# Organic food: facts and figures 2004

INFORMATION SHEET

**Nutritional benefits of organic food**

- Organic food contains, on average, higher levels of vitamin C and essential minerals such as calcium, magnesium, iron and chromium[1].
- In a review of 41 studies from around the world, organic crops were shown to have statistically significant higher levels of vitamin C, magnesium, iron and phosphorous. Spinach, lettuce, cabbage and potatoes showed particularly high levels of minerals[2].
- Nitrate levels in organic food are on average 15% lower[3]. Scientists from Glasgow University have found a link between the levels of nitrates in vegetables and gullet cancer, which has trebled over the last 20 years and claims more than 3000 lives a year. They believe that an increase in the use of nitrate fertilisers since World War II may be one of the main reasons for the rise in this cancer.
- Organic vegetables have higher levels (between 10% and 50%) of secondary nutrients. These include antioxidants which help to mop up harmful free radicals implicated in cancer[4].
- Deficiencies in certain vitamins and minerals can lead to a variety of symptoms including muscle cramps and depression[5].
- Between 1940 and 1991, trace minerals in conventional UK fruit and vegetables fell by up to 76% - US figures show a similar trend (Defra and USDA)
- In a survey of organic vegetable soups, researchers found that they contain almost six times as much salicylic acid as non-organic vegetable soups [2] The acid helps combat the hardening of the arteries and bowel cancer and is responsible for the anti-inflammatory action of aspirin. It is naturally used in plants as defence against disease[6].
- The Food Standards Agency agree that consumers concerned about sustainability (wildlife, pollution, climate change) and pesticide residues can buy organic food[7].

An article published in "Coronary and Diabetic Care in the UK 2004" by the Association of Primary Care Groups and Trusts, concluded that a predominantly organic diet:

• reduces the amount of toxic chemicals ingested;
• totally avoids GMOs [genetically modified organisms];
• reduces the amount of food additives and colourings;
• increases the amount of beneficial vitamins, minerals, EFAs [essential fatty acids] and antioxidants consumed;
• appears to have the potential to lower the incidence of common conditions such as cancer, coronary heart disease, allergies and hyperactivity in children[8].

**Additives**

- Health problems as diverse as heart disease, osteoporosis, migraines and hyperactivity have been linked to food additives whose use is banned in organic food. 297 additives are permitted in conventional food while 27 are allowed in organic food, some which have to be added for legal reasons.
- The following are specifically banned in organic processed food:

1. Hydrogenated fat, which is linked to heart disease, is banned under organic standards.
2. Phosphoric acid, which is a highly acidic ingredient used in cola drinks. It can leave the bones brittle and porous and lead to osteoporosis.
3. Aspartame, the most widely used artificial sweetener. Reported reactions to aspartame include headaches, nausea, diarrhoea, convulsions and seizures.
4. Monosodium glutamate, which is thought to be responsible for dizziness, headaches and asthma attacks.
5. Sulphur dioxide which can often cause problems in people who have asthma.

**Pesticides**

- Cox's apples can be sprayed up to 16 times with 36 different pesticides - many of these are hard to remove even if the fruit is washed[9].
- 350 chemicals are routinely used in conventional farming[10]. Only four are permitted in organic farming.
- Government tests have shown that some spinach contains pesticide residues that exceed the safety level for toddlers. Pesticide residues were also found in three quarters of the dried fruit that was sampled, half of the bread, a third of the apples and celery, and a quarter of the chips from fish and chip shops. Six samples of baby food contained residues at high levels[11].
- Even though cancer-causing chemicals such as lindane and DDT have been banned, Government tests in 2000 showed that food still contains residues. Other chemicals are linked with cancer, breast cancer, decreasing male fertility, foetal abnormalities. DDT has been found in 67% of feta cheese samples[12].
- Little is known about the effects of multiple residues - the cocktail effect. In 1999, 93% of oranges had multiple residues[13]. There has been very little research done but all current knowledge points to there being a very distinct possibility that chemicals would react with each other.
- The Government recently recognised this shortfall in knowledge and produced a report last year entitled 'Risk assessment of mixtures of pesticides and similar substances'.[14] The report says that there is disquiet about the cocktail effect and that there is very little evidence of the occurrence and importance of such cocktails. However, the Government has been criticised for not going far enough in investigating the realities of the cocktail effect.

**Antibiotics**

There is growing concern about the high use of antibiotics and possible effects on human health. The House of Lords Select Committee on Science and Technology concluded in 1999 "There is a continuing threat to human health from imprudent use of antibiotics in animals". The British Medical Association is concerned that "The risk to human health from antibiotic resistance is one of the major health threats that could be faced in the 21st century."

Antimicrobial drug residues in food (including antibiotics) are suspected to cause allergies[15], cancer[16], paralysis and respiratory failure[17], anaphylactic shock[18] and aplastic anaemia in either humans or animals[19]. Government advice maintains that these residues pose no risk to consumers[20]. However, in a previous report the Soil Association has argued that this may not always be the case[21]. Official reviews of the scientific evidence have called into question the safety of several drugs which have been widely used for many years[22].

**GM**

Although it is claimed by the biotechnology companies that there have been no ill effects from several years of GMO consumption in the US, there have been no epidemiological studies to support this statement. The following developments indicate that negative effects may be occurring:

- UK: 50% rise in soya allergies is reported since imports of GM started[23].
- Ireland: doctors have reported an increase in child soya allergies since the start of GM soya imports[24].

US: coinciding with the introduction of GM ingredients, food derived illnesses are believed to have doubled over the last seven years[25].

