Who feeds Bristol?

Appendices and case studies

Production • Processing • Distribution • Communities • Retail • Catering • Waste

Research report written by Joy Carey
see www.bristol.gov.uk/whofeedsbristol

A baseline study of the food system that serves Bristol and the Bristol city region
March 2011

BRISTOL GREEN CAPITAL
INSPIRING CHANGE

NHS Bristol

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Appendix 1A

Organic food supply to Bristol

Key elements of organic farming systems

The main components of an organic farming system are the avoidance of artificial fertilisers and pesticides and the use of crop rotations and other forms of husbandry to maintain soil fertility and control weeds, pests and diseases. Livestock also form an integral part of the majority of organic farms, although there are some successful stockless systems. Organic standards do not allow intensively housed stock or systems where a large amount of total feed has to be bought in. Pigs and poultry must be managed extensively under an organic system, with extensive outdoor access.

Legal status of the term 'organic'

Only food that has been produced in accordance with organic standards by farmers/producers registered with an approved inspection body may be legally sold as 'organic' within the EU. The inputs and practices used in organic farming are strictly regulated in accordance with EU Regulation (see http://www.defra.gov.uk/foodfarm/growing/organic/standards/index.htm for more details on organic standards and current legislation).

Conversion

In most cases land must be managed organically for a minimum of two years (three years for top fruit orchards) before it is granted approved 'organic' status and is eligible for organic certification. Producers can then sell their produce as 'organic' and organic livestock breeding can commence.

Typically, on an organic farm you would find:

a) **Diversity** – this is a fundamental principle of organic farming which can be seen operating at different levels. A diversity of enterprises on a single farm may include cattle, sheep, poultry, pigs, cereals, vegetables and fruit. There are organic farms that specialise in certain enterprises, particularly dairy farms, and vegetable and fruit growing farms, however diversity is still the norm in terms of diversity of species/varieties/breeds, and diversity of grass species, clovers, and herbs in grazing leys. Diversity provides the basis for a farming system that does not rely on imported inputs (fertilisers/pest control products/antibiotics/veterinary medicines).

b) **Crop rotations** – includes fertility building crops such as clovers and legumes, deep and shallow rooting crops, and crops of differing genus. Fertility to grow crops (grass, cereals and vegetables) comes from the use of clovers and other legumes, and the stimulation of biological and fungal activity through regular applications of composts and farm yard manures.

c) **Free range and extensive farm livestock** – all organic livestock, including pigs and poultry are land based and allowed to range and graze in fields. Poultry will have daily access to pasture throughout the year while other animals will be allowed to be housed for winter periods to avoid damaging the soil and land. When housed stock will have spacious housing with bedding and rest areas. All cattle and sheep will be fed predominantly grass and forage all year round, and pigs and poultry will have access to grass/forage throughout the year. There are no situations where livestock are kept indoors permanently or are given feed from genetically modified sources.

Table 1: Organic land areas by UK region 2009

Hectares In conversion	Organic	Total (ha)	Total agricultural area [a] at June 2009 [b]		Organic area as % of total agricultural area
UK	**119,441**	**619,268**	**738,709**	**17,513,456**	**4.2%**
England	67,588	311,176	378,764	9,415,623	4.0%
Wales	36,800	88,566	125,366	1,490,979	8.4%
Scotland	12,039	209,256	221,295	5,598,927	4.0%
Northern Ireland	3,015	10,270	13,284	1,007,927	1.3%
North East	6,548	26,754	33,303	596,914	5.6%
North West	3,388	19,808	23,196	947,602	2.4%
Yorkshire & Humberside	2,668	11,902	14,570	1,112,382	1.3%
East Midlands	3,136	14,440	17,575	1,215,814	1.4%
West Midlands	5,694	32,023	37,717	973,261	3.9%
Eastern	4,131	14,248	18,379	1,434,778	1.3%
South West	34,743	140,368	175,111	1,914,811	9.1%
South East (Inc London)	7,279	51,633	58,911	1,222,084	4.8%

(a) excludes common grazing land

(b) All figures are at June 2009. These may differ slightly from those published later in individual publications due to any revisions which may have been made.

The South West has the greatest proportion of organic land of all the English regions. It has the greatest number of organic producers and processor businesses.

