

Research and Development

Final Project Report

(Not to be used for LINK projects)

Two hard copies of this form should be returned to:

Research Policy and International Division, Final Reports Unit

DEFRA, Area 301

Cromwell House, Dean Stanley Street, London, SW1P 3JH.

An electronic version should be e-mailed to resreports@defra.gsi.gov.uk

Project title

Review of obstacles to meeting the Defra Action Plan Targets for organic cereals

DEFRA project code

OF0334

Contractor organisation and location

ADAS Consulting Ltd

ADAS Terrington

Terrington St Clement, King's Lynn, Norfolk

Total DEFRA project costs

£ 19,376.00

Project start date

01 February 2003

Project end date

31 May 2003

Executive summary (maximum 2 sides A4)

The Defra 'Action Plan to Develop Organic Food and Farming in England' identifies cereals as the organic commodity farthest from meeting demand from UK production. The project quantified the extent and nature of this deficit and collected information on constraints from research projects and reviews, from advisers & farmers and from cereal buyers & end users. The obstacles to increased organic cereal production were identified and suggestions made on what Defra and the industry could do to help overcome them.

The study focused on England but, as the main buyers of cereals operate across the UK, the supply and demand modelling was of necessity done on that basis. As identified by the Defra Organic Action Plan and by the Scotland and Wales plans, there is a lack of collated and reliable data on organic and in-conversion crop areas across the UK. Our calculations are based on best estimates, where possible confirmed from more than one source.

We estimate a production of 106,000 t of organic grain in England, and a further 22,000 t of production in Scotland and Wales, in 2002. Organic Grain Link, an initiative funded by Defra under the ERDP, estimates that 71,650 t were sold, the balance being used on-farm. Projecting to 2005, a further 31,500 t are likely to be produced from land currently in-conversion. These estimates require further validation and are also subject to our assumptions on crop areas and yields. Demand for human consumption in 2002 was 78,000 t of which 58,000 t was wheat. Most of the wheat was for breadmaking and 80% was imported to get appropriate grain quality. Demand for animal feeds in 2002 was around 63,000 t with wheat again dominant at 55,000 t. Increase in demand for human consumption is estimated at 5% per annum to 2005. Demand for animal feed in 2005 is difficult to predict as new conversions and the ending of feed & amino acid derogations will increase demand, but oversupply in some sectors such as milk and lamb, and the increased costs of production following ending of the derogations, are likely to lead to further marketing difficulties. It is probable that some dairy and upland livestock farms will de-register on ending their conversion aid payments. On balance, we believe that overall growth in demand for animal feed will be 5% per annum to 2005. As a result, without further intervention, we predict imports of 74,100 t for human and 51,000 t for animal feed being necessary in 2005.

There is a very limited scope for an increase in total grain production from existing organic farms due to rotational limitations.

It is clear from consultations with grain buyers that their overwhelming requirement is for wheat for breadmaking and animal feed. Triticale and barley will continue to be difficult to sell to the feed compounders. There may be some scope for changing the balance of cereal species grown on existing organic farms. However, this is likely to be limited by constraints of location and soil type as the majority of the organic land in England, and in the UK, is on soils unsuited to wheat production. It may be more productive to seek direct sale to other farmers for these grains.

The fragmented nature of supply with many farms selling small quantities of grain makes sourcing supply of consistent quality difficult for the large purchasers. Co-operation, with regional cleaning and storage facilities, has been suggested by many as a way to more effectively compete with imports. Work in this area has been started by Organic Grain LINK with Defra support under the ERDP.

Our consultations show that the dominant constraints to further conversion to organic methods are concerns about marketing and profitability. These concerns are not specific to cereals which have remained relatively profitable, but are more related to falling prices for other products such as potatoes, and some vegetables. These potentially high gross-margin crops are the key to farm profitability in stockless arable systems where they balance the high levels of set-aside employed. With slowing retail growth and still more land coming through conversion, this situation is unlikely to improve in the short term.

Although technical constraints are not dominant in decisions of conversion, they are limiting yield and quality of organic cereals and hence also the saleability and value of the grain. A better understanding of N availability should come from Defra project OF0316 but further work on agronomy and grain quality is necessary.

Modelling suggests that 'arable - mainly cereals' organic farms are only marginally more profitable than their conventional counterparts (£9,765 vs. £7,688 farm net margin). This differential is unlikely to be insufficient to attract new conversions. A further disincentive is the sensitivity of overall profitability to changes in price. Most of the improved margin would be eliminated by only a 10% price fall in organic wheat price, assuming no change in conventional price. This could be counterbalanced by increased average organic yields but this is unlikely in the short to medium term. 'Arable - roots and vegetables' organic farms show a larger benefit in profitability over their conventional counterparts (£12,542 vs. £5,437 farm net margin). However, most of the improved margin would be eliminated by only a 10% price fall in organic potatoes or vegetable prices, assuming no change in conventional price. Also, the potato and some vegetable markets are adequately supplied and market outlets for new conversions would be difficult to secure. This analysis suggests that organic arable farming could be as, or more, profitable as conventional practice for many farmers and that economics alone should not be a barrier to conversion. However, only relatively small falls in price could eliminate most of the differential. Coupled with concerns over technical problems, access to markets and the comfort of AAPS for conventional growers, only the most organically committed of farmers are currently likely to convert to a predominantly arable system.

The impacts of three scenarios are discussed:

1. Under a no-change scenario, with the limited-quality data on cereal supply and demand currently available, our best estimate is that new conversions will be very low i.e. < 5000 ha per year (OFS target 45,000 ha per year). It is quite likely that this will be (at least partly) balanced by a reversion of land to conventional farming as OFS schemes come to an end from 2003 and economic hardship drives farmers to retire or rationalise but the exact level is difficult to predict. Under this scenario, any growth in demand for organic cereals - expansion of organic livestock production, ending of the non-organic feed derogation and retail growth in organic cereal products - will be met by imports. At best, the UK will retain its market share but it is possible that the UK market share of organic cereals could reduce. The Organic Action Plan target of 87% market share (based on the conventional market) is extremely unlikely to be met in the short term.

2. In a market-led scenario, if government can work with industry to encourage and develop more market-led production, organic cereal farmers would be more able to access premium markets (milling and feed). This could readily achieve a 10% average price increase for most arable farmers. There will be knock-on effects on the wider organic market as buyers seek out UK produce and survey data on organic farm incomes reflect a more positive outcome. The difficulty, as always, will be persuading farmers to change practice in order to meet market needs but decoupling of farm support under the mid-term review of CAP should help in this respect. Government-funded research should also focus on meeting market needs rather than producer driven priorities and marketing schemes should be targeted at this sector to develop infrastructure and supply chains.

3. A shift to maintenance support from conversion support payments to organic farmers could play a major role in creating the stability needed for organic markets to be more certain and to allow farmers and cereal users to build relationships.

The benefits are longer-term and as such should not be expected to impact on short-term prices or conversions. It is essential that a pragmatic view is taken on the Action Plan Targets.

We recommend action in four areas, in line with priorities 2, 4 and 5 in the Defra Action Plan:

1. The most critical constraint on the development of the UK organic cereal supply is economic viability, particularly in the context of a 2-3 year lag between starting conversion and marketing organic produce. It is recommended that the new support system (under ELS) should be devised to deliver long-term environmental benefits (through ongoing payments) while minimising short-term market distortions (through conversion support). A higher level of annual payment than the modified OFS is needed, as £30/ha is unlikely to provide sufficient incentive for further substantial conversion of arable farms.

2. The availability of good data on supply and demand, by species, is needed. This would give buyers and sellers more confidence and help farmers plan rotations to better meet market demand. This shortcoming was identified in the Defra Organic Action Plan and action is underway.

3. Co-operation between organic cereal producers should be encouraged to allow better cleaning & storage, and bulking to create larger quantities for sale. The Organic Grain Link initiative is helping publicise the availability of support from ERDP for marketing and facilities and could be a model for wider application.

4. Whilst not the primary constraint to increase in cereal production, technical issues are limiting the yield and quality of grain, farm profitability, adding cost to the supply chain, and making produce less competitive with imports. Direct issues include improving breadmaking quality and a better understanding of the interactions of seed rate, sowing date and row width. There are also issues affecting organic livestock production that will impact on demand for cereals. These include the ending of the derogations on feeding synthetic amino acids, non-organic feed inclusion and pullet rearing. These will all add substantially to livestock production costs and are likely to require further research to find innovative technical and management solutions to maintain and expand these sectors and their associated demands for cereals. Defra funding may be necessary to make immediate progress on these issues in view of the current stop on new projects by the HGCA.

