, which have converted to organic production from 1996-2002.

## MATERIAL AND METHODS

Presently data from 5 of the farms have been analysed. The farms varied in size from 20-1900 ha and comprise 3 general cropping, one dairy and one intensive vegetable farm (Table 1).

**Table 1.** Farm details

| Farm | Farm size (ha) | Farm classification | Conversion started (year) | Rate of conversion[1] (% per year) |
|---|---|---|---|---|
| A | 1557 | General cropping | 1997 | 20 |
| B | 1900 | General cropping | 1997 | 6 |
| C | 38 | Lowland dairy | 1997 | 38 |
| D | 998 | General cropping | 1998 | 7 |
| E | 20 | Horticultural | 1998 | 10 |

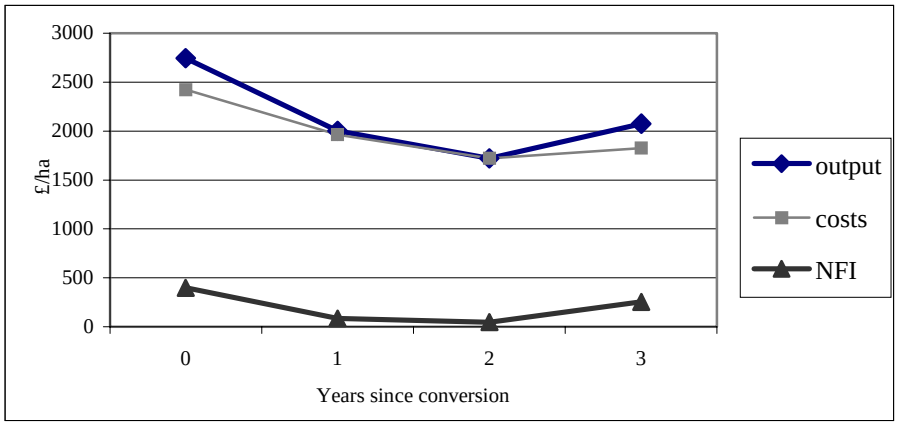
[1] Average area of land converted per year as a percentage of the total farm area

For each farm, accounts have been collected and analysed according to Farm Business Survey (FBS) procedures (Crown, 2002), for the year prior to conversion and then for between 3-5 years following. This has enabled us to monitor the effects of changes, during the conversion period and initial organic cropping, on farm financial output, costs and net farm income. Information presented here is based on averages for all the farms. Data on time spent information gathering and details of conversion specific investments has also been recorded. Each farm's data has been compared with best match published conventional data available from regional farm business centres within which each of the farms is situated, for example taking into consideration farm size and farm type. The costs of conversion on each farm has been estimated by subtracting each years net farm income from the pre-conversion year. In order to take account of the fact that part of the farm was still conventional during conversion, corresponding changes in the conventional sample's net farm income have been subtracted from this cost. Conversion specific investments have been added to this total to arrive at an estimated cost of conversion per hectare. This has been compared with the Organic Farming Scheme aid payments, which were available on each farm.

## RESULTS AND DISCUSSION

Prior to conversion (Figure 1) all the farms were profitable with net farm income of £397/ha (range £108 –682/ha). In the year conversion began output, costs and net farm income per hectare fell on all the farms. All of the farms, except the livestock farm, took land out of crop production and put it in to a two-year grass clover, fertility- building ley. Therefore there was no crop to sell from this land for the first two years in conversion phase. This was the major factor, which led to a decline in financial output of 32% during the first two years following conversion. Output was still 24% below the pre conversion year in the third year when organic production began. The rate of decline of output on most of the farms was closely related; firstly to the amount of land which each farm put into conversion per year, this ranged from 6-38% (Table 1). This is referred to here as the rate of conversion. The faster the rate of conversion the more rapid the decline in output. It is estimated that half of the output decline can be attributed to the fact that conventional prices also fell during this period, and this effected the part of the farm which was still conventional. The rate of decline in output was also related to the intensity of production, or level of output prior to conversion. The intensive vegetable farm had the highest output prior to conversion and this fell by 50% in the two years following conversion. This farm also received a lower rate of organic aid (£350/ha) and was unable to claim set aside on its fertility building leys as it was not registered for arable area payments.