Table 2: Numbers of organic producers and processors by UK region 2009

Region/country	Number of producers only	Number of producer / processors	Number of processors only	Total
UK	4,946	210	2,411	7,567
England	3,089	173	2,016	5,278
Wales	1,009	27	140	1,176
Scotland	610	10	200	820
South West England	1,466	76	446	1,988

(Defra Organic Sector UK statistics, 2009)

Table 3: Numbers of organic producers and processors by UK region 2009

Region/country	Number of producers only	Number of producer / processors	Number of processors only	Total
UK	**4,946**	**210**	**2,411**	**7,567**
England	3,089	173	2,016	5,278
Wales				
Scotland				
Northern Ireland	238	0	55	293
North East	124	6	37	167
North West	163	10	160	333
Yorkshire & Humberside	143	10	155	308
East Midlands	210	10	202	422
West Midlands	322	14	171	507
Eastern	225	15	289	529
South West				
South East (Inc London)	436	32	556	1,024

Table 4: Numbers of crop / livestock organic producers and processors 2009 (*)

Region/country	No. crop producers	No. crop producers and processors	No. livestock producers	No. livestock producers & processors
UK	**4,667**	**214**	**2,711**	**153**
England	2,940	172	1,678	128
Wales	988	27	551	14
Scotland	531	15	292	11
Northern Ireland	208	0	190	0
North East	116	6	73	5
North West	158	10	104	7
Yorkshire & Humberside	131	9	86	4
East Midlands	197	10	130	6
West Midlands	308	14	183	13
Eastern	207	17	71	9
South West	1,403	74	845	60
South East (Inc London)	420	32	186	24

(*) Mixed organic holdings will be recorded under both the crop and livestock headings above, so the above numbers cannot be added together to get total producers / processors by region as this will lead to double counting. For totals please see Table 3.

Soil Association licensed businesses in the West of England

a) Total number of processors: 26
Location: 1 in S Glos, 1 in N Somerset; 24 in Bristol

Types:

- Abattoirs/butchery/meat cutting: 5
- Fruit & veg retail/wholesale: 4
- Bakers: 2
- Caterer: 1
- Manufacturers : 8
- Textile products: 2
- Wine/special ingredients/ herbs & spice importers: 4

b) Total number of organic producers: 25

- 6 producers doing grass, forage, f&v, chickens
- 19 producers doing livestock

c) Organic food supply into Bristol

A number of multiple and independent retailers stock organic produce. There several options for buying SW or locally produced organic fruit and veg from one of the 12 organic vegetable box scheme that deliver into Bristol.

*(**Data Source:** Soil Association)*

Appendix 1B

Soil Association work on feeding towns and cities

The Soil Association has calculated figures for feeding populations from a sustainable organic system that uses rotations, based on typical yields from a mixed organic farm. Their work suggests that 0.5 ha per person is needed to produce an annual range of staple food items and that just 0.03 ha per person is needed to produce a range of annual vegetable requirements. The Soil Association have brought together a set of figures based on sustainable agricultural systems and typical yields, to work out an indication of the food needs of an urban community, and how that relates to land area and livestock numbers.

Land calculations using the Soil Association approach

The following table gives a theoretical indication of the needs of 10,000 people. We can use these figures to calculate approximate land and food production figures for the population of Bristol, and then compare the findings to the current land use and agricultural production figures. The accuracy of this is clearly dependent on diets and preferences; an example of this is the volume of chicken that is currently consumed (highly dependent on intensive conditions and grain production). If, due to continuing concerns over poultry welfare, food quality and climate change, poultry consumption reduces then protein will need to come from alternative sources.

Product	Approx annual needs per 10k people	Livestock numbers/ land area
Dairy goods (milk, butter, cheese, yogurt)	5.2 million litres	866 dairy cows
Beef	520 tonnes	2,888 beef animals
Lamb	260 tonnes	13,000 lambs
Chicken	130 tonnes	52,000 head table chicken
Eggs	1.5 million eggs	5,500 laying hens
Cereals	1700 tonnes (for consumption and feed)	350 hectares
Vegetables	1500 tonnes various	300 hectares

Using these figures, the amount of veg required for Bristol would be 60,000 tonnes which would need to be grown on 12,000ha of land.

If Bristol has around 2000ha land potentially available for food production, this might be enough land to produce around 10000 tonnes of veg which could be around 30% of its requirements.

A changed diet and changed land use in the future

However, in theory, and accepting that there may be a forthcoming shift in diet due to energy and climate change issues and associated cost, volumes of the staples of a diet for 25,000 people could be in the region of:

- Milk 13 million litres
- Beef 1300 tonnes
- Lamb 650 tonnes
- Chicken 325 tonnes
- Eggs 3.75 million
- Cereals 2500 tonnes
- Vegetables 4500 tonnes

Using standard yield data from the UK organic sector, such a level of production would require approx. 12,500 hectares of land. An average organic farm size is approx. 100 hectares so it can be seen that a network of up to 125 farms could potentially become part of a wider supply network. Some of these farms may produce specialist products and some may already process and add value. Therefore the food hub would form different relationships with different farms and there would be no one route for food to the community.