Future changes in supply and demand for organic cereals will be influenced by a range of complex and interacting factors which make precise predictions of the likely impacts of these actions impossible. However, together they should help maintain current organic cereal production and create the best environment for the industry to respond to future market needs.

Scientific report (maximum 20 sides A4)

1. Introduction

Rapid Growth in land area in organic production had, by the end of 2001, led to 2.5% of all farmland in England being registered as organic (Anon., 2002a). The corresponding figure for the UK was 3.9%. However, the vast majority (90%) of this land was grassland, mostly rough grazing or permanent pasture. Crop production was seriously under-represented with only 15.7% of the organic land classed as arable or horticulture in England and only 9% in the UK overall. This compares with 45% and 30% for the proportion of non-organic land that is in these crops in England and the UK respectively.

Defra statistics (based on UKROFS data) indicate the following areas of organic cereal production in England to March 2003.

Table 1. Organic cropping in England (March 2003)

	Organic (ha)	In conversion (ha)	Total (ha)
Cereals	19,507	9,092	28,600
Other crops	11,235	5,585	16,821
Vegetables	7,245	2,545	9,790
Temporary pasture	44,347	14,062	58,409
Permanent pasture	92,177	32,086	124,263

Source: Anon. (2003a)

In 2002, it was estimated that, of organic cereals for human consumption, 80% were imported, and for animal feed 40% were imported (Anon., 2002a). This was one of the larger percentage supply gaps of any of the main commodities (which could be produced in the UK), and compared with 87% of demand met from UK grown crops for conventional cereals.

Reasons for the imbalance are several including:

- the relative technical and economic ease of conversion to organic methods in extensive livestock systems,
- the particular economic difficulties faced by livestock farmers in the 1980's and 1990's encouraging them to see organic conversion as a "lifeboat",
- the "insurance" of AAPS payments to conventional combinable-crop farmers,
- the technical and economic challenges of stockless systems and
- the costs and skills needed to introduce livestock to an arable farm.

Since organic agriculture depends on a balanced crop rotation, it cannot simply grow just cereals; other crops must be included to improve soil fertility as well as assisting with the control of weeds, pests and diseases. Also, unless the farm is operating a stockless system, the crop rotation must provide for the livestock enterprises e.g. grass/clover leys and protein crops and will feed some of its cereal output to its livestock, all factors potentially reducing the quantity of grain for sale. Overall, the area of cereals has been shown to decrease by 15% following conversion to organic methods (Anon., 2002b). There are also a number of factors that effect the productivity of organic cereal crops such as weeds and availability of nutrients (total quantity and timing). These have been reviewed recently by Taylor *et al.* (2001) and Hardwick *et al.* (2001). Choice of cereal species will depend on soil type, climate and crop rotation. The majority of organic land in England is in the south west where barley, oats and triticale are better suited than wheat. Wheat is better suited to the soils and climate of the east of England but these areas show the lowest percentage conversion to organic methods, with only 0.8% in Eastern and Yorkshire & Humberside areas, and 1.2% in East Midlands compared with 5.4% in the South West (Anon., 2003a). Therefore, the output of cereals from existing organic farms is dependent on a broad range of factors.

The low uptake of organic methods in the eastern counties can be attributed to a number of factors. Some may be based on misconceptions about the agronomic problems associated with organic agriculture (e.g. pest and diseases which are not major problems in organic cereal crops), whilst others are genuine problems. For example, stockless organic agriculture is only feasible on some soil types and so, to make a viable organic system on most farms, livestock would need to be introduced. This need for finance, infrastructure and new expertise to do this makes conversion of these farm types a greater challenge than mixed or livestock farms. Also, stockless rotations have high proportion of non-productive fertility building crops that must be balanced by high profit vegetable and potatoes to give acceptable overall farm

profitability (Cormack, 2002). With difficulties in selling these since 2001 as supply has grown faster than retail demand, stockless rotations are looking less profitable and higher risk.

Other challenges and uncertainties include the ending in August 2005 of the derogation on the use materials of non-organic origin in animal feeds, and a general uncertainty about future profitability as supply grows and retail sales growth slows.

This project collected information on constraints from research projects and reviews, from advisers & farmers and from cereal buyers & end users. Various scenarios of future supply and demand were modelled. The obstacles to increased organic cereal production are identified and suggestions made on what Defra and the industry could do to help overcome them.

The study focuses on England but, as the main buyers of cereals operate across the UK, the supply and demand modelling has of necessity been done on that basis. As identified by the Defra Organic Action Plan and by the Scotland and Wales plans, there is a lack of collated and reliable data on organic and in-conversion crop areas across the UK. Our calculations are based on best estimates, where possible confirmed from more than one source. It is hoped that in future better collaboration between the UK governments and the certification bodies will result in data sets compiled in similar ways, to the same timescale, that can be used with greater confidence.

2. Organic cereal supply

Estimates of cereal area and production vary according to source and year of data collection. In particular, data on total grain production, including on-farm consumption, is lacking. However, a good estimate of production can be got from multiplying known acreages with average yields. Defra statistics for organic cereal areas in England (Anon., 2003a) are shown in Table 2.

Table 2. Organic cereal area (ha) in England (2002)

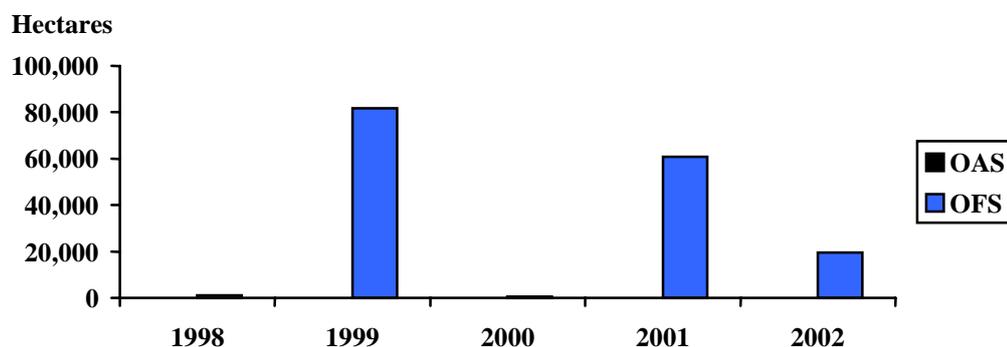
	Organic	In conversion	Total	% in conversion
Wheat	10,241	4,868	15,109	32%
Barley	3,031	2,512	5,542	45%
Oats	3,294	977	4,271	23%
Triticale	2,534	599	3,133	19%
Cereals	407	136	543	25%
Crops	11,235	5,585	16,820	33%
Total	30,742	14,677	45,418	32%

Source: Anon. (2003a).

Assuming 10% of the "crops" area is cereals, and using an average yield of 3.5 t/ha, these figures suggest a production level of around 106,000 t of organic grain in England in 2002. Area statistics for Scotland, Wales and N Ireland were not available at the time of writing but estimates of area, based on limited published data and personal communication (David Younie, SAC), and estimated yield (3.5 t/ha) suggest a further 22,000 tonnes of production. A key issue is how this UK estimate of 128,000 t of production relates to ex-farm sales, which are estimated at 71,650 t by Organic Grain Link. The difference must be comprised of consumption of grain on livestock farms as cereal grain or wholecrop cereal. This requires further validation and is of course also subject to the above assumptions on crop areas and yields.

Looking forward to 2005, the production of cereals will depend on other in-conversion land that might be used for cereals when conversion is complete e.g. temporary ley or set aside. However, the major factor is how much additional land goes into conversion in 2003, 2004 and 2005, as this will contribute directly to the production of organic and in-conversion cereals. Interest in conversion has declined, as shown by a decline, from a peak in 1999, in Scheme uptake in England (Fig. 1).

