A case study of conversion to organic field vegetable production *Church Farm, Bedfordshire*

Project funded by DEFRA

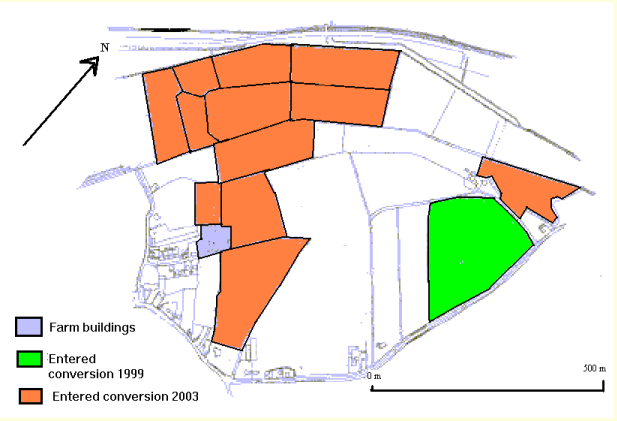
Conversion to organic field vegetable production Defra OF 0191

Project aims

- To monitor agronomic and economic performance during conversion at ten commercial farms, representing contrasting scenarios of organic vegetable production (this farm has been monitored since 1999).
- To interpret and evaluate data and to produce appropriate information to aid farmers who are undergoing, or who are considering, conversion to organic systems, and to aid future policy making on related farming issues

Farm details

Location: Flitton, Bedfordshire
Farm size: 20 ha (50 ac)
Area converted: 3.6 ha (9 ac)
Farm type: Intensive vegetable farm converting to intensive organic vegetable production
Business : Family farm (owner occupied)
Altitude: 60-70 m (200-230')
Rainfall: 587 mm (23")
Soil type: Well drained coarse loamy and sandy soils over sand or sandstone in places ferruginous
Prior land use: Potatoes, brassicas, celery, leeks, runner beans and beetroot
Conversion: One field began converson in 1999. Rest of farm entered into conversion in 2003



Farm description

The farm is one of the few remaining vegetable farms in what used to be a traditional vegetable growing area. The farm contains a number of fields, some low-lying in the valley bottom and others on the hill. The field that the farmer chose to convert was on a gentle North-West facing slope. The soil is very light sandy land which is well-drained and therefore good for early production. Irrigation is available and necessary.

In 2001 the farm entered the Countryside Stewardship Scheme with 6m field margins and re-creation of water meadows on the low-lying land. In 2003 the remaining land was entered into organic conversion.

Reasons and suitability for conversion

After many years of conventional farming the farmer found he was selling his produce for less and less and it was difficult to make a living. His market was getting smaller since the small shop and grocers he was supplying were closing due to competitive pressure from the supermarkets. The growth of the organic market and the availability of conversion grants were important factors. He also admitted not being happy with using chemicals for his own health and for environmental reasons.

The soils are suitable for a wide range of high value horticultural crops, which were already being grown conventionally within the farm. The light soils provided a challenge for organic conversion to sustain soil fertility. The farm had a good range of buildings, glasshouses and machinery for conventional horticultural production, which would be useful for organics providing areas were segregated. No major perennial weed problems were identified. The lack of set-aside payments within the farm means that the fertility building leys incur a direct loss of income. The skills within farm stood them in good stead once conversion was completed.

Farming system

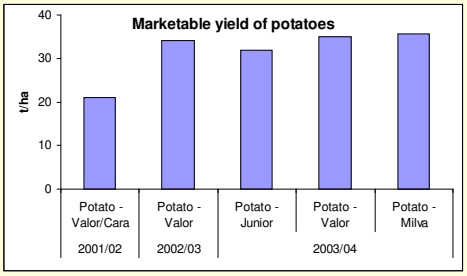
- Stockless system. Grass/clover leys form the basis of fertility building within the organic rotation. Some problems with establishing rye grass and clover which suffered from drought in first year of conversion.
- After the initial two year conversion period of fertility-building grass clover ley, the field was divided into four blocks and the intended rotation was: Brassicas / potatoes => Leeks => Sweetcorn / beans / celery => Grass clover ley (1 year)
- Increasingly used vetch as an over-winter green manure