Feeding the Bristol population from a network of organic farms based on a changed diet

The unitary authority of Bristol had an estimated population of 433,100 in 2009, but if the surrounding urban area which spills into three other unitary authority areas (North Somerset, South Gloucestershire and Bath & North East Somerset) is also included, 'Bristol city region' has an estimated 1,006,600 residents.

For 400,000 people we need to multiply the figures for 25,000 people by 16.

- Milk 13 million litres (x 16 = 208 million litres)
- Beef 1300 tonnes (x 16 = 20800 tonnes)
- Lamb 650 tonnes (x 16 = 10400 tonnes)
- Chicken 325 tonnes (x 16 = 5200 tonnes)
- Eggs 3.75 million (x 16 = 60 million)
- Cereals 2500 tonnes (x 16 = 40000 tonnes)
- Vegetables 4500 tonnes (x 16 = 72000 tonnes)

If 12,500 ha is required to feed 25,000 people, then 200,000 ha are needed to feed 400,000 people. That works out at 0.5 ha per person. If the average organic farm is 100 ha, then it would require a network of 2000 farms just to feed Bristol city. The city region area has approx 1,006,600 residents and therefore would need 500,000 ha to produce the above food supply. That would require a network of 5000 organic farms.

Summary

Based on the Soil Association 'sustainable diet' figures, it **would require a network of 5000 organic farms to feed the city region's 1,006,600 residents with basic staple food items of dairy products, beef, lamb, chicken, eggs, cereals vegetables**.

*(**Data source:** Romsey Enquiry by Design – food and farming within the proposed new development: Phil Stocker, Soil Association, 2009)*

Appendix 2

'Foodsheds' and 'food footprints'

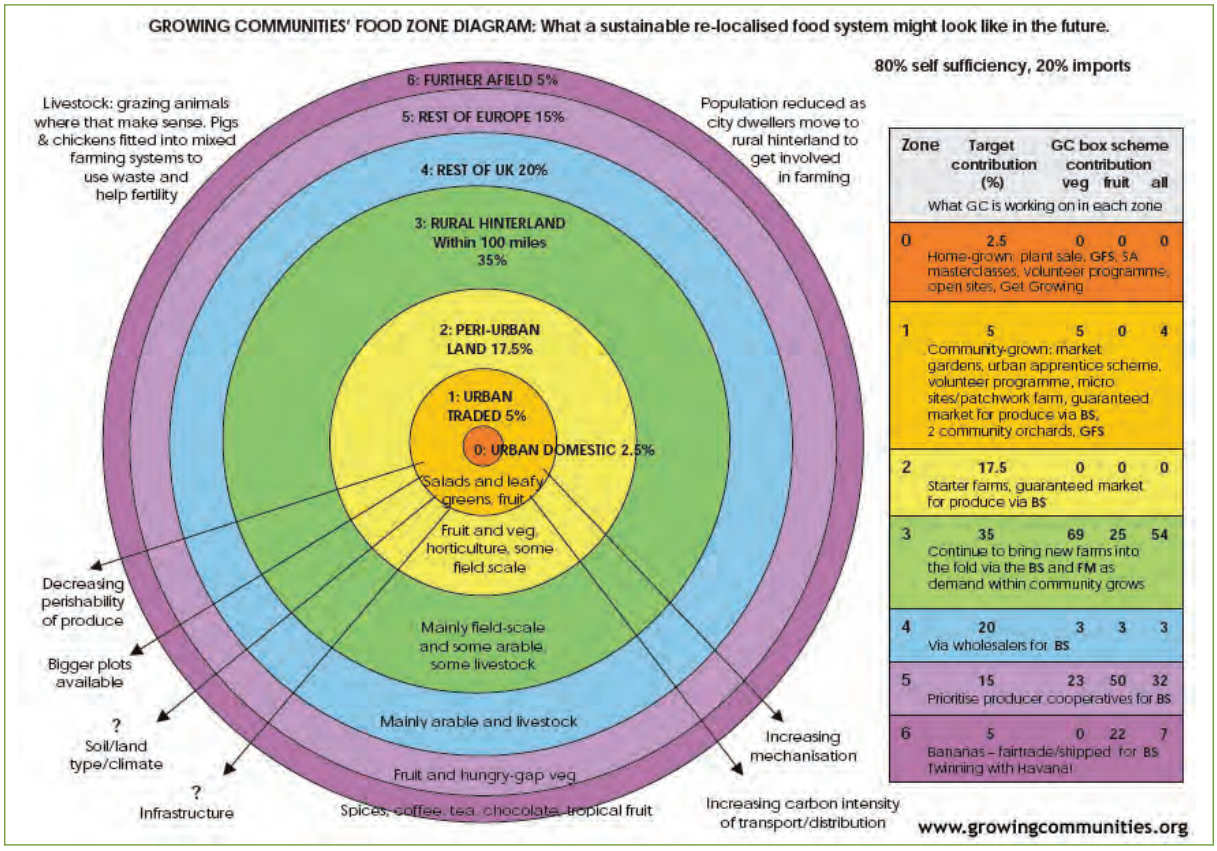
The 'Can Totnes Feed Itself' report opens with the following statement.