Figure 1. Annual new uptake of the Organic Aid Scheme (OAS) and Organic Farming Scheme (OFS) in England



Soil Association data for 2003 shows new registrations at around three-quarters of 2002 levels; if this applied across England, the total area of organic conversion in 2003 would be 15,000 ha. Of this, the area of in-conversion cereals would be approximately 11% (based on Defra statistics for 2002/03) or 1,650 ha. In the other UK countries, using the same rationale, the in-conversion area of cereals in 2003 would be approximately 350 ha. Assuming that this total of 2,000 ha of in-conversion cereals applied each year, this would result in a total organic and in-conversion area in 2005 of 43,000 ha, an increase of 6,000 ha (43%) on 2002.

Table 3. Estimated growth in organic cereal area in the UK to 2005.

	Organic (ha)	In-conversion year 2 (ha)	In-conversion year 1 (ha)	Total (ha)
2002	26,000	7,000	4,000	37,000
2003	33,000	4,000	2,000	39,000
2004	37,000	2,000	2,000	41,000
2005	39,000	2,000	2,000	43,000

However, this analysis does not account for the proportion of in-conversion land that is currently in temporary ley or set aside, which will become available to grow cereals when conversion is complete. Assuming that 10% of the 14,062 ha of temporary ley and 50% of the 2,182 ha in set-aside in England is in cereals by 2005, plus a further 500 hectares from the other UK regions, the total area would be 46,000 ha. At an average yield of 3.5 t/ha, UK production would increase by 31,500 t. Of this, approx. 55% (17,000 tonnes) would be expected to be wheat.

No allowance has been made for possible reversion to non-organic farming by producers who have come to the end of their 5-year OAS or OFS agreement.

3. Organic cereal demand

In the absence of published data, demand for organic cereals has been estimated from two main sources; from a draft first report from Organic Grain Link (section 5.5) and from presentations at the OAMG (Organic Arable Marketing Group) conference "Organic cereal partnerships: tackling obstacles and finding solutions" held at NAC Stoneleigh on 15 April 2003 (section 5.6). The totals for feed cereals are similar.

Table 4. Estimated organic cereal consumption (2002)

	Organic grain consumption (tonnes)	
	Organic Grain Link ¹	BOCM Pauls ²
Milling Wheat	58,200	
Milling Rye	1,800	
Milling Oats	14,500	
Malting Barley	2,600	
Malting Wheat	600	
Total human consumption	77,700	
Feed Wheat	54,900	
Feed Barley	3,200	
Feed Oats	2,150	
Triticale	2,500	
Total feed cereals	62,750	62,987
Total cereals	140,450	

¹ Draft report for 2002.

² OAMG conference presentation.

3.1 Human consumption

Wheat for milling is the dominant market for UK human-consumption organic cereals. However, as discussed later, around 80% of this is imported due to poor breadmaking quality in UK grown wheat.

3.2 Animal feed

Poultry, pigs and dairy are the key sectors using organic cereals. Table 5 sets out estimated use of cereals in compound feed in 2001/02, the likely impact if the non-organic derogation was applied and an estimate for 2005/06, assuming 15% annual growth in demand.

Table 5. Estimated organic cereal consumption for animal feed (2002-2005)

	Organic grain consumption (tonnes)		
	Cereals used in 2001/2	No derogation 2001/2	15% pa growth to 2005/06
Dairy	9,750	6,500	
Beef	675	450	
Sheep	0	1,200	
Pigs	12,912	15,494	
Poultry – table	13,650	16,400	
Poultry – eggs	26,000	33,000	
Total	62,987	73,044	150,000

Source: Presentation by BOCM Pauls at OAMG conference, Stoneleigh, 15 April 2003.

These figures are very optimistic; a rate of consumption growth nearer to 5% is likely (Anon., 2003b).

3.3 Supply and demand balance

The current supply/demand position for UK cereals is set out in Table 6, based on the preceding analysis. Import data is based on the Organic Action Plan and consultation with Gleadell Banks Ltd (B. Wilburn, 2003, personal communication), who are major traders of UK organic grain.

Table 6. Supply and demand for organic cereals 2002

	Demand	UK Supply	Imports*	% import
Cereals for milling 2002	80,000	16,000	64,000	80%
Cereals for compounders 2002	63,000	37,800	25,200	40%

* Source: Defra Organic Action Plan

To take this analysis forward to 2005, we have made three key assumptions:

- The 'potential' milling market for UK cereals is limited to 20% of the cereal used on the basis of the need to blend with quality imported wheat.
- Ending of the non-organic derogation in 2005 will increase overall demand for cereals for compound feed by 16% (BOCM Pauls analysis) and cereals will displace non-organic straights currently used (45,000 tonnes).
- Use of cereals on-farm will increase pro-rata for livestock conversions (currently estimated at 50-60,000 tonnes).

3.4 Prospects for growth in demand

There are two drivers for growth in demand for organic cereals, namely retail sales growth in organic bread and cereal products and secondly, retail growth in livestock produce which depend on organic feed grain. Retail growth in organic bread and rolls is static or declining (Enjoy Organic Co., OAMG conference; section 5.6) and there is limited growth in other mainstream cereal products. The outlook for livestock produce is mixed and the key sectors are considered in turn in this section. The analysis is necessarily limited and we have relied on market analysis data plus consultation with key individuals in industry.

It is also important to distinguish between retail growth and the demand for UK supply; some produce will be imported and impact on the basis of seasonal availability, volume and quality. Also, some of the growth in retail sales will be from goods previously sold as conventional and so would not result in increased grain consumption.

3.4.1 Milk

The milk market remains substantially oversupplied and this is expected to continue to be the case for the next few years. A recent report produced for the MDC (Anon., 2002c) indicated that land in conversion to milk production (based on Soil Association data) would mean a 20% increase in organic milk production between 2002/03 and 2004/05. Demand for organic cereals for compound feed would be expected to rise pro-rata.

While this expansion would take the surplus of milk supply over demand of over 100 m litres (70%) in 2003/04, the price pooling approach taken by the dairy co-ops would limit an exodus. However, there is expected to a proportion of organic dairy farmers retiring, leaving milk production or reverting to non-organic farming. The most likely scenario is that a proportion will continue to farm the land organically but feed cows on conventional diets and sell their milk into the conventional market. A recent survey of the dairy co-ops (Vickers, Dairy Farmers of Britain, 2003, personal communication) suggested that the latter route would prove popular with around 20% of farmers. This might be hastened by the ending of the non-organic feed derogation in 2005 and only generous area payments under the Entry Level Scheme (ELS) Organic Strand will counter this.

3.4.2 Beef and lamb

Beef sector demand for compound feed is modest and despite good market sector growth of 62% in 2002/03 (Anon., 2003b), the impact on demand for cereals is likely to be small. Using the BOCM Pauls estimate of 675 tonnes and growth in demand to 2005 of 50%, the estimate for 2005 is just over 1,000 tonnes.

The market for organic lamb has grown, by value, by 94% in 2002/03 (Anon., 2003b). However, seasonality and lamb quality remain key issues and there is some reliance on imports from New Zealand.

In terms of organic cereal use, the sheep sector can largely be discounted as little concentrate is fed and most producers rely on approved non-organic feed, within the limits of the derogation. When the derogation ends in 2005, this sector will contribute to cereal use but only at around 1% of the total (Table 5).

3.4.3 Pig meat

While demand for organic pigmeat is expected to grow, the UK pig sector is relatively static with considerable competition from imports for market share (Johnson, British Quality Pigs, 2003, personal communication). This is based on the modest economic performance of the sector, with prices held down by the availability of imports at competitive prices at a time when the conventional sector is doing well.

The loss of the non-organic feed derogation in 2005 will also add to costs and there are also concerns over the impact of the ending of the use of synthetic amino acids on feed costs.

Therefore, while pigs currently account for around 20% of the organic cereal used in the compound feed market, a lack of confidence within the sector suggests that at least in the short-term, growth will be minimal.

3.4.4 Poultry meat

Demand for organic poultry meat is buoyant, with year-on-year retail growth of 34% in 2002/03 (Anon., 2003b). This is likely to slow, but ongoing annual market growth of 10% is expected (H. Irwin Ltd, 2003, personal communication). Changes to the feed regulations on amino acids may mean that current growth rates being achieved with UK breeds can not be sustained and there will be a move to slower-growing continental strains. This would affect economics and increase the competitive position of imports.

