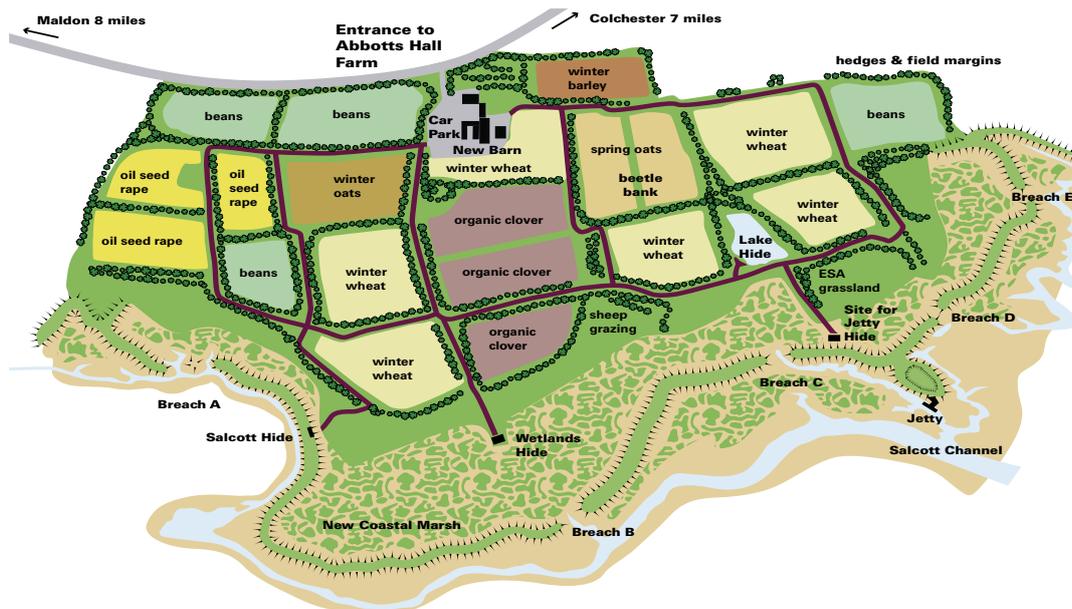


Abbotts Hall Farm

Farm Economics

Fact Sheet 8

Winter 2004

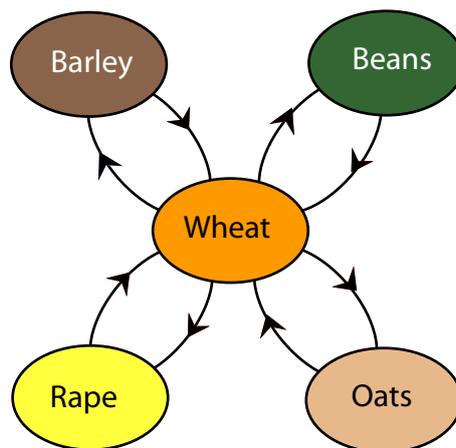


As about 80% of the land in Essex is used for agriculture, mostly for growing crops, arable farming is a key activity as far as wildlife is concerned. Abbotts Hall Farm is a medium-sized arable farm where the Essex Wildlife Trust aims to demonstrate how a farm can be profitable while taking practical steps to farm in an environmentally sustainable way.

Farming at Abbotts Hall

The dry climate and heavy soils of Essex are suitable for growing cereal crops and over three quarters of farm land is used in this way, with wheat as the dominant crop. At Abbotts Hall barley, oats, beans and oil seed rape are also grown as part of the crop rotation plan. The area under arable cultivation is 189 hectare, in 18 fields of between 3 and 36 hectares.

Two fields have been converted to organic crops and oats are currently grown under Conservation Grade. Otherwise the farm produces crops conventionally while supporting wildlife in a variety of ways. Abbotts Hall Farm is a member of the local farmers' marketing cooperative, Dengie Farmers, through whom supplies are purchased and crops sold.



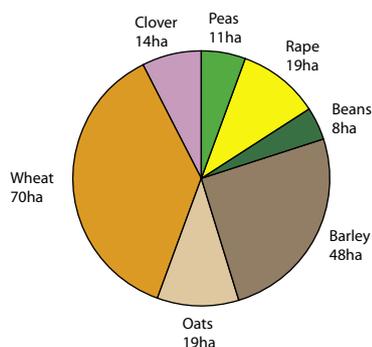
Examples of crop rotation

The Farm Business

The farm is run as a separate financial entity from the Trust and the financial objective is to maintain the farm in profit so that it is self-financing. The farm does not receive any special support from government or other bodies and faces the same financial conditions as other farms. The financial year is from January to December.