> *'In the light of climate change and resource depletion, it may be that the role of local food is no longer an optional extra, but a key necessity in a resource-constrained future. In the wider context of economic localisation, economist David Fleming writes, "…localisation stands, at best, at the limits of practical possibility, but it has the decisive argument in its favour that there will be no alternative" (Fleming 2006).'* ('Can Totnes Feed Itself'; Rob Hopkins, Mark Thurstain-Goodwin and Simon Fairlie, 2009)

Recent food security-related studies have looked at the degree of relocalisation in the food sector that might be possible ('Can Totnes Feed Itself'; Rob Hopkins, Mark Thurstain-Goodwin, Simon Fairlie; 'How food-secure can British Cities become?: A case study of Maidstone, Kent'; Dr H Lee, Hadlow College UK). These studies investigate the amount of land and the types of food production required to feed specific geographical locations with basic sustainable diets from their hinterlands ('food footprints' and 'foodsheds') and draw both on ideas from Simon Fairlie ('Can Britain Feed Itself?'; 2007) and on the 'foodzones' model developed by Julie Brown of Growing Communities in Hackney in which different types of foods are produced in different zones set at specific distances from the community in question (figure 3).

The 'food zoning' model is based on perishability and labour intensity, and places fruit and vegetable growing areas closest to a town or city, followed outwards by cereals and other food crops, dairy and beef, and sheep farming (often on the poorer soils in upland areas).

Growing Communities foodzone diagram: What a sustainable re-localised food system might look like in the future to achieve 80% self-sufficiency



http://www.growingcommunities.org/start-ups/what-is-gc/manifesto-feeding-cities/explore-food-zones/

Growing Communities in Hackney is developing community-led trade. They run London's only organic farmers market, a box scheme, a shop and an apprenticeship scheme for urban patchwork farmers. Their food production and distribution model is available for other community groups to use. *http://www.growingcommunities.org/*

Bristol's 'food food print'

(see Geofutures map of the Bristol city region in section 12, p101)

Permaculture expert Simon Fairlie performed a series of calculations on the potential for land to produce enough food, fibre and fuel under a series of agricultural regimes. The Geofutures concept of a 'food footprint' is based on Simon Fairlie's 'Livestock Permaculture' agricultural model in which 1 hectare of combined agricultural and forestry land supplies 4.4 people. That is 0.2 ha per person. Crudely on this basis, the whole UK landmass could feed 98 million people – many more than our current population of about 61m – but of course the population is not evenly distributed, nor is all land equally productive. (*http://www.geofutures.com/*)

Given the current efficiency of the national and international food supply and distribution system, In planning for a national future food supply that is less dependent on oil derived inputs and oil-fuelled central distribution depots, and one in which the UK is more self sufficient in staple food items, we need to look at the land resources we have around us in more detail, protect the land that is most suitable for food production especially if it close to urban areas, and with the food producers themselves begin to redesign localized food production and distribution systems. This would strongly indicate that any future food plans need to be highly collaborative and that Bristol needs to work closely with the four other unitary authorities on food supply issues. Tools such as GIS will be important for informing this work.

Appendix 3A

Snapshot producer survey – additional information

1. Producer snapshot survey

1.1 The range of markets used by respondents

There are a number of other outlets which are significant for some respondents: direct sales outside Bristol area, retail outlets and markets in London, Gloucester, Stroud, food festivals and shows, caterers.

Established Markets for local foods in Bristol and SW region:

- Wholesalers eg. Bumble Hole Foods (eggs) , M&D Kidner (fruit & veg market)
- Processors eg. West Country Farmhouse Cheese
- Farmers Markets – Bristol, Bath, Nailsea, Clevedon, Wells, Weston super Mare, Taunton, Minehead, Stroud, Malmsbury, Cirencester, Swindon, Weymouth
- Other Markets – Bristol Slow Food Market, Tobacco Factory Market, Harbourside Market, Love Food, Made in Bristol Fair, Thornbury Food Fair
- Regular Weekly Markets - Gloucester, Cheltenham, Stroud and Forest of Dean
- Bristol Retailers eg. Dave Giles Butchers Glos Rd), Better Food CO (St Werburghs) Organique (Wells Rd), Castellanos Deli (Fishponds), Harrodene Road (Knowle), Mark's Bread (Bedminster), Culinaria, Paxton Whitfield (Bath)
- Supermarkets – Budgens, Waitrose
- Restaurants, Cafes, Hotels eg. Bordeaux Quay, Royce Rolls Cafe, Forest of Dean area
- Village Shops – in the West of England area
- Farm Shops eg. New Manor Farm Shop