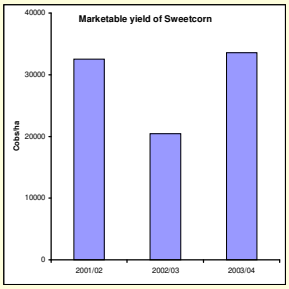
Soils and soil fertility

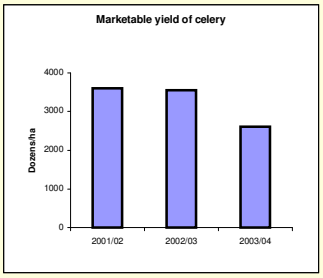
- Light sandy soils very low in organic matter. Levels stable - no indications of increase or decrease during monitoring period.
- Upward trend in availability of P and K
- Manure from nearby beef farm stockpiled before use.
- Some problems of crops running out of N in first year.
- Derogations received for applications of pelletted organic chicken manure (5:1:10).

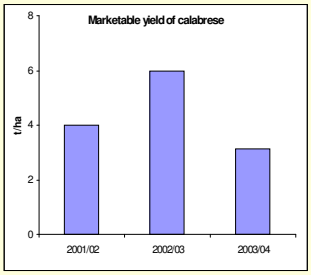
Crop performance

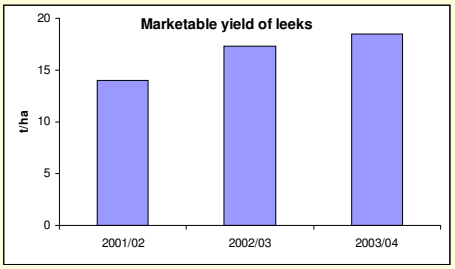
- Yields have been variable but generally comparable to those on other established organic farms.
- Potatoes - Poorer yield in first year as Valor damaged by ridging and problems of Spraing in Cara. Better yield in 2002 and 2003 due to better establishment and pelletted organic fertiliser.
- Celery - In 2001 performed well from late planting, good in 2002, poorer in 2003 due to losses from brown heart and septoria.
- Brassicas performed well under mesh covers—good quality crops achieved. Yields of calabrese poorer in 2003 as difficult year (heat stress) and varietal choice (Fiesta).
- Leeks - Yields similar to typical figures for established organic farms and increase year on year. In first year some signs of crop 'running out of steam'. Addressed with organic fertiliser.
- Sweetcorn - Performed well. Lower yield in 2002 as the first drilling had very patchy germination, due to low soil temperatures. 2003 crop transplanted for better establishment.











Weed management

- Weed pressure on the farm is low, compared with other farms in the study.
- The farm has taken a low-tech approach to weed management with no major investments in equipment but adapted a 'garrett' inter-roe hoe that had been on the farm but not used for many years. Inter-row cultivations have been the main method of weed control supplemented by hand hoeing, using a couple of 'old boys' that had been used to hoeing in the time when the area had many vegetable growing farms.
- Most vegetables grown are now transplanted and therefore can get ahead of the weeds. Potatoes are a relatively easy crop to manage by ridging. The farm considered growing carrots but felt that the investment in a flame-weeder that would be needed precluded it.
- Weeds managed very effectively - less than 5% cover recorded in all monitored crops.
- No problems with perennial weeds.

Pests and diseases

- Relatively small area of cropping and a good level of diversity both of cropping and non-cropping habitat have been in farms favour. Low background level of pests and diseases in area due to lack of other vegetable growers.
- The field is on a gentle slope, which enables good air flow to mitigate disease problems.
- One factor which influenced the farmer's pest and disease management is the continuation of conventional production in parallel with organic. The time that would be needed to clean down spraying equipment for use in the organic unit, was considered to be prohibitive and the decision was made to avoid spraying if at all possible.
- Crop covers have been used on the brassicas to keep off aphids, caterpillars and large pests such as pigeons. Resistant varieties of e.g potato (against blight) have been chosen. The market the farm supplies have allowed more flexibility over varietal choice than those growers supplying supermarkets.
- High quality crops have been produced with few problems from pest or disease.