The Farm Manager and Farm Warden undertake all the farming operations. The Farm Warden is also responsible for visitors to the farm and environmental work. He is assisted by volunteers only for tasks such as wildlife surveys and the maintenance of paths, hides and other visitor facilities.

Volunteers are not used for normal farming work. Apart from issues of skills and health and safety, this is to ensure that the economics of farming at Abbotts Hall Farm are comparable to other farms.



Abbotts Hall Farm crop areas, 2003



ESSEX
Wildlife Trust

The Joan Elliot
Visitor Centre at
Abbotts Hall Farm
Great Wigborough
Colchester, Essex
CO5 7RZ
Tel 01621 862960
Fax 01621 862990
E-mail
admin@essexwt.org.uk
Website
www.essexwt.org.uk

Registered Charity
No 210065

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ENVIRONMENT AGENCY



ENGLISH NATURE

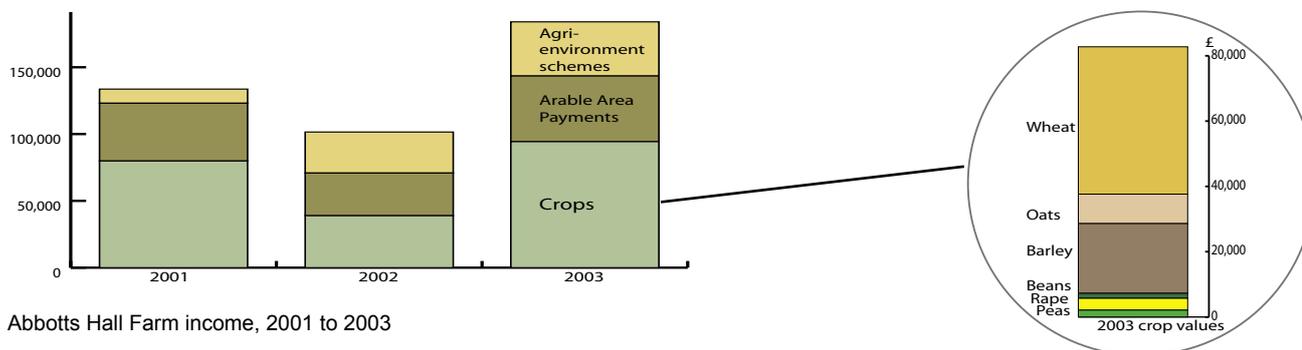
Heritage Lottery Fund



DEFRA support the
environmental schemes
on the farm

Farm Income

The farm has three major sources of income: sales of crops, subsidies under the Common Agricultural Policy (Arable Area Payments), and government grants. From 2005 the subsidy system changed and is described later in this fact sheet. Previously area payments and grants were fixed for each year and did not depend on the success of the crops. The income from sales of crops is variable as it depends on the market price and crop yield, both of which depend on external factors such as the weather. Competition in world markets means that there is always pressure on prices. Crop income can be estimated after harvest from spot prices, but the actual income achieved may not be known until several months later when all the crops have been sold.



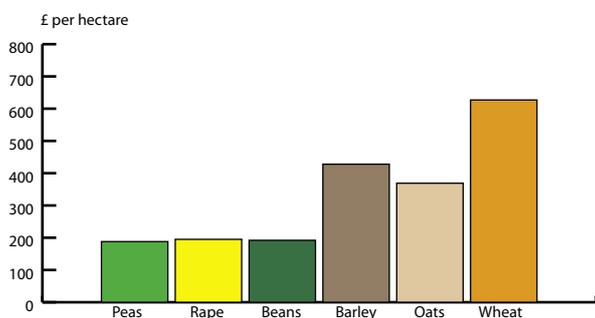
Abbotts Hall Farm income, 2001 to 2003

Income from crop sales

For each crop the income is set by the quantity produced (the yield) and the market price, which in turn depends on the quality of the crop and its end use. Typically high quality crops are used for human consumption and lower quality crops for animal feed. For some cereals there is a market for the straw as well as the grain. As in any other market, higher prices are paid for goods that meet specialist requirements.