2. Full responses to survey questions

2.1 'Barriers to Selling Direct in Bristol' – summary of responses

Promotion:

Producers selling direct through farmers markets, food festivals and farm shops have experienced a reduction in sales since the start of the recession as customers have less disposable income. Consequently, the majority of producers would welcome support to find and target new customers interested in local food, plus additional marketing and promotion of their products' quality and value to win increased sales. Some producers have developed on-line marketing and internet sales as a cost effective solution.

> *"Where we sell the products are very well received. Because we spend a lot of time producing good quality products we have little time for marketing. We need introductions to people who may be interested in our products so we can provide them with samples. We need to target our marketing efforts, any assistance would be welcome."*

> *"We used to have more outlets around the farmers market including cafes and sandwich shops but they have fallen away over the years and we have not taken the time to find new ones. We lost outlets when Coca Cola gave sandwich shops new fridges designed to fit coke bottles and cheap drinks."*

Producers commented on consumers buying habits and how these are influenced. For example, some consumers are unwilling to pay higher prices for basic products even if they are better value

in terms of quality and taste. Supermarkets own brands and special offers are difficult to compete with, for example Sunday roast and vegetables for £10.

Transport and distribution:
Producers reported that the costs of transport and distribution prevented many of them selling their products to retailers, caterers, hotels, restaurants and pubs in the Bristol area. Some producers had tried selling into these markets but found it was expensive to do lots of small deliveries, also since the recession demand from local shops and cafes has fallen.

> "*We tried selling direct to restaurants and cafes a couple of years ago but they wanted the cakes at such a low price it was not worth my time.*"

Some producers reported they would like to sell to these markets but would need support with collection and distribution of their produce because they lack affordable transport and effective distribution networks.

Staff capacity limitations
Many producers reported that the lack of capacity in terms of time and staff to produce, process, transport and sell their products was a barrier. Some producers have had to reduce staff during the recession and have difficulty staffing farmers markets. Some farming family businesses are hoping younger family members want to take over and develop the business in new ways. A real issue for small farm businesses is product pricing and profitability.

> "*We need time to go and sell to wider outlets and make distribution cost effective at wholesale prices. We have found markets can be more profitable for lower investment of time and resources.*"

Product – specific needs
Meat traders reported a range of issues that were barriers to growth including: need to develop on-farm butchery facilities in order to develop new markets; slaughtering and delivery for direct sales of meat is difficult and expensive; costs for developing cold storage, labelling, refrigerated transport and staffing can be prohibitive for an independent trader.

Some producers of local foods including meat, eggs and vegetables reported they only had sufficient volumes of produce to meet current demand from their existing outlets and for seasonal sales. To develop continual supply all year round or large wholesale markets they would need to invest in increased production, which would require business incentives.

> "*We are a small supplier, the eggs we sell are very popular, we could sell more but currently do not have the volume of hens.*"

Bristol Farmers Market on Corn Street

Bristol Farmers Market on Corn Street is a large well established award winning market with over 50 regular stallholders. A farmers' market is where farmers, growers or producers from the local area sell their own produce, direct to the public. All products sold are grown, reared, caught, brewed, pickled, baked, smoked or processed by the stallholder. Farmers' markets seek to provide consumers with fresh, local produce that supports local economies, healthy communities and reduces food-miles.

> "*The Farmers Market has helped to raise our profile and attract new wholesale customers including new restaurants like Canteen and Severn Shed in the harbourside.*"

2.2 'Support needed to expand supply of local foods in Bristol' – summary of responses

Market research & information

Producers suggested a range of market support initiatives to help them sell increased variety and volumes of local foods into new markets in Bristol including schools and hospitals, retailers and restaurants. Producers requested market research to identify new customer groups interested in buying local food. In particular, market intelligence on bulk buyers of staple products like eggs, dairy, meat and vegetables. It's more profitable for producers to sell large quantities to wholesalers or regular orders to networks of retailers and restaurants.