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Management and labour issues

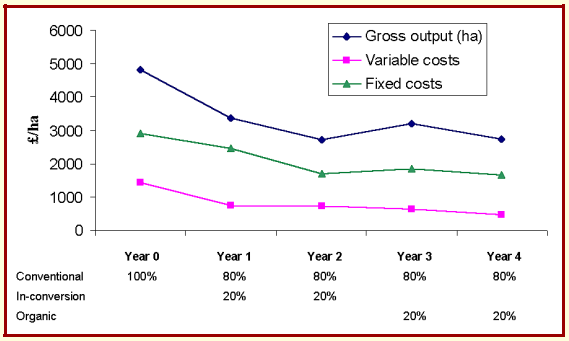
- The farm with mainly outdoor grown vegetables was not highly intensive and specialised, therefore the transition to organic vegetable production was achieved relatively smoothly.
- Existing machinery and infrastructure has proved to be suitable for organic production.
- Labour numbers have reduced from 3 to 1.5 people, as the farm has moved to a less intensive system. Part of the land has been put into Countryside Stewardship and other savings have been made through the use of bought in transplants rather that raising them on the farm.
- During conversion, the farm also continued with conventional vegetable production in parallel with organic.

Marketing

- Prior to conversion vegetables were marketed to packers (Bedfordshire Growers) and to a string of shops, which the farmer delivered to with his own van.
- As the first organic crops were being planted the market for the produce had not been finalised. With the largest market in the UK only an hours drive away (London), the farmer was confident.
- Since the farm continued conventional production it had the flexibility to sell organic products in this market when he had surplus organic produce.
- Now successfully marketing through a large expanding London based box scheme and to other local outlets.

Farm output, variable and fixed costs during conversion

- Output: fell rapidly as land was taken out of production and put into conversion.
- All variable costs fell as less land was in vegetable production.
- Fixed costs have reduced with both labour and machinery costs falling.



Economics

- This size and type of small less intensive conventional vegetable unit was increasingly finding it difficult to survive financially.
- The farm has not been able to claim set aside on in-conversion leys, since the land was not AAPS registered. Therefore taking land out of production for fertility building has been costly in terms of lost output. However since only 20% of farm was initially converted this effect was less great.
- The farmer's wife needed to obtain off farm employment in order to maintain family income.
- Organic vegetable production with an average output of £10,934/ha and gross margin of £6,845/ha has been profitable. In 2002 the organic area produced 61% of the total farm output.
- Reductions in costs have enabled farm profitability to remain positive, throughout conversion
- Profitability has increased following conversion in comparison with pre conversion.

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General conclusions

- A cautious approach in only converting one 4 ha field and many years previous experience of vegetable production enabled an easy transition to organic vegetable growing.
- The farm has not been able to claim set aside on in conversion leys, since the land was not AAPS registered. Therefore taking land out of production for fertility building has been costly in terms of lost output. Organic Farming Scheme payments have also been at the lower rate of £350/ha over five years.
- The farmer's wife needed to obtain off farm employment in order to maintain family income during conversion.
- Reductions in costs have also enabled this farm's profit to remain positive, throughout conversion.
- Organic vegetable production has been successful on this farm enabling it to increase its profitability, and enable it to survive economically.
- The Countryside Stewardship Scheme has been used to enhance wildlife and predator habitats on the farm and provide additional income on some underutilized land.
- A reliable market outlet in London paying good consistent prices has been an important part of this success. This has given the farmer the confidence to convert more land.
- The conversion of more land will enable the rotation to be extended, which will be helpful for the potatoes - spraing problems related to nematodes.
- High quality vegetables have been produced on light 'hungry' land. Belt and braces approach to fertility. Green manures, farmyard manure and organic fertilisers.

Project information

This leaflet has been produced as part of the DEFRA funded project -

Conversion to organic field vegetable production

The project aimed to help farmers and growers thinking of converting to organic field vegetable production to make informed decisions with the aid of the agronomic and economic information collected through a case study approach. The project is led by HDRA in collaboration with the OAS at EFRC, Warwick-HRI, and WIRS

HDRA the organic organisation

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Would you like to take part in our research?

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