Most Abbotts Hall crops are marketed through the Dengie Farmers cooperative. After the crops have been harvested and their quantity and quality are known, the cooperative finds suitable customers, agrees the sale and arranges collection from the farm and delivery to the customer. Crops sold in this way may end up anywhere in the world, for example malting barley was sold to the Japanese brewing industry in 2004. The farm does not receive the final proceeds from sales through the cooperative until the following summer, which may be two years after the seed was bought, so the farming and financial cycles are out of step.

Some crops are sold through individual contracts with agreement of Dengie Farmers, such as that for Conservation Grade oats to Jordans. Others can be sold locally, such as wheat to the mill at Maldon. These are preferable to selling on the world market as the crops can earn a premium and long distance transport avoided.



Abbotts Hall Farm crop value per hectare, 2003

Half of the grassland at Abbotts Hall Farm is rented out for sheep to local graziers through an annual contract. This gives a relatively stable but modest income, with the risks and costs of production being borne by the grazier. The other half is used for winter feed for the Trust's own sheep flock.

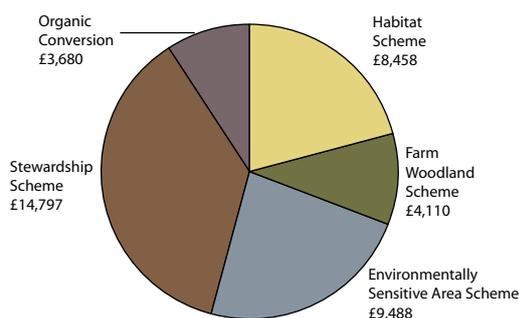
Arable Area Payments

The EU subsidises food production and prices. Production subsidies have been made through the Integrated Administration and Control System (IACS), though this is due to change in 2005 with the reform of the Common Agricultural Policy. The arable farms subsidies in IACS, called the Arable Area Payments, have been based on the area of land under production and paid annually at a rate of about £240 per hectare (£97 per acre). To control over-production cereal farmers are required to set aside a proportion of their land each year (5% in 2003/4), though a subsidy is still paid on this land. The IACS payments were reduced to fund grant payments, described below. IACS is complex and detailed: the guidance provided by DEFRA to help farmers complete their annual IACS return is 97 pages long!

Grant payments

The government maintains a system of rural grants to encourage landowners and farmers to change their land use or farming practices to achieve the government's environmental and rural development objectives. Grants may comprise a one-off payment to help cover the costs of implementing the scheme and/or annual payments to compensate farmers for the loss of crop income from the changed use of the land. However, all the schemes have a limited timescale after which payments cease, unless the scheme is renewed or a replacement made available.

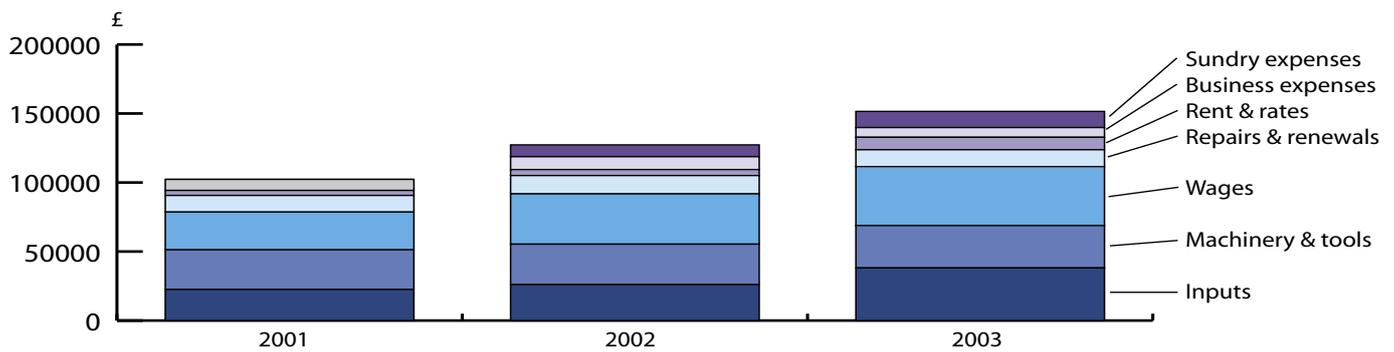
A proportion of the IACS payment is held back to fund the agri-environment and other schemes in the England Rural Development Programme. This is known as modulation. The proportion is set by DEFRA and is currently 4%. This means that farmers who do not participate in the grant schemes suffer a reduction in their income. Abbotts Hall Farm participates in several grant schemes that bring environmental benefits.