> "*We had the contract for supplying eggs to schools in B&NES through Bath District Farmers but lost it because the local authority wanted free-range eggs instead, which are much more expensive. We would like to develop new wholesale opportunities.*"

> "*British markets are flooded with imported foods from Poland, Ireland and Holland. There used to be lots of local mushroom producers but the majority have lost out to cheap imports. We can offer fresher and tastier high quality vegetables grown locally*"

A local food distribution hub

Producers identified the need for development of a local food hub for the Bristol area to co-ordinate collection from farmers and growers, wholesale orders, plus refrigerated transport and distribution services. A local food hub could deliver new opportunities for local producers with higher volumes of sales, wider distribution networks and cheaper delivery costs. A food hub could collaborate with market organisers to deliver advertising and promotion campaigns on the value and benefits of buying local food to new customer groups. A local food hub website could offer collective marketing and internet sales. In addition, it could offer access to linked business advice and training for local producers and processors on how to brand and market their products, new product and niche market development. This service could be supported with access to 'local food business development grants'.

> "*We know we need to develop a future business plan and better distribution networks. We are hoping our son may help expand the business and develop sales of our cider, perry and juices to village and community shops, restaurants and cafes.*"

Producer co-operation

Some meat producers identified the need to develop collective slaughtering and butchery facilities in the Bristol area. This could be designed as a co-operative scheme.

Consumer awareness

Many producers believe that consumers would benefit from guidance on how to store, prepare and cook fresh local foods with access to cooking demonstrations and classes, recipes and tasting sessions. These opportunities could be promoted through a local food website with leaflets distributed at farmers markets and via retailers.

Potential for future growth

Local producers suggested there was scope to attract other farmers, growers and processors of local foods to help expand supply into Bristol. There is potential to establish additional farmers markets in districts of Bristol that are not well supplied with fresh produce. They identified opportunities to diversify and develop new ranges of value added local food products to expand the offer to customers and increase sales. Good examples of successful products include sausages, pies, cakes and preserves.

Snapshot market survey

Farmers markets, fresh produce & Country markets survey S Glos, B&NES, NE Somerset & Bristol

Aims:

To put together an overview of the number, scale and regularity of farmers markets, fresh produce & country markets in the region; to assess the range of food sold through these markets; to assess the numbers of producers involved in selling direct through these markets; to assess to what extent people in the region have the opportunity to buy direct from producers; to assess the numbers of people buying from these markets.

Please fill in the details of your Market:

1. Name of Market:
2. Location:
3. Day of the month when market is run:
4. Time of day when market is run:
5. Run by:
6. Contact Telephone:
7. Website/e-mail address:
8. Date when market started:
9. Total number of stall holders at the first market:
10. Total number of stall holders now:
11. Average number of customers per market:
12. Certified with FARMA as a Farmers Market?: Yes No
13. Reasons why/why not certified:
14. What main rules/principles does the market operate to? Eg rules about distance or types of produce:
15. What has helped the market be a success?
16. What has hindered success of the market?
17. Please indicate approximate weekly turnover of the market

    1000-5000
    £5000-£10000
    £10000-£20000
    £20000-£50000
    Over £50000

Please could you provide a list of the producers who sell at your Market. This is to help develop an overview of the range of food that is sold via markets in the region, the numbers of businesses involved, the growth of markets and current issues that markets are facing.

Name of stall holder	Location of stall holder's farm/business	Type(s) of produce sold	Own produce or bought in?	Year started attending the market

Many thanks for your time,
Joy Carey

Local food supply – specialist retail premises

In order to gain a better picture of the supply of food produced locally within the Bristol city region data, we analysed data from four different sources: a) analysis of publicly available information and data to identify local food retail outlets; b) a snapshot survey of independent retailers to find out about who supplies them and how much is sourced locally; c) a snapshot producer survey to find out to what extent local producers are selling direct into the city region; and d) a snapshot survey of the fresh produce and farmers markets to find out numbers of traders and range of food products sold.

1. Specialist retail premises: butchers, bakers and fishmongers in the Bristol city region

Using available data for the four food registers, the total number of butcher, baker and fishmonger premises across the city region are as follows:

- 116 butchers (includes 11 butcher sections within supermarkets)
- 15 fishmongers
- 120 bakers (includes 9 bakery sections within supermarkets; and at least 49 premises which are part of chains: 26 Greggs, 18 Parsons, 5 Pullins)

This leaves approx 62 independent bakeries.

Table 1: Specialist retail premises

Specialist retail	Bristol	South Glos	B&NES	North Somerset	Total
bakers	74	13	17	16	120
butchers	57	14	20	25	116
fishmonger	11		1	3	15
deli/ delicatessen & cheese shop	26	5	14	6	51
health food shops	15	11		8	34
Total	183	43	52	58	336

(***Data source:*** *food registers; local food directories)*

2. Businesses specifically known to sell food produced locally

Together the local food retail outlets in tables 2 and 3 represent around 3% of all registered food businesses in the city region that deal with staple food items. (Section 4, Table 1) In addition there are 39 farmers markets which between them may provide regular trade for approximately 700 local food & drink businesses. (Assuming an average of 20 traders per market based on 'Who Feeds Bristol?' farmers market snapshot survey).