Poultry accounts for over 20% of the current cereal use. As with pigs, feed compounders have less scope to reduce cereal inclusion (approx. 80%) and the price of cereals will have a major impact on the economics of the organic poultry sector.

3.4.5 Eggs

The organic egg sector is the most significant in terms of organic cereal use. The egg market has grown by 9% year-on-year in 2002/03 (Anon., 2003b) but faces a considerable increase in production costs due to the ending of the non-organic feed derogation and the end of synthetic amino acid use. Industry estimates put the cost of this at between 10 and 30 p per dozen. Continued growth is questionable, and like dairy, the sector may contract (Tyers, Deans Foods, 2003, personal communication)

3.5 Summary

Therefore, on balance, the ending of the derogation will increase demand for cereals but increased production costs may lead to a reduction in demand due to higher prices. An overall demand growth of 5% has been assumed for the livestock feed sector. This is much more cautious than the 15% growth forecast by BOCM Pauls (OAMG Conference, 2003) but is considered more realistic as it is in line with current retail sales growth (Anon., 2003b). Table 7 summarises the likely UK supply and demand growth to 2005. It assumes that growth in the milling cereal market is limited to 20% of demand on the basis of suitability of UK wheat for this purpose. The balance of supply growth is therefore available for the feed market, either as compound or fed direct on-farm. The estimated current shortfall of 51,000 t in 2005 is equivalent to approximately 15,000 ha of cereals or a 40% increase in the current UK cereal area.

Table 7. Estimated supply and demand for organic cereals in 2005

	Demand	UK Supply	Imports	% imported
Cereals for milling 2002	80,000	16,000	64,000*	80%
Growth in demand (5% p.a.)	12,600			
Growth in supply		2,500		
Cereals for milling 2005	92,600	18,500	74,100	80%
Cereals for compounders 2002	65,000	39,000	26,000*	40%
Cereals fed direct 2002	73,000	73,000		
Growth in demand (5% p.a.)	22,000			
Growth in supply		29,000		
Feed derogation (+20%)	32,000			
Cereals for animal feed 2005	192,000	141,000	51,000	27%

* based on the difference between supply and demand.

4. Impact of Policy Measures

Agri-environmental Regulation EC 2078/92 provides for EU Member States to support farmers and growers who farm within the organic standards, as set out in EC Regulation 2092/1991. The rationale for public support is on the basis of environmental benefit, the cost of which is only partly met by market prices.

Policy measures to support organic farming in England include:

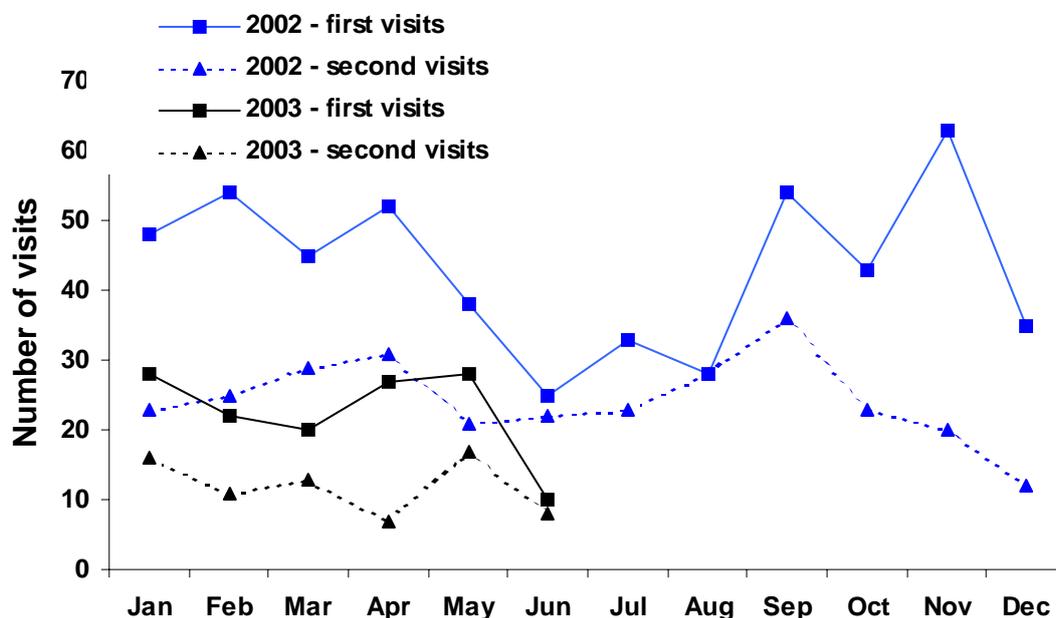
- **Organic Farming Scheme.** Support has been available for conversion to organic farming since 1994 – initially through the Organic Aid Scheme (OAS) and from 1999, under the Organic Farming Scheme (OFS). A new ‘modified’ Organic Farming Scheme has just been launched (June 2003), which offers increased rates of aid for conversion to top fruit orchards but more significantly, offers post-conversion support to existing organic farmers. This is an interim measure, as it is planned that support will be delivered through a specific strand in the new structure for Agri-environmental Schemes from 2005, when the first OFS schemes draw to a close.
- **OCIS.** Information and advice service for farmers interested in conversion.
- **Organic Farming R&D.** A substantial programme of Defra funded R&D covers aspects of production, environmental impact and economics. Work supported by other funders including SEERAD, WAG and Levy Bodies also has relevance in England.
- **England Rural Development Programme (ERDP)/Agricultural Development Scheme (ADS).** These offer grant assistance for collaborative projects which meet regional development needs e.g. Organic Grain Link.

These measures have contributed to the growth in organic farming over recent years when the sector has been driven by good economic returns but the question now is whether they will continue to be effective in delivering Government objectives. The Defra Organic Action plan set out a strategy to develop organic food and farming in England by:

- Achieving sustainable growth in organic farming and food.
- Increasing the UK share of the market for organic produce.
- Promoting organic sector growth through action in distribution, processing and retailing.

The policy measures have the potential to contribute to these objectives but they may not be the most effective way to deliver. Fundamentally, growth will only come from increased conversion and this is being deterred by market uncertainty. Government can respond by increasing financial support for conversion, or by addressing the technical and infrastructure challenges faced by existing organic producers.

The scale of the problem is highlighted by the slowdown in uptake of OFS (Fig. 1) and decline in numbers of OCIS visits from 2002 to 2003 (Fig. 2).

Figure 2. Numbers of half and full-day visits delivered by OCIS in England 2002-2003

The remainder of this section considers the likely impact of new policy initiatives on the short-term prospects for expansion of organic cereal production.

4.1 Revised Organic Farming Scheme

Like its predecessor, the revised Organic Farming Scheme offers support payments to producers over a five year period from the start of conversion to help meet the cost of conversion i.e. the income forgone during the period when the land is being converted. The undertaking and payments are made over a 5-year period from the date of application. The rates of support offered under the revised OFS remain unchanged for land eligible for the Area Aid Payments Scheme (AAPS) at £450 per hectare over the five years.

However the new OFS offers existing organic producers continuing support beyond conversion, in the form of a 5-year maintenance agreement. This requires them to observe the environmental conditions of the scheme in return for payments of £30/ha for AAPS-eligible arable land. For the longer term, support for organic farming will be delivered through a specific strand in the new structure of agri-environment schemes to be developed over the period 2002-2004. The organic strand will be designed to reflect and reward the environmental public goods delivered by organic production methods.

The modified OFS was launched in June 2003 with a budget of £22m in 2003/04 and £23m in 2004/05, 2005/06 and 2006/07. However, early indications (Defra, 2003, personal communication) are that applications are below expectation and it may be that producers do not see the level of payments being substantial enough to affect the overall economics of organic production and are wary of the five year commitment. Defra has just commissioned a study to consider the evidence for the revised OFS, which will be delivered by September and will give a clearer indication of farmer reaction.

4.2 Mid Term Review of the CAP

The provisional agreement reached at the end of June on the Mid Term Review (MTR) of the CAP remains to be clarified as it offers considerable flexibility to member states. However, certain reform principles may impact on the supply and demand for organic cereals.

Full decoupling of support from production would improve the economics of farmers converting to organic livestock production, relative to conventional as payments would be based on historic amounts rather than headage payments. However, existing livestock farmers may be disadvantaged on the basis of lower historic support claims due to lower stocking rates.