Abbotts Hall Farm agri-environment scheme grants, 2003

Costs

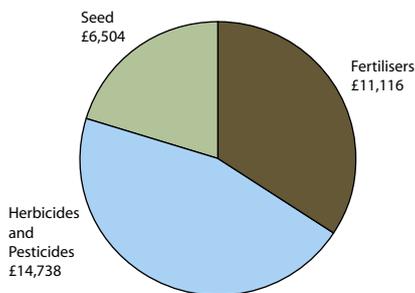
The cost structure of an arable farm is similar to that of any other production business: the crops cost money to produce, and there are other costs that must be paid whichever crops are grown. The main costs are labour, machinery, and agricultural inputs such as seeds and sprays, and many farmers either rent land or have mortgage payments to make. Business expenses include office expenses, insurance, and accountancy fees. Sundry expenses in 2003 included licence payments, legal fees, repairs to water supplies.



Abbotts Hall Farm costs, 2001 to 2003

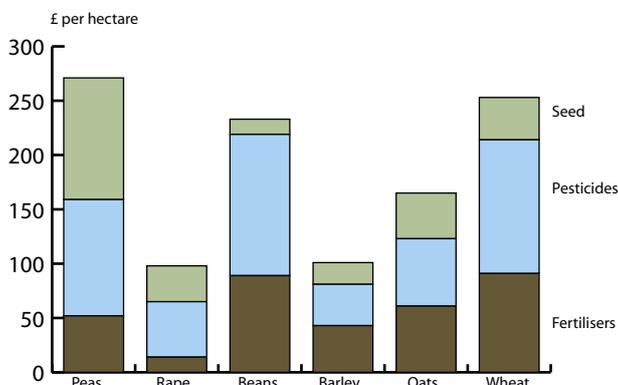
Variable Costs

Variable costs are costs that vary with the amount of an activity that is done, or to put it another way, the variable costs of a crop disappear if that crop isn't grown, such as the cost of fertiliser, seed, and sprays (collectively called inputs). If casual labour is used it is also a variable cost.



Abbotts Hall Farm variable (input) costs, 2003

It is important to know the variable costs for each crop to work out the contribution that each crop makes to the overall profitability of the farm. At Abbotts Hall Farm the variable costs are monitored through the operations log for each field. As no casual labour is used these are just the cost of inputs. Dividing the variable costs by the area planted gives a comparison between crops.



Abbotts Hall Farm input costs per hectare, 2003

The operations log also records the time spent on operations for each crop. This is important information for farm management but since labour costs are the same whatever crops are grown, labour costs are fixed not variable costs.

Fixed costs

Fixed costs are costs that don't vary with the amount or type of crops grown but have to be paid anyway. Fixed costs include

- Farm employees' wages
- Equipment and machines that are owned or leased
- Maintenance of farm roads, ditches, hedges and buildings
- Registration for quality assurance schemes
- Rent of buildings and land

At Abbotts Hall Farm the buildings and machinery are leased from the Essex Wildlife Trust, so these costs may be lower than for some farms. On the other hand Abbotts Hall has higher labour costs than most farms of a similar size because of the conservation work undertaken by the Farm Warden.

Counting the environmental costs

Sales income depends on quality and yield, both of which are reduced by weeds, pests and plant diseases. Such pests can be controlled by spraying but spraying has both financial and environmental costs. Sprays are expensive to buy but the cost is small compared to the possible losses in sales that can result if they are not used. If the environmental cost is ignored, the obvious approach is to apply the least amount of pesticide spray that will maximise the yield and quality of the crop, spraying preventatively and at the first signs of a pest.

If the environmental cost is to be taken into account, every decision to spray must balance the likely negative effects on the environment with the likely positive effects on farm income. The environmental impact is greatly reduced if a selective spray is available. The crop damage from a pest depends on its numbers and the weather conditions, so is difficult to predict.