Table 2: Farmers/country markets, farm shops and farm gate sales in the Bristol city region

Specialist retail	Bristol	South Glos	B&NES	North Somerset	Total
Farmers/country markets	8	11	5	15	39
Farm shops	12	9	2	16	39
Farm gate sales	13	2	0	10	25
Total	33	22	7	41	103

(***Data source:*** *Bristol local food website directory; North Somerset local food directory; South Glos local food directory; Flavour magazine website directory; and 'Who Feeds Bristol?' snapshot markets survey)*

Table 3: Number of independent shops listed as selling local food in the Bristol city region

Specialist retail	Bristol	South Glos	B&NES	North Somerset	Total
Greengrocers	6	10	10	4	20
Health food shops	7	0	1	0	8
Delis	16	2	15	3	36
Butchers	8	8	10	8	34
Bakers	9	4	4	10	27
Other	0	10	0	0	10
Totals	46	24	40	25	135

*(**Data source:** Bristol local food website directory; North Somerset local food directory; South Glos local food directory; Flavour magazine website directory)*

Butchers, bakers and fishmongers known to source locally

At least 30% of the independent butchers and 40% of the independent bakers (non-supermarket, non-chain) are known to source food produced locally, and 40% of fishmongers are known to source fish from Devon and Cornwall.

Table 4: Butcher, baker and fishmonger retail outlets known to source locally

	Total	Known to source locally	% known to source locally within retailer category
Butchers (excl 'unitised' ie units in supermarkets)	105	34	32%
Bakers (excl unitised and businesses that are part of a chain)	62	27	44%
Fishmongers (3 of which are Bristol farmers market traders)	15	6	40%

*(**Data source:** 'known to source locally' from LF directories; Flavour magazine; 'Who Feeds Bristol?' snapshot surveys.)*

Bristol Food Waste Estimates

Food waste collection in Bristol

Bristol City Council operates a weekly food waste collection scheme for householders whereby food is presented separately for collection in brown bins. Because the food collected is then mixed with garden waste (collected into the same vehicle) data is not available on the total tonnages of food waste collected through the scheme. Food waste collections for those living in flats and multi-occupancy dwellings are currently being rolled out, with a designated food waste container as part of their mini-recycling centre and free compostable liners provided. By the end of August 2010 137 sites for food waste collections had been set up (this represents 4,700 flatted properties), with a further 321 sites to be set up in the next 14 months. The aim is to provide this service to all flatted properties in Bristol by October 2011.

Amount of wasted food

It is estimated that UK households throw away one fifth of the food they buy (WRAP, 2009) and work has been undertaken to try to reduce this, in the Love Food Hate Waste campaign run by WRAP since 2007.

Current estimates of the amount of food waste collected by local authorities through residual waste and food waste collections per year in the UK range from 167 kg per household based on 2009 data (Resource Futures, 2010), to 230 kg per household based on 2007 data (WRAP, 2009) The total amount of food waste generated per household will be higher than this, as some food waste is put down the drain, home composted, or fed to animals.

Recent compositional analysis has produced an estimate of the amount of food waste collected by Bristol City Council from households served by the kerbside collection scheme (through the residual waste and food waste collection schemes) of 129 kg/hh/yr (Resource Futures, 2010). The data was collected over three phases in 2010 in order to account for seasonal variations, however there are likely to be cyclical variations in food waste arisings from week to week. This estimate of 129 kg/hh/yr is lower than the national average, and possible reasons for this could be that there are more people home composting, using sink disposal units, feeding food waste to animals, the effect of cyclical arisings, or that the food waste collections themselves have caused food waste arisings to decrease as people become more aware of the food they waste.

Use of the food waste collection scheme

In 2007 around 60% of households participated in the kerbside food waste collection scheme (setting out their brown bin at least once in a three week period). The average weekly set out of brown bins was 40% (Resource Futures, 2007). Set out data collected by Sita suggests that the weekly set out rate in 2010 is similar. We do not have data on how many households in flats are using the food waste scheme (where it is in place).

The amount of food waste collected through the brown bin scheme is estimated to be 64 kg/hh/yr, which represents an average of 44% of food waste being captured in this way. The amount of food waste collected from those people living in flats is 52 kg/hh/yr. A capture rate is not available for flats because we do not know how much food waste is in the residual waste.

The scale of the issue in Bristol

In order to produce an estimate of the total amount of food wasted in Bristol, several pieces of data have been combined, and various assumptions made. The following estimate should be used as a guide only.