It is proposed that organic farmers would not be bound by set-aside requirements. This would be a substantial benefit to most mixed organic farmers but may offer little to stockless or livestock based systems.

The MTR will be applied from January 2005 and as such will have limited impact on organic cereal production or conversions in the next few years. This also coincides with the ending of the non-organic feed derogation in 2005 and the introduction of the ELS. Much will depend on the signals sent to potential organic cereal producers as these policy changes are put in place.

However, the key constraint on expansion of UK cereal production remains that of market price and certainty. This will continue to reflect grain quality, consistency and volumes offered. There is no doubt that producers need to become more market-focused in order to capture a greater share of the market available. In view of the possible constraints on continued expansion of some key livestock sectors (dairy, pigs, poultry, eggs) due to ending of the feed derogation, lower feed prices may be necessary for growth in these sectors. This would only be feasible if ongoing support payments under ELS were substantive.

It could be argued that the delivery of environmental outputs (organic land management) should be entirely separated from the production of organic food – in this case a separate set of tools may be appropriate. This is discussed further in section 7.

5. Constraints and barriers

This section draws together information and opinions from a range of sources.

5.1 Published literature

Taylor *et al.* (2001) reviewed current practices and future prospects for organic cereal production. However, they did not consider economics of production, supply chain or marketing issues which have come to the fore since 2001 with increased supply of organic grain across Europe, and as shown elsewhere in this report, are now the dominant factors.

For the growers surveyed by Taylor *et al.*, the dominant concern was weed control, mentioned in 53% of all responses. Other concerns including variety choice, fertility, grain quality, disease and pests were mentioned in between 12 to 16% of responses. Marketing and profitability were not included in the questionnaire. Advisers to organic farmers listed weed control, particularly perennial and grass weeds, knowledge of nutrient budgets and rotation design, undersowing, seed rate, variety choice, seed supply and pests as problem areas. This is in agreement with the earlier ADAS/CSL project monitoring organic cereals which identified weed control as the dominant crop protection issue in wheat (Cook, 1997),

The literature review of Taylor *et al.* concluded that organic cereals must be considered as part of a whole system. Many influences on the performance of the cereal crop are determined by overall system factors, rather than the management of the crop in isolation. The availability of nitrogen (N), other nutrients and weed problems will, in particular, be determined by system factors. There is considerable discussion of pests and diseases by Taylor *et al.*, but, in practice, these are seldom of significance (Cook, 1997). Even at a fertile high-yielding site as at ADAS Terrington, where yield has averaged 7 t/ha, with an appropriate choice of cultivar, pests and diseases are seldom seen at above trace levels (Cormack, 2002). The most consistent crop-specific issue is poor grain quality, particularly low protein content and poor gluten quality in relation to breadmaking (Taylor *et al.*, 2001). Grain N in organic wheat is mostly in the range of 1.5 to 1.9% compared with 2.2 to 2.3% in conventionally grown breadmaking cultivars (Berry *et al.*, 2002). A grain N content of 1.95 equates with a grain protein content of 9.2%. Bread made with such wheat, particularly using conventional baking methods in large-scale “plant” bread processes would not rise sufficiently and produces an unacceptably solid loaf. For breadmaking, a protein content of around 11.5% is desired. This is not impossible to find in organic wheat, but is exceptional. Hence, the majority of organic grain for breadmaking is imported high-protein wheats. Low grain nitrogen in organic wheat is related more to timing of release of N by mineralisation being miss-matched to the demands of crop growth, than to the total quantity available being inadequate (Berry *et al.*, 2002). The amount and timing of release of N by mineralisation is influenced by a number of environmental factors such as soil moisture and temperature. As a result, the outcome in any one season is much less predictable than in a conventional system where foliar applications of

available N can give more predictable grain N increases. There are a number of possible approaches to improving grain N:

- Grow spring wheat after fertility-building crops. The supply of N is better matched to crop growth and grain proteins are usually higher but yields are usually lower (Berry *et al.*, 2002).
- More precision in seed rate, sowing date and row width. Research on conventional crops has shown that these factors can influence both yield and grain quality (Gooding *et al.*, 2002; Spink *et al.*, 2000). However the differing N supply and weed burden in organic systems mean that the relationships may be different. Research is needed.
- Varieties better suited to organic systems are needed. One approach to this is being studied in Defra project AR0914.
- The application of manures or slurries can give substantial increases in grain N content (Salomonsson *et al.*, 1994). Research is needed to confirm this under UK conditions and to investigate any plant health and pathogen transmission implications.
- Improved knowledge of N fixation by legume crops, and how this N is subsequently released by N mineralisation should allow better rotation design and crop yields and quality. This is being researched in Defra project OF0316.
- Alternatively, could the baking process (e.g. time and temperature) be altered to give a more acceptable loaf from lower quality grain?

5.2 Views of advisers to organic farmers

Questionnaires were completed by the three main organisations providing advice to organic farmers in England – Abacus Organic Services Ltd, ADAS Consulting Ltd and Elm Farm Research Centre, Organic Advisory Service. These together represented around 300 organic farms growing significant areas of cereals. The responses are collated below, in no particular order.

5.2.1 For those who have converted, what are the main challenges?

Economic

“Maintaining profit in a falling market.”

“Ensuring UK grain has a market advantage over imported grain.”

Technical

“Weed control, particularly of difficult grass weeds – black-grass, wild oats.”

“Rotation design, particularly in relation to N supply from fertility-building crops.”

“Choice of seed rate.”

“Variety choice is difficult, depending mainly on conventional information.”

Infrastructure

“A lack of grain handling, drying and storage facilities makes marketing difficult.”

“Finding a market.”

Cultural

“There was some resistance by neighbours at first but this has faded as fears of epidemic levels of disease and weeds have been seen to be unfounded.”

5.2.2 For those who have not converted, what are the main reasons?

Economic

“Fear of oversupply in the market as happened in dairy sector.”

"Profitability of non-organic arable systems has still been reasonable".
"Unsure about the effect of the CAP reform and MTR on market demand."

Technical

"Maintaining fertility and weed control."
"Suitability of stockless system where a livestock enterprise cannot be considered."
"Weed control, particularly grass weeds."
"Difficulty in moving to whole-farm thinking."
"No livestock expertise, infrastructure or desire to develop organic livestock systems."

Infrastructure

"Lack of discrete crop storage facilities."
"Farm staff not supportive of organic production."
"No livestock infrastructure or staff expertise to develop a mixed system."
"Contractors used for all operations that do not wish to contract organic land."

Cultural

"Organic production perceived as "long hair and sandals brigade".

5.2.3 What needs to be done to encourage more arable farmers to convert to organic?

There were many suggestions but most were general and not specific to cereals. The consistent and most relevant was the need for better collaboration between producers in terms of group storage and marketing to more effectively trade into the food chain.

5.3 Cambridge University review of the OFS for Defra

As part of an economic evaluation of the Organic Farming Scheme for Defra, the University of Cambridge Centre for Rural Economics Research surveyed 400 scheme participants and a control group of 400 conventional farmers. Questionnaires were returned by 180 Scheme Participants and 126 conventional farmers. The questionnaires included a number of open questions seeking the views and perceptions of these farmers.

Question 54 was posed to both groups: "In your opinion, what is the single most important barrier to the development of the organic sector in this country?"

Out of 100 responses to this question from Scheme participants, only two gave technical reasons (a lack of research), all others citing marketing, financial or administrative issues.

Out of 100 responses from conventional farmers only one gave a technical reason (weed control), all others citing marketing, financial or administrative issues.

This study is interesting because it asked for a prioritisation of issues. The result was clearly a dominant concern about marketing and profitability.

5.4 Study of organic farming in Bedfordshire by EFRC

In early 2002, Bedfordshire had just 10 organic farms (1% of holdings). To investigate reasons for the low uptake, Bedfordshire County Council commissioned Elm Farm Research Centre to do a study of farmers who had initially contacted the OCIS helpline but not proceeded to conversion.

Of the 28 farmers who responded, the dominant reason given (by 55% of farmers) for initially considering conversion was higher product prices. Only 5% considered that they were responding to consumer demand and only 27% had investigated a buyer for their produce.