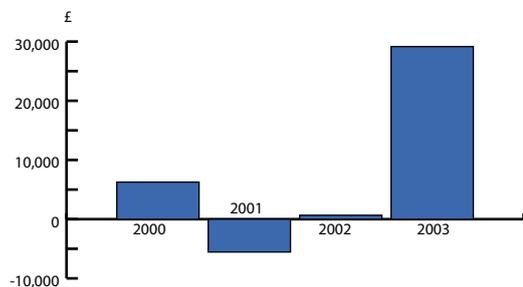
For example, wheat can be badly damaged by larvae of the orange blossom midge but there is no targeted insecticide available. In June 2004 it was decided not to spray to remove the midge as other insects would have been harmed at a critical time of year. Unfortunately the summer weather was very favourable for the midges and both the yield and quality of the crop suffered badly, resulting in about £6000 loss in income.



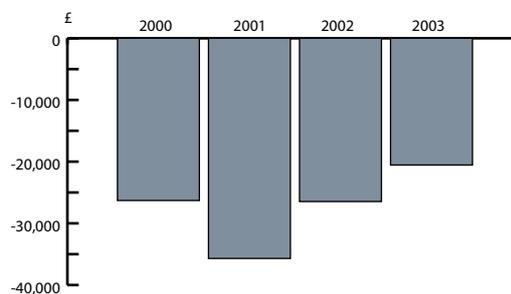
Weeds take over a section of field that was not sprayed with herbicide

Balancing costs and income

The net profit (or loss) of the farm is the difference between its total income (including area payments and subsidies) and total costs (including fixed and variable costs) in one year. The large variation in profit from year to year is mostly due to variations in sales income caused by the effects of the weather, pests and diseases and changes in the market price. Because the crop lifecycle may be spread over more than one financial year e.g. for crops sown in the autumn and harvested in the following summer, the value of the crops in store and in the ground at the end of each financial year are shown as a cost to the new year and a credit to the old one in the profit and loss account. The profit figures shown include this adjustment. The chart on the right below shows the losses that would occur if there were no grants or subsidies. It is easy to see why subsidies are needed to maintain the farming industry if the prices of agricultural products are not to rise substantially.



Abbotts Hall Farm net profit, 2001 to 2003

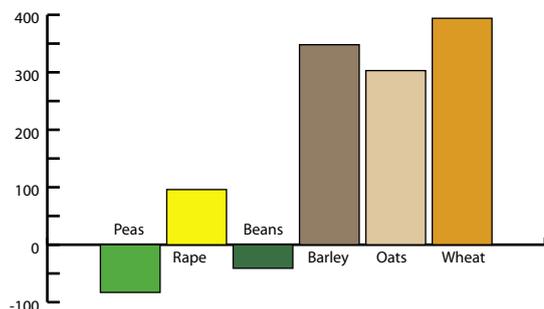


Abbotts Hall Farm crop income less total expenses, 2001 to 2003

Gross Margin

Gross margin is the term that is used in farming to measure the contribution that a crop makes to the farm's fixed costs. This is a useful measure because it shows the direct effects of farming decisions. For each crop the gross margin is calculated by subtracting the variable costs from the sales income. To compare the contributions of different crops on a single farm, we can work out the gross margin per hectare.

£ per hectare



Abbotts Hall Farm gross margin per hectare, 2003

The gross margins shown have been calculated using the spot price at harvest to calculate the sales income and include the value of straw. Spot prices are used because decisions on the next year's crops must be taken before the final crop income is known.

Decisions on what crops to grow have to take account of many other factors, such as the control of soil fertility, the build up of diseases, the timing of field operations, and their suitability to local conditions.

Strategies to increase profitability

There are many different strategies that can be followed to try to increase farm profitability. In theory profit can be increased by

- Achieving a higher price
- Growing different crops
- Increasing the crop yield
- Reducing the variable costs
- Reducing the fixed costs
- Qualifying for the highest possible subsidies
- Gaining the highest possible grants

The best approach is far from obvious as changing one of these factors can affect several of the others, local conditions constrain what is feasible, and in the end the weather may decide.

Comparisons between farms

To compare the performance of different farms growing the same crops, allowances must be made for differences in the cost structures. For example, a farm using only casual labour will have higher variable costs and lower gross margin than one using employees. Many farmers pay a rent for land, which significantly increases their fixed costs.