**Figure 1.** Average output, total costs and net farm income from converting farms



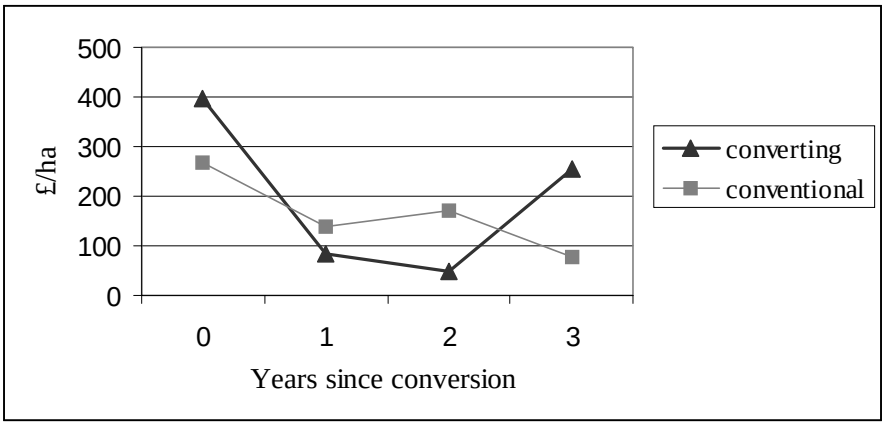

* Year 0; conventional, year 1&2; in-conversion, year 3; organic

Farm costs also fell during the conversion period by an average of 24% in year over the first two years following conversion. Since a part of the farm was not in cash cropping naturally less variable costs were incurred and these fell by an average of 33% during the in conversion period. Fixed costs also fell by 20% the most notable cost to fall was contracting which would be related to the area of crops grown. Once organic production began variable costs were still 12% below pre conversion levels and fixed costs 17% less. Some of the highest costs on this group of farms were labour accounting for 37% and machinery costs accounting for 20% of total costs. During the conversion process overall labour costs stayed at the same as pre-conversion levels on most of the farms, but rose to 35% higher following conversion. Regular labour costs did not increase but casual labour costs rose significantly, this was especially so for the lager arable farms where the average wage bill for casual labour rose by a factor of 6 in comparison with pre conversion levels. The additional casual labour was mainly employed for hand weeding and to harvest the wider range of crops grown. The increase in casual labour, which occurred mainly on the large arable farms, was mainly gang labour, this caused many management problems in its sourcing and organization. Overall machinery costs fell during conversion and into the first year of organic vegetable production by 10%. Investigation of the different farms reveals some variations; where the farms had grown vegetables prior to conversion the total costs fell or stayed at a similar level, but on farms where vegetable production had been limited there was large increases in machinery costs (+30% on one farm). This was due to the need to make investments in new machinery.

Net farm income on average fell during conversion by 66% in the first two years following conversion (Figure 1), with two of the farms registering negatives net farm income during these years. Following conversion and the growing of the first crops, net farm income rose, although it was still 36% below pre conversion levels. A comparison with the conventional sample's net farm income (Figure 2) shows the importance that the sale of organic vegetables has made to income on the converting farms. This represented an average of 16 % of total output in that year. It should be noted that this upturn in the farms performance occurred in 1999 (3 farms) and 2000 (2 farms) when organic vegetable prices were high. In the following year organic vegetable prices fell by an

average of 30% and this would therefore have made a difference to the economics of conversion if the conversion process had begun later.

**Figure 2.** Net farm income; comparison of converting group with conventional sample




The average costs of conversion for all the farms over the first 5 years, in terms of decline in net farm income and the costs of new investments, is £556/ha (Table 2).

**Table 2.** Estimated 'costs of conversion'

| Farm type | Costs of conversion (ha) | Organic aid (ha) |
|---|---|---|
| Arable | 550 | 450 |
| Mixed | 499 | 450 |
| Intensive | 631 | 350 |

## CONCLUSIONS

Conversion to organic vegetable production has led to a decline in both output and net farm income during the conversion phase. The decline in output is related to the rate of conversion and to the level of intensity of the system prior to conversion. Generally costs have also fallen, although at a lower rate; however, casual labour has increased rapidly especially on the larger farms. The costs of conversion taking into account decline in income and costs of new investments is estimated to be £556 for the group of farms. This compares with the organic aid available of £450/ha over 5 yrs, at this rate it goes to paying for the majority of the costs. There is considerable variation within the group of farms, with farms converting the fastest and those converting from intensive vegetable systems having the greater costs. The economics of conversion is very dependent on the starting financial position of the farm, the rate of conversion and the price of organic vegetables received once converted. Conversion to organic production with vegetables can put the farming finances under pressure. The costs can be minimized with careful planning, and it is important for farms to examine their costs prior to conversion.

## REFERENCES

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