Reasons given for the subsequent decision not to convert were:

control of weeds	48%
control of diseases	55%
isolation from their conventional farming colleagues	34%
soil fertility	31%
reduced prices due to imports	28%
capital costs	28%
reduced price	17%

From the report it is not possible to split response by farm type, but again it is interesting that perceptions of greater pest and disease were the most common objection to converting. Access to free advice through OCIS should have informed them that these are likely to be of less importance than soil fertility and marketing. Prices were already falling in early 2002 and it is surprising that economic reasons ranked so low. This is perhaps because their decisions not to convert were made some years previously when marketing and profitability were less immediate issues.

The lack of interest by farmers in marketing agrees with comments received from Organic Grain LINK and from advisers and end-users in our consultation process.

5.5 Organic Grain LINK Ltd

The Organic Grain Link project (<http://www.organicgrainlink.co.uk/>) is designed to help organic arable farmers produce and market their crops effectively and profitably. The project is supported for three years under the Defra England Rural Development Programme (ERDP) and the European Agricultural Guidance and Guarantee Fund. The project provides crop marketing support to organic grain producers, through telephone support, newsletters, meetings and seminars. Market awareness and support provides farmers a significant opportunity to optimise returns from their cropping and improve ease of marketing. The project also aims to provide assistance in developing applications for grant funding from the Defra ERDP, for example, marketing initiatives, storage and processing, new product development or branding and training.

The Organic Grain LINK project started in autumn 2002 and we are grateful to them for allowing us to use data (section 3.0) and comments from their first draft report on the supply situation. The project co-ordinator believes that there is clearly a demand that could be met from increased UK production of organic cereals but crops must be grown to meet market needs. That means feed wheat, milling wheat and milling oats. He believes farmers are reluctant to convert because of:

- A lack of information on profitability and marketing.
- High risk when farming in general has been unprofitable.
- Unwillingness to become involved in marketing.
- The comfort of AAPS to conventional producers, even at reduced profitability.
- The time and cost involved in certification and regulation.

5.6 Organic Arable Marketing Group conference 15 April 2003.

The conference "Organic cereal partnerships: tackling obstacles and finding solutions" was held at NAC Stoneleigh on 15 April 2003. The objective was to get producers and end users of organic grain together to work together better. BOCM PAULS presented useful estimates of demand which are included in section 3.0 above. In their presentation, it was stressed that wheat was the preferred cereal for livestock feed compounding. There was considerable pressure from some growers for the acceptance of triticale by feed compounders. There are issues of consistency of quality, but the main reason is that the compounders need consistency of supply and they also have limited numbers of organic grain storage bins. The message was to grow feed wheat and pulses. Michael Marriage of Doves Farm asked for grain to be properly dried and cleaned, and if possible amalgamated into larger quantities at regional centres. Gill Lowey of the Enjoy Organic Company reported that the total UK bread market was worth £1.08bn and organic had a 2% share. However, sales growth for bread was static and for rolls, slightly negative. The scope for growth in demand for milling wheat is therefore likely to be small but there is a lot of scope to replace imports with grain of appropriate quality.

5.7 Views of end-users

To supplement data from the Organic Grain LINK and OAMG conference, key grain traders and end users were contacted individually to gather their views on constraints to using more UK grown grain. Their comments are summarised below.

All stressed a preference for larger quantities of grain of consistent quality.

It is simpler for a feed compounder to order imports by the boatload rather than deal with many small UK suppliers with different varieties, cleanliness, moisture content etc. Co-operation in regional grain storage, cleaning and marketing was suggested.

Storage on-farm and grain cleaning should be better.

Several said that farmers must grow what the market needs (wheat) and not expect a ready sale for triticale or barley. There was concern that this message is not being clearly transmitted or understood by farmers.

UK grain will be used if it is competitive in price with imports but issues of volume may over-ride this.

The only technical issue was on the poor breadmaking quality of many UK wheat samples necessitating imports.

5.8 Conclusions - Constraints and barriers

There is a very limited scope for an increase in total grain production from existing organic farms due to rotational limitations.

It is clear from consultations with grain buyers that their overwhelming requirement is for wheat for breadmaking and animal feed. Triticale and barley will continue to be difficult to sell to the feed compounders. There may be some scope for changing the balance of cereal species grown on existing organic farms. However, this is likely to be limited by constraints of location and soil type as the majority of the organic land in England, and in the UK, is on soils unsuited to wheat production. It may be more productive to seek direct sale to other farmers for these grains.

The fragmented nature of supply with many farms selling small quantities of grain to makes sourcing supply of consistent quality difficult for the large purchasers. Co-operation, with regional cleaning and storage facilities, has been suggested by many as a way to more effectively compete with imports. Work in this area has been started by Organic Grain LINK with Defra support.

There is a worrying lack of awareness and interest in marketing amongst farmers. How can OCIS and the advisory services get this message across more effectively?

Our consultations, and other reports from the last two years, clearly show that the dominant constraints to further conversion to organic are concerns about marketing and profitability. These concerns are not specific to cereals which have remained relatively profitable, but are concerned more with falling prices for other products such as potatoes, and some vegetables. These potentially high gross-margin crops are key to farm profitability in stockless arable systems where they balance the high levels of set aside employed. With slowing retail growth (to zero for some products like bread) and still more land coming through conversion, this situation is unlikely to improve in the short term.

Although technical constraints are not dominant in decisions of conversion, they are limiting yield and quality of organic cereals and hence also the saleability and value of the grain. A better understanding of N availability should come from Defra project OF0316 but further work, particularly on sowing date, seed rate, row widths and supplementation with manures and slurries is needed to allow growers to improve grain yield and quality.

6. Economics of Organic Cereal Production

This section considers the economics of two organic farming systems, 'Arable – mainly Cereals', and 'Arable – Roots and Vegetables'. These categories are based on the Farm Business Survey (FBS) farm types (Seabrook, 2003) in order to allow comparison between organic arable (with and without livestock) and conventional farming returns. While this does

not represent the complete spectrum of organic farm systems or performance levels, it offers an indicative position. The comparison with conventional represents the choice facing prospective cereal farmers at present in terms of economics.

6.1 Arable – mainly Cereals

Conventional cereal farms are based on combinable crops, with typically around 50-60% cereals and 15% forage, carrying beef and sheep. Under organic management, the forage area would be expected to rise to around 30% to accommodate an enlarged livestock enterprise in order to maintain soil fertility. Calculated gross margins (Table 8) are based on the following yields and prices which were derived mainly from results of Defra projects OF0318 and OF0322.

Winter wheat (after grass)	4.0 t/ha @ £170/t for milling
Spring beans	3.0 t/ha @ £150/t for feed
Winter wheat	3.5 t/ha @ £150/t for feed
Spring cereal	3.0 t/ha @ £150/t for feed

The forage area is estimated to return £514/ha from a stocking rate of 1.1 LU/ha (equivalent of 8 lowland ewes). Ten per cent of the farm is assumed to be permanent pasture and a proportion of the first year ley in the rotation is used as set aside. Fixed costs are based on the Nottingham University East Midlands FBS figure for conventional farms in 2001/02 (Seabrook, 2003) but labour and machinery costs (50% of total fixed costs) have been increased by 10%. This is to reflect the general belief that these costs are higher on organic farms.

Table 8. Organic Net Farm Income (Arable – mainly cereals)

	(£/ha)	Organic model (£)	Conventional FBS* (£)
Farm size (ha)		150	149
Gross Margins			
Winter wheat	22.5 ha @ 806	18,131	
S beans	22.5 ha @ 543	12,212	
Winter wheat 2	22.5 ha @ 651	14,654	
S cereal	22.5 ha @ 570	12,821	
Grass	50.0 ha @ 514	25,698	
Set aside – grass	10% 10.0 ha @ 140	<u>1,398</u>	
Total		83,515	
Other income		<u>5,000</u>	
Total Gross Margin		88,515	81,317
Total Fixed Costs	150.0 ha @ 525	<u>78,750</u>	<u>73,629</u>
Net Farm Income		9,765	7,688

* Seabrook (2003).

The comparative FBS East Midlands figure for conventional farming in 2001/02 was £51/ha or £7,688 over 149 ha (Seabrook, 2003). This suggests that arable – mainly cereals organic farms are only marginally more profitable than their conventional counterparts. This differential is likely to be insufficient to attract new conversions. A further disincentive is the sensitivity of overall profitability to changes in price (Table 9). Most of the improved margin would be eliminated by only a 10% price fall in organic wheat price, assuming no change in conventional price. This could be counterbalanced by increased organic average yields. However, this is unlikely in the short to medium term.

