



Briefing paper on Allotments, Food and Climate Change: how growing one's own food can reduce emissions from food production

We are concerned by climate change and the need to reduce carbon emissions and change our lifestyle. There is only so much that the ordinary person can do. There are many steps we can take to reduce our carbon emissions. We can follow the Scottish Government's 10 Simple Steps (<http://www.infoscotland.com/ourfuture/21.html>). We can use low energy light bulbs, recycle more, leave the car at home and walk, cycle, car share or use public transport. These actions make a positive difference even though emissions from power generation, transport and manufacturing industry are outwith our control. One area that does permit improvements on an individual scale is the way we obtain our food.

There have been several studies on the Green House Gas emissions from growing, marketing, and processing food.¹ It is estimated that some 19% of total UK emissions are generated by the food sector. The Government is committed to reducing carbon emissions by 80% by 2050. It is appropriate to consider what impact more people growing their own food in gardens and allotments could have on the reduction of emissions from food.

The figures in this paper are based on a reasonable estimate of the amount of vegetables, herbs, and fruit that are produced on an average plot in Scotland by an experienced plot-holder. There is uncertainty in estimating the carbon emissions both from agriculture and in the home environment so any figures reflect this. We have used middle of the road estimates of CO₂ emissions involved in food production and processing from the references below. We believe that our analysis gives a useful picture enabling a rough estimate to be made of the reduction of CO₂ that can be achieved through home-grown food. This figure will be particularly useful for local, community groups seeking funding for new allotment sites.

A typical allotment site on 1 hectare has 50 plots with over 100 people gardening either as individuals, families or community groups. Experienced plot holders grow green vegetables, herbs and flowers all the year round. They harvest and store sufficient potatoes and root vegetables for the year, have soft fruit from May until October and on some sites have apples and pears for the Autumn that keep into the winter.

Roughly 8% of the total UK greenhouse emissions (including methane and nitrous oxide) comes from farming, in particular from ruminant rearing and animal waste management; 2.5% from transport of food (air, road haulage sea and car); 5% from packaging processing, storing and retail; 3% from home processing (cooking, refrigeration, washing up) and about 0.3% from waste and 2% from fertilizer manufacture.

It is estimated that an average person is responsible for 12 tonnes of CO₂ emissions each year and 2.3 tonnes of this will come from food¹. While 0.4 tonnes is used in domestic processing of food, 1.9 tonnes is due to agriculture, transport, processing, packaging and retailing of our food. Home grown produce avoids these latter emissions because gardeners eat their own vegetables and fruit, usually walk to their plots, use manual methods of soil cultivation and at best, nurture their soil through a virtuous compost cycle.

If we assume that 25% of a plot-holders food is grown on their plots and there is a commensurate reduction in all bought food (but not in the domestic processing) then 4% (0.5 tonnes) of an individual's total emissions will be saved each year. Surveys show that crops are usually shared by families, friends and local community groups. If we use a conservative estimate of two people benefiting, then at least 1 tonne of CO₂ is saved by each standard allotment plot every year and a one hectare allotment site saves 50 tonnes of CO₂ per annum.

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¹ Cooking up a Storm: Tara Garnett, Centre for Environmental Strategy University of Surrey September 2008
Carbon governance from a systems perspective: Rebecca White, Oxford University ECEEE2007 summer study