The standard figures used for comparisons between farms are the "NIX" costs provided in the annual Farm Management Pocket Book edited by J Nix, which include labour costs. The table shows gross profit figures for each crop using the actual input costs and fixed costs calculated from the relevant NIX standard costs.

£	Crop value	Area paym'ts	Input costs	Fixed costs	Gross Profit	G. Profit per ha	
	Peas	2,133	3,017	3,052	2,612	(514)	(47)
	Rape	3,606	5,260	1,819	6,152	895	48
	Beans	1,530	2,208	1,861	2,036	(159)	(20)
	Barley	21,360	12,389	4,797	10,577	18,375	388
	Oats	9,026	5,308	3,187	4,858	6,289	326
	Wheat	45,124	18,404	17,642	17,084	28,802	394

Abbotts Hall Farm gross profit per hectare using NIX costs, 2003

The strategy being followed at Abbotts Hall Farm is to achieve premium prices by producing crops for higher value uses, as this is most compatible with the environmental aims. This means identifying niche markets of higher value and producing crops specifically for them, if possible to a contract agreed in advance. Conservation grade crops fit the bill and provide a practical way of balancing environmental and financial objectives.

Many farmers adopt a strategy of maximising the yield from their crops by growing the most reliable crops (generally wheat in Essex) on the largest possible area, using fertiliser to maintain soil fertility and spraying to eliminate the threats from pests. This strategy has been fairly successful in economic terms but not in environmental ones.

Changes to the Common Agricultural Policy

2005 sees the introduction of new farm subsidies and grants, with the move to the Single Farm Payment and Environmental Stewardship schemes. All farmers are having to reassess their methods of operation in line with the changes.

Common Agricultural Policy (CAP)

The CAP was introduced in 1962 to increase EU food production and reduce dependence on imports. It manages EU food markets through subsidies, production quotas and price controls, and protecting the domestic EU market through import taxes and export subsidies.

The key objectives of CAP are to:

- Ensure a fair standard of living for agricultural producers;
- Stabilise markets;
- Assure availability of supplies;
- Ensure reasonable prices to consumers

The CAP has largely achieved its aims but has been very expensive to fund, and produced chronic surpluses, problems for less developed countries supplying world markets, and environmental damage due to the intensive agriculture it has encouraged.

CAP Reform

Measures to reform the CAP were agreed in June 2003. There will be changes to both subsidies and grants.

The Single Farm Payment (SFP) replaces IACS subsidies from 2005. To receive the SFP farmers will have to comply with codes of practice on environment, public and animal health and animal welfare. Unlike IACS, the SFP separates the subsidy from production.

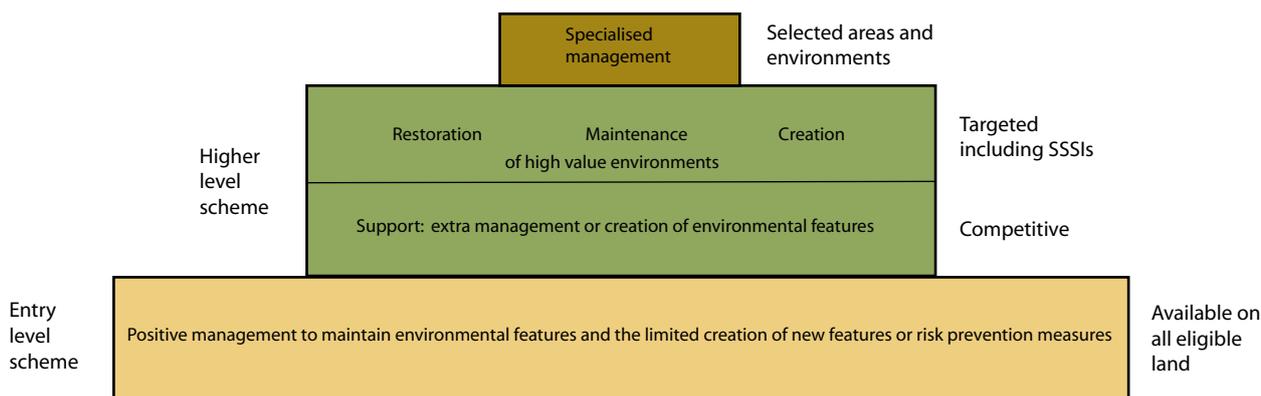
The old agri-environment schemes described below are being replaced by a tiered Environmental Stewardship scheme, funded by increased modulation.