Table 9. Sensitivity Analysis - Net Farm Income (Arable – mainly cereals)

	Current	-10% price	Difference
	(£)	(£)	(£)
Winter wheat (R1)	18,131	16,601	-1,530
S beans (R1)	12,212	11,199	-1,013
Winter wheat 2 (R1)	14,654	13,473	-1,181
S cereal (R1)	12,821	11,808	-1,013
Grass (R1)	25,698	25,698	0
Set aside – grass (R1)	1,398	1,398	0
Total Gross Margin	83,515	78,779	-4,736

6.2 Arable – Roots and Vegetables

Mixed arable farms are conventionally based on combinable crops, with typically around 50% cereals and 15% root and vegetable crops, with virtually no livestock. Under organic management, clover would be grown one year in six (16.7%) to build soil fertility. Calculated gross margins (Table 10) are based on the following yields and prices which were derived mainly from results of Defra projects OF0318 and OF0322:

Winter wheat (after clover)	4.0 t/ha @ £170/t for milling
Potatoes	30.0 t/ha @ £150/t on contract
Vegetables	6.0 t/ha @ £700/t on contract
Spring beans	3.0 t/ha @ £150/t for feed
Spring cereal	3.0 t/ha @ £150/t for feed

The area of roots and vegetables is assumed to be evenly split between potatoes and vegetables – gross margin data for the latter is based on experience with calabrese grown at Terrington. It is assumed that there is no fallow but this may be questionable, given the experience with build up of perennial weeds at Terrington.

Fixed costs are based on the FBS East Midlands figure for conventional farms in 2001/02 (Seabrook, 2003) but labour and machinery costs (55% of total fixed costs) have been increased by 10% as discussed above.

Table 10. Organic Net Farm Income (Arable – roots and vegetables)

		Organic Model	Conventional FBS*
	(£/ha)	(£)	(£)
Farm size (ha)		150	149
Gross Margins			
Winter wheat	25.0 ha @ 806	20,145	
S cereal	50.0 ha @ 570	28,490	
Potatoes	12.5 ha @ 2346	29,330	
Vegetables	12.5 ha @ 1000	12,500	
S beans	25.0 ha @ 543	13,569	
Set aside - clover	17% 25.0 ha @ 70	<u>1,758</u>	
Total		105,792	
Other income		<u>5,000</u>	
Total Gross Margin		110,792	98,368
Total Fixed Costs	150.0 ha @ 655	<u>98,250</u>	<u>92,931</u>
Net Farm Income		12,542	5,437

* Seabrook (2003)

The comparative FBS figure (East Midlands) for conventional farming in 2001/02 was £35/ha or £5,437 over 156 ha (Seabrook, 2003). 'Arable – roots and vegetables' organic farms are more profitable than their conventional counterparts. Although larger than the 'arable – mainly cereals' differential, this is unlikely to be sufficient to attract new conversions.

Table 11. Sensitivity Analysis - Net Farm Income (Arable – roots and vegetables)

	Current	-10% price	Difference
	(£)	(£)	(£)
Winter wheat	20,145	18,445	-1,700
S cereal	28,490	26,240	-2,250
Potatoes	29,330	24,642	-4,688
Vegetables	12,500	8,000	-4,500
S beans	13,569	12,444	-1,125
Set aside – clover	1,758	1,758	0
Total Gross Margin	105,792	91,529	-14,263

Sensitivity of overall profitability to changes in price is again important (Table 11). Most of the improved margin would be eliminated by only a 10% price fall in organic potatoes or vegetable prices, assuming no change in conventional price. This could be counterbalanced by increased organic average yields. However, this is unlikely in the short or medium term. Also, the potato and some vegetable markets are adequately supplied and market outlets for new conversions would be difficult to secure.

This analysis suggests that organic arable farming could be as, or more, profitable as conventional practice for many farmers and that economics alone should not be a barrier to conversion. However, only relatively small falls in price could eliminate most of the differential. Coupled with concerns over technical problems, access to markets and the comfort of AAPS for conventional growers discussed in earlier sections of this report, only the most organically committed of farmers are likely to convert to a predominantly arable system at the moment.

7. Scenarios and Interventions

7.1 Scenarios

7.1.1 No change

With the limited-quality data on cereal supply and demand currently available, our best estimate is that new conversions will be very low i.e. < 5000 ha per year (OFS target 45,000 ha per year). It is quite likely that this will be (at least partly) balanced by a reversion of land to conventional farming as OFS schemes come to an end from 2003 and economic hardship drives farmers to retire or rationalise but the exact level is difficult to predict.

Under this scenario, any growth in demand for organic cereals – expansion of organic livestock production, ending of the non-organic feed derogation and retail growth in organic cereal products - will be met by imports. At best, the UK will retain its market share but it is possible that the UK market share of organic cereals could reduce. The Organic Action Plan target of 87% market share (based on the conventional market) is extremely unlikely to be met in the short term.

This assumes that government does not intervene further than at present. Most organic farmers have converted within the last five years and received support under the OFS since that time; as such most are tied into the system until 2003-2006. It is envisaged that an enhanced level of support under ELS (Anon, 2002a) may help retain many of these existing organic farmers. However, while this is the case for land-based enterprises such as cereals, livestock enterprises such as pigs and poultry are much less reliant on land-based payments and are driven more directly by the economics of production. Issues such as the loss of the derogation on use of synthetic amino acids (July 2003) and on non-organic feed (August 2005) are more substantive.

7.1.2 Shift to market-led production

If government can work with industry to encourage and develop more market-led production, organic cereal farmers will be more able to access premium markets (milling and feed). This could readily achieve a 10% average price increase for most arable farmers with the economic impacts set out in section 6. There will be knock-on effects on the wider organic market as buyers seek out UK produce and survey data on organic farm incomes reflect a more positive outcome.

The difficulty, as always, will be persuading farmers to change practice in order to meet market needs but decoupling of farm support under the mid-term review of CAP should help in this respect. Government-funded research should also focus on meeting market needs rather than producer driven priorities and marketing schemes (see section 7.2) should be targeted at this sector to develop infrastructure and supply chains.

7.1.3 Shift to maintenance support payments

A move from conversion support to maintenance payments to organic farmers could play a major role in creating the stability needed for organic markets to be more certain and to allow farmers and cereal users to build relationships. The benefits are longer-term and as such should not be expected to impact on short-term prices or conversions. It is essential that a pragmatic view is taken on the Action Plan Targets.

7.2 Interventions

The limited consultation in this project indicates that the five priority areas in the 'Action Plan to develop Organic Food and Farming in England' are the key areas for action:

1. Maintaining consumer confidence in the integrity of UK organic food through implementation of robust standards.
2. Developing effective partnerships and improving performance throughout the food chain.
3. Public procurement of organic food.
4. Research and development.
5. Public support payment to organic farmers.

Of these, points 2, 4 and 5 have most direct relevance to cereals.

7.2.1 Development of effective partnerships and improving performance throughout the food chain

Increased market share through better choice and management of crops for a particular market and improved collaboration in storage and marketing could help growers get best returns for their grain and could stabilise their economic position. However, it would be unlikely on its own to have much impact in encouraging new conversions.

Developing partnerships in the food chain is a dual role for Government and Industry. The main vehicles for Government intervention which already exist are:

ERDP (Processing and Marketing Grant) – this scheme offers capital grant at 30% for processing facilities and targets co-operation and organic farming specifically. While grain storage is eligible in principle, there have been no projects to date which relate specifically to organic grain. A minimum investment of £70,000 is required.

ERDP (Rural Enterprise Scheme) – this scheme offers capital and non-capital support at varying rates to help farmers adapt to changing markets and develop new business opportunities. RES also has a broader role in supporting the adaptation and development of the rural economy, community, heritage and environment. The Organic Grain Link initiative is funded under this measure.

Agricultural Development Scheme (ADS) – this scheme is aimed at improving the “organisation, promotion, encouragement, development, co-ordination or facilitation of the marketing of produce”. It offers 50% funding of non-capital spend and aims to generate industry-wide benefits. Again, no funds had been awarded to support the development of the organic sector at the time of writing.