**Hidden costs of intensive farming**

- Around £120 million a year is spent removing pesticides from the UK's water supply - mainly as a result of the chemicals used in conventional farming[26]. Water customers who already pay around £7 a year to remove nitrates and pesticides from their water will be paying around £25 or more in the next five years. The problem is mainly blamed on farmers using too many pesticides, fertilisers and over crowding their animals. Organic farms avoid the use of pesticides. It has also been demonstrated that overall losses of nitrate from the organic systems studied were smaller than from the conventional systems[27].
- The annual cost of agriculture to the environment is £1.4bn[28].
- The Government has paid almost £280 million in compensation to farmers following the BSE crisis[29].

The Government has paid £2.7b in payments and compensation as a result of the foot-and-mouth crisis.

**Food miles**

- Importing a kilo of Chantrelle mushrooms from Zambia results in 4505g of CO2 being emitted[30].
- The average person is responsible for 9.63tonnes of CO2 emissions[31].
- A weekly basket of imported food for a family of four could add 1.1 tonnes to per capita emissions[32].
- A typical Sunday meal could travel 49,000 miles - equivalent to two journeys around the world and releasing 37kg of CO2[33].
- Distributing products by plane results in 50 times more CO2 than sea freight. International trade in food almost doubled between 1968 and 1998[34].
- For every 1000 fruit products bought in the UK only 6 will be grown here[35].

The food system accounts for up to 40 per cent of all UK road freight[36].

**Local food**

- Sales of organic food through farmers' markets, box schemes and farm shops reached over £90 million, showing a dynamic growth rate of nearly 30 per cent. The most marked jump was in sales through farmers' markets which more than doubled. Direct sales now account for a tenth of all organic food sold[37].

## Environment

- An annex to the English organic action plan provided an official consensus on the environmental benefits of organic farming. Compared to non-organic farming the benefits are: greater farmland biodiversity and energy efficiency; reduced agrochemical pollution, carbon dioxide emissions, and waste; and reduced nitrate leaching similar to that achieved through Nitrate Vulnerable Zones for non-organic farming[38].

Long term efficiency benefits were revealed by a 21-year Swiss comparison of organic and integrated farming. Though yields were 20 per cent lower in the organic system, fertiliser and energy input was 34-53 per cent lower, pesticide input was 97 per cent lower, and the recycling of resources through the system was more efficient. The organic system also had higher soil microbial biodiversity and activity, and greater soil particle stability[39].

### The developing world

- Professor Jules Pretty, director of the Centre for Environment and Society at the University of Essex, wrote, "Recent evidence from 20 countries has found more than 2 million families farming sustainably on more than 4-5 million hectares. This is no longer marginal. It cannot be ignored. What is remarkable is not so much the numbers, but that most of this has happened in the past 5-10 years. Moreover, many of the improvements are occurring in remote and resource-poor areas that had been assumed to be incapable of producing food surpluses."[40]

A report by Greenpeace in 2002 found that organic and agro-ecological farming techniques are ideal for food production in the developing world, improving productivity and nutrition at low cost, sustainably and without reliance on foreign commercial interests[41].

### Animal welfare

A review of the Soil Association organic standards and farm assurance schemes by Compassion in World Farming in 2002, found that organic standards provide by far the highest levels of animal welfare. It achieved about twice as many welfare criteria for each farm animal species as farm assurance schemes[42]

## Government support

- In 2002/03, the UK Government spent approximately £3.1 billion on agricultural subsidies and grants. Of this, 0.7 per cent (£23 million) was spent on supporting organic conversion in the UK. This amounts to 12.7 per cent of the total £180.5 million spent on UK agri-environment schemes.

The Government's action plan to develop organic food and farming in England was launched in 2002, encompassing the following key measures:

1. Ongoing organic 'stewardship' payments acknowledging the environmental contribution organic producers make
2. Recognition and support for developing organic public procurement - organic food for schools, hospitals and other public institutions

3. More research and development funding
4. A target of 70 per cent of organic food sold in England being English-produced by 2010

**Certification**

All organic farms and food processors are inspected at least once a year.

**Organic farms and food**

- The organic retail market showed positive growth between 2001/02 and 2002/03, rising 10.4 per cent from a retail sales value of £920 million to £1.015 billion. Sales of organic food in the UK have topped £1 billion for the first time, making the UK the third biggest outlet for organic food in the world[43].
- The number of registered organic farmers rose by 3 per cent from 3,865 in 2002 to 3,991 in 2003 (including 619 in Wales, 738 in Scotland and 139 in Northern Ireland)[44].
- By April 2003, 726,400 ha of agricultural land in the UK was being managed organically. This represents approximately four per cent of UK farmland on nearly 4,000 organic farms. There has been a 16.5 per cent increase in fully organic land, rising from 458,650 ha in April 2002 to 534,300 ha[45].
- The value of processed organic food has grown considerably over the last five years. In April 2003 there were 1,585 processors (up from 500 in 1998) and 7,575 different processing operation across the UK. The year 2002/3 saw an estimated ten per cent growth in sales at food manufacturing level as well as some consolidation in the market[46].

**Find out more**

Please see the Soil Association website library, http://www.soilassociation.org/library, for more information.

For information about where to buy organic food check out The Organic Directory 2002 - 2003. Available from bookshops and the Soil Association (0117 929 0661 or www.soilassociation.org).

The Soil Association has a network of organic farms that are open to the public. To find out about a farm near you, visit www.soilassociation.org or call us on 0117 929 0661.

**Footnotes:**

**Footnotes;**

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