The Entry Level Scheme will provide a grant, probably of £30 per hectare per year across the whole farm, for good environmental management of pollution, loss of biodiversity, and the conservation of historic features.

Farmers select options to fit their farm e.g. hedgerow management, buffer strips round fields, low input grassland, and organic farming. Payment is automatic if the points target for the farm is reached.

The Higher Level Scheme will be targeted at the maintenance, restoration or recreation of high quality environmental features, mostly in specific areas, and will replace the Countryside Stewardship and ESA schemes. Farmers will compete for the available grants. There will be individual agreements based on a farm's environmental management plan, which might address several objectives such as wildlife conservation, enhancement of landscape quality, promotion of public access, and flood management.

Specialised Grants may also be available for selected areas such as SSSIs (Sites of Special Scientific Interest).



The new tiered Environmental Stewardship Schemes

Abbotts Hall Farm must qualify under both the entry level and higher level schemes to maintain its grant income.

Agri-environment schemes in 2004

The Countryside Stewardship Scheme

aims to improve the natural beauty and diversity of the countryside, restore and enhance targeted landscapes, their wildlife habitats and historical features, and improve public access. A management agreement is made for a period of 10 years and annual payments are made.

Abbotts Hall Farm has received grant payments to cover hedge coppicing and planting, uncropped field margins of width 2m (£400 per hectare) or 6m (£533 per hectare) round every field, and beetle banks across the largest fields.

A 20-year Habitat Scheme covered the creation of 19 hectares of intertidal saltmarsh at Abbotts Hall. The Intertidal Stewardship Scheme has now replaced this scheme for new applications.

The ESA grassland scheme

encourages farmers to establish areas of grassland in Environmentally Sensitive Areas such as the Blackwater Estuary, where the wildlife interest, particularly wildfowl, is of national importance. At Abbotts Hall Farm 34 hectares of new grassland have been established under the scheme, bordering the new coastal marshland. The grant payments are £275 per hectare per year for 10 years.

The Farm Woodland Premium Scheme

targets the creation of new farm woodland and the improvement of habitats and biodiversity. Grants include a capital payment (£1,350 per hectare for broadleaved woodland of less than 10 hectares) and an annual payment for 15 years for broadleaf woodland.

The Organic Conversion Scheme

encourages the expansion of organic production by providing payments during the 5-year conversion period when income from crops is reduced.

For the conversion of arable land the payments are £450 per hectare spread over five years. There are also lump sum payments totalling £600 towards the costs of advice and training for the first three years. Fully organic land may be eligible for 5-year maintenance payments of £30 per hectare per year.

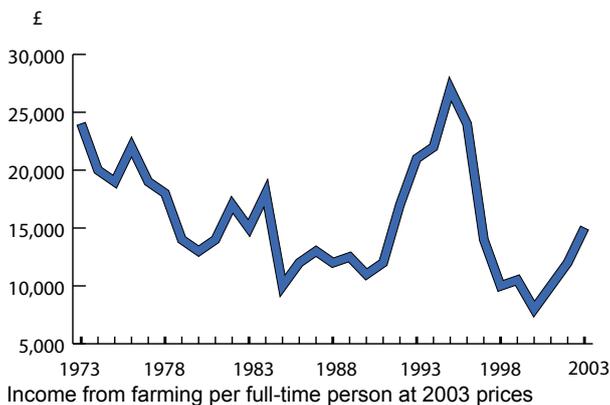
At Abbotts Hall Farm an area of 15 hectares in two fields is being changed to organic production as a trial. For two years clover was grown to improve soil fertility; this will be followed by wheat and beans. The trial is to see if an adequate yield is possible in the local conditions without the use of pesticides and fertilisers.

Changes in farming

The next few years will be a time of great change for farming, particularly with changes in the Common Agricultural Policy, and many farmers are reconsidering aspects of their business. For example, lowland livestock may be reduced, affecting farmland habitats.

Farm incomes

There is a long-term downward trend in incomes across the whole UK farming industry but large variations year by year. These are due to changing exchange rates and world commodity prices, and the impact of BSE and Foot and Mouth Disease. 2003 was a good year for cereal farm incomes, with the drought and very hot weather in central and southern Europe producing high demand and strong prices. Farm profitability varies with farm size; only a minority of small farms is profitable.