Organic Grain Link is a good example of a regional initiative which promotes the development of infrastructure and supply chain through collaboration. This is a 3-year project and might offer a useful model for a wider initiative.

7.2.2 Research and development

Research is needed into specific limitations to cereal production, and to their utilisation for human and animal food. We do not consider these technical issues as primary constraints to expansion of UK supply. However, a better understanding of how to grow organic cereals economically, with appropriate grain quality, and how to make bread with lower quality grain would help stabilise existing growers and could make some impact in the longer term into the imports of grain for breadmaking. However, the HGCA, likely to be the lead funder for such work, does not currently have the

resource for new projects. It may be necessary for Defra to fund such work at least in the short term, if progress is to be made.

The ending of derogations of non-organic feed inclusion, feeding of synthetic amino acids and pullet production are likely to affect future demand for cereals, particularly for pigs and poultry. The relevance of these sectors cannot be understated as we have already concluded that the main area for growth in the cereal market is for feed wheat and pigs and poultry are major consumers. If demand does not continue to grow, the demand for UK cereals will rely on dairying, which is static, and beef and sheep, which are insignificant in volume required. A number of current Defra projects are examining these issues and they are likely to lead to further research needs.

7.2.3 Payments offered to organic farmers from public funds

In this context, perhaps the most fundamental action is on public support, how this will be targeted and at what level it will be paid. As the government rationale for supporting organic farming is environmental benefit, this should be the primary output which attracts support.

Conversion grants also risk market distortion by managing supply, with no due regard to market demand. The two-year land conversion period and additional production cycle before organic produce is marketed means that there is a considerable time lag between the market conditions which might prompt a decision to convert, and selling the first outputs.

The best way to manage this inherent problem may be to offer long-term Agri-environmental payments from conversion, rather than short-term conversion incentives. This area is complex and is currently being researched in a separate Defra study which has just been commissioned, and in the Mid Term Evaluation of the ERDP (both studies are currently being undertaken by ADAS).

8. Recommendations for Action

8.1 Improved economic stability - payments to farmers from public funds

The most critical constraint on the development of the UK organic cereal supply is economic viability, particularly in the context of a 2-3 year lag between starting conversion and marketing organic produce. It is recommended that the new support system (under ELS) should be devised to deliver long-term environmental benefits (through ongoing payments) while minimising short-term market distortions (through conversion support).

A higher level of annual payment than the modified OFS is needed - £30/ha is unlikely to provide sufficient incentive for further substantial conversion of arable farms in the East of England. The level of payment will also affect the competitiveness with imports of UK organic cereal and livestock production. However, the need to demonstrate cost effectiveness of Government intervention requires that the level of payment is set in relation to value for money in delivering benefits, rather than as a tool for delivering import substitution. It is recommended that the level of payment is commensurate with other Agri-environmental payments which deliver a similar level of public goods. Payments could favour arable systems in view of the relatively greater environmental benefit likely from conversion of these farms compared to other farm types (Shepherd *et al.*, 2003).

8.2 Improved market intelligence and co-operation through the food chain

The availability of good data on supply and demand, by species, is needed. This would help give the main buyers confidence that their needs can be supplied from UK sources. It would also help farmers plan rotations and crops to better meet market demand. Data that has been available has been collected by the certification bodies in different ways and to different timescales making sensible UK or country estimates nigh impossible. This shortcoming was identified in the Defra Organic Action Plan and action is underway.

Co-operation between organic cereal producers should be encouraged to allow better cleaning and storage, and bulking to create larger quantities for sale. To some extent the grain traders fulfil this function but certificated storage facilities may be a current limitation. The Organic Grain Link initiative is helping publicise the availability of support from ERDP for marketing and facilities.

Defra should review the advice, given under OCIS, on the need for planned marketing, when advising farmers considering conversion. OCIS consultations do consider marketing, but feedback from farmers suggests that it should be given greater emphasis.

It is apparent that despite the availability of public funding under ERDP and ADS for the development of processing and marketing, there has been little uptake. While this may relate to a lack of certainty and/or confidence in the organic sector, it is also likely that the Government focus has been on driving farm conversion rather than developing infrastructure.

Given the evidence from cereal buyers of the importance of volume and consistency of supply, and the potential dangers of supply management, it is recommended that the focus of support be shifted from farm conversions to the development of infrastructure. It is not necessary to increase the scope or scale of funding available to the industry at large but rather to instigate a campaign of awareness and facilitation to ensure that where appropriate, farmers and processors take advantage of the funds.

8.3 Research and Development

Whilst not the primary constraint to increase in cereal production, technical constraints are limiting farm profitability and the quality of produce for cereal and livestock sectors, adding cost to the supply chain, and making produce less competitive with imports.

Direct issues include improving breadmaking quality and a better understanding of the interactions of seed rate, sowing date and row width.

There are also issues affecting organic livestock production that will impact on demand for cereals. These include the ending of the derogations on using synthetic amino acids, non-organic feed inclusion and pullet rearing. These will all add substantially to livestock production costs and are likely to require further research to find innovative technical and management solutions to maintain and expand these sectors and their demands for cereals.

Defra funding may be necessary to make immediate progress on these issues in view of the current stop on new projects by HGCA.

9. References

- Anon. (2002a). *Action Plan to Develop Organic Food and Farming in England - England's Organic Sector. Prospects for Growth*, Defra. (<http://www.defra.gov.uk/farm/organic/actionplan/prospects.htm>)
- Anon. (2002b). *Economic evaluation of the Organic Farming Scheme*. Final report to Defra. Centre for Rural Economics Research, Department of Land economy, University of Cambridge, 17 May 2002. (<http://www.defra.gov.uk/esg/economics/econeval/organic/index.htm>)
- Anon. (2002c). *Market prospects for organic milk*, MDC.
- Anon. (2003a). *Organic statistics England* (<http://statistics.defra.gov.uk/esg/statnot/orgeng.pdf>)
- Anon. (2003b). Dairy and meat rise above the plateau. *Organic Business*, June 2003, 9.
- Berry, P. M., Sylvester-Bradley, R., Philipps, L., Hatch, D. J., Cuttle, S. P., Rayns, F. W. & Gosling, P. (2002). Is the productivity of organic farms restricted by the supply of available nitrogen? *Soil Use and Management* **18**, Supplement, 248-255.
- Cook, S. K. (1997). *Organic wheat survey*. Final report for project OF0107, Defra.
- Cormack, W. F. (2002). *Testing the sustainability of stockless arable organic farming on a fertile soil*. Final report for project OF0301, Defra.
- Gooding, M. J., Pinyosinwat, A. & Ellis, R.H. (2002). Responses of wheat grain yield and quality to seed rate. *Journal of Agricultural Science* **138**, 317-331.

-
- Hardwick, N. V., Bayles, R. A., Burke, G., Clarke, J. H., Cormack, W. F., Oakley, J. N., Young, J. E. B., Thomas, J. E. & Wolfe, M. S. (2001). *Review of the possible interactions of pests, diseases and weeds in cereals grown in organic and conventional agriculture*. Final report for project OF0194, Defra.
- Seabrook, M. (2003). *Farming in the East Midlands: financial Results 2001 - 2002*. 51st annual Report, University of Nottingham.
- Salomonsson, L., Jonsson, A., Salomonsson, A. C. & Nilsson, G. (1994). Effects of organic fertilisers and urea when applied to spring wheat. *Acta Agriculturae Scandinavica. Section B: Soils and Plant Science* **44**, 3, 170-178.
- Shepherd, M., Pearce, B., Cormack, W. F., Philipps, L., Cuttle, S., Bhogal, A., Costigan, P. & Unwin, R. (2003). *An Assessment of the Environmental Impacts of Organic Farming*. A review for project OF0405, Defra.
- Spink, J. H., Semere, T., Sparkes, D. L., Whaley J. M., Foulkes, M. J., Clare, R. W. and Scott, R. K. (2000). Effect of sowing date on the optimum plant density of winter wheat. *Annals of Applied Biology* **137**, 179-188.
- Taylor, B. R., Watson, C. A., Stockdale, E. A., McKinlay, R. G., Younie, D. & Cranstoun, D. A. S. (2001). Current practices and future prospects for organic cereal production: survey and literature review. *Research review No. 45*, Home-Grown Cereals Authority.

Please press enter