Income from farming per full-time person at 2003 prices

Farming in England and Wales

About 70% of land is used for agriculture: 36% crops, 41% grassland and 14% rough grazing (2002). There are marked differences in farming between regions, with grassland dominating in the west and uplands, and cereals dominating in East Anglia and the East Midlands.

Land use is changed in response to changes in demand and government policies. The last 50 years has seen a decline in oats, mixed corn and rye, and increases in oilseed rape and wheat, which now covers over one sixth of farmland. Although historically Essex farming was centred on sheep, this changed in the last 60 years so that less than 10% of agricultural land in Essex is now used for animals.

There has been a long-term trend towards larger farms where higher economic productivity can be achieved with modern farm machinery and less labour. This has been accompanied by an increase in contract farming. Competitive pressures and the CAP reforms are expected to continue these trends.

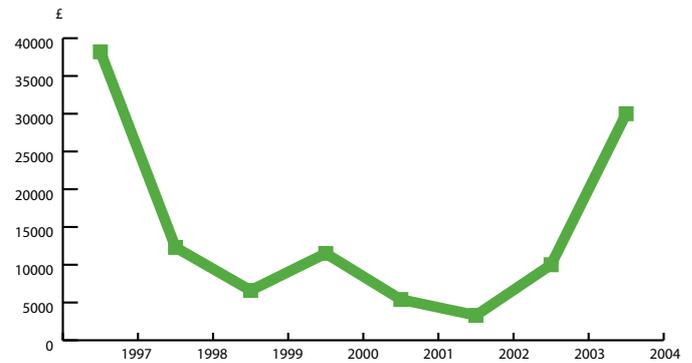
Despite farming subsidies the prices paid on world markets are such that many small and medium sized farms are unprofitable and landowners have been forced to seek other ways of gaining a return from their land. As well as branching out into tourism, some are considering new possibilities such as growing energy crops for use as fuels.

Further Information

Common Agricultural Policy Reform, 2004, www.DEFRA.gov.uk/farm/schemes/
Strategy for sustainable farming and food, 2003, www.DEFRA.gov.uk/corporate/rds/sstf
Agricultural Land Use, 2004, www.environment-agency.gov.uk/yourenv.eff/land
Essex Trends Key Counts 2003, www.essexcc.gov.uk
Farm Management Pocket Book, 2003, JS Nix, Wye College
A Guide to IACS and other Agricultural Subsidy Payments for 2004, www.Mooreallen.co.uk/agriculture
"All change on the land" and "How will it affect you", Farming First, Spring/Summer 2004, Farming and Wildlife Advisory Group
The case for sustainability down on the farm, Robert Howes, Green Futures, March/April 2004
Farming at Abbots Hall, Abbots Hall Farm Fact Sheet 7, Summer 2004

The Farm Business Survey shows the average net farm income (profit) for cereal farms in the UK. These average figures disguise the fact that many farms do not return a profit in the lean years; in 2001/2 about half of all cereal farms made a loss.

The government expect the introduction of the Single Farm Payment to reduce bureaucracy and make farmers more market-oriented. It is also likely to increase prices. Farm incomes are forecast to rise by about 5% as a result.



UK cereal farms: average net income per farm, 1996/7 to 2003/4

Economic position of the farming industry, July 2004, DEFRA

Markets for farm products

Farmers' cooperatives are widely used to sell farm produce and allow individual farmers to benefit from the bulk purchase of inputs. Crops are sold into world markets in competition with highly mechanised million-acre farms in South America, Canada and the US, and farms in countries with very low labour costs and different environmental policies. The enlargement of the EU and greater liberalisation in agricultural commodity markets are likely to make life even more difficult for UK farmers, who will find it very hard to compete on price.

There are two main views on the best way forward for farmers. Some feel that the answer is to have fewer, larger, more intensive farms producing high yield crops that can compete on price in world markets.

Others see a future in higher value-added specialist crops aimed at more local markets. Neither approach is certain to succeed. Many people feel that more fundamental changes are required if farming is to become part of a more resilient rural economy.

Specialist markets where farmers can earn a premium include high quality cereals for baking and brewing, organic and conservation grade cereals, and direct sales to local customers through individual contracts and farmers' markets.