According to 2001 census data (Office for National Statistics) there were 120,270 houses, and 45,450 flats in Bristol, of which 24,456 were in purpose built blocks. The total estimated food waste arisings for households was multiplied by the number of houses and flats that have the kerbside collection (houses split into flats etc). The food waste collected from flats in MRCs was multiplied by the same capture rate as for houses (an assumption for which we have little basis) and multiplied by the number of flats in purpose built blocks. These two figures were then added together.
Food waste generated by households in Bristol annually is likely to be in the region of 20-25,000 tonnes, of which around 9,000 tonnes is currently collected, and when all purpose built blocks of flats have the collection rolled out this could increase by a further 1,000 tonnes.

Sources

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(***Data source:*** *Resource futures for 'Who Feeds Bristol?'.)*

Appendix 6

Table of Bristol community food activity

Community Growing and Cooking in Bristol November 2010 vs IMD 2007

Produced by NHS Avon IM&T Consortium

Row Labels	1 - Community food growing	2 - Community cooking classes	3 - Lunch clubs	4 - School cooking clubs	5 - School gardening	6 - Food for Life schools	IMD 2007 Score	Grand Total
Ashley	6	4		2	2	2	38.95	16
Avonmouth	3		3		2		31.65	8
Bedminster				2	1	1	23.92	4
Bishopston	1				1		12.24	2
Bishopsworth	1				4	2	32.15	7
Brislington East				1	1		23.23	2
Brislington West				1	2	1	21.15	4
Cabot				1		1	27.99	2
Clifton	1				1	1	12.31	3
Clifton East	1			2			13.43	3
Cotham							13.25	0
Easton	4	1				1	34.87	6
Eastville	5			1	1	1	26.97	8
Filwood	3	1			1	3	56.66	8
Frome Vale	2				1	1	26.84	4
Hartcliffe	2	1		2		1	42.63	6
Henbury		1		2	1	3	34.57	7
Hengrove				1			26.80	1
Henleaze					2		7.20	2
Hillfields				3	3	1	29.03	7
Horfield	1						24.23	1
Kingsweston	3	1	3		1	2	35.30	10
Knowle				1	1	1	27.18	3
Lawrence Hill	5	2	2		2	4	57.49	15
Lockleaze	1			3	3	1	38.63	8
Redland	2						12.07	2
Southmead		1	2	1	3		42.39	7
Southville	3			1	1		29.06	5
St. George East	2				1		21.84	3
St. George West	1			1	1	2	30.08	5
Stockwood					1		22.34	1
Stoke Bishop							7.41	0
Westbury-on-Trym	1			1			10.46	2
Whitchurch Park	2			3		1	39.55	6
Windmill Hill				1	2		30.23	3
Outside Bristol	5						-	5
Grand Total	**55**	**12**	**10**	**30**	**39**	**30**	-	**176**

Procuced by Matthew Leaver 15/11/2010

Appendix 7

How much food could be produced in Bristol?

1. Could Bristol be 50% self-sufficient in fruit & veg?

From the perspective of amount of land available per city resident this question can be answered to some degree but of course self-sufficiency is not just about land. Bristol residents need to know how to grow fruit and vegetables and how to use available urban growing spaces efficiently to produce good yields. To answer this question properly, a number of other questions need answers.

2. How much fruit and veg does one person need per year?

There are a number of different views and ways of looking at 'need'. We have looked at three: from a market angle; from a nutrition angle and from a sustainable food production system angle.

- The National Food Survey statistics 2000 have figures for per capita consumption in UK for main agricultural products. They suggest that over 200kg per person per year of potatoes, fruit and veg is required. (*ESDS National Food Survey list of data sets – 2000*)
- 'Typical consumptions of F and V for an adult is around 88kg per annum (excludes F and V within dishes.' (*National Diet and Nutrition Survey: FSA & Dept of Health; 2008/2009*)
- The Soil Association estimates 150kg veg per person.

3. How much land do we need to feed ourselves?

To find an answer to this question of how much land is needed per person, we need to consider it from a number of different angles. There are a few different approaches to doing this calculation.

- "**The minimum** amount of agricultural land necessary for sustainable food security, with a diversified diet similar to those of North America and Western Europe (hence including meat), is 0.5 of a hectare per person. This does not allow for any land degradation such as soil erosion, and it assumes adequate water supplies. Very few populous countries have more than an average of 0.25 of a hectare. It is realistic to suppose that the absolute minimum of arable land to support one person is a mere 0.07 of a hectare–and this assumes a largely vegetarian diet, no land degradation or water shortages, virtually no post-harvest waste, and farmers who know precisely when and how to plant, fertilize, irrigate, etc." (*FAO, 1993*)
- Geofutures have developed a 'food footprint' mapping system which uses Simon Fairlie's 'Livestock Permaculture' agricultural model in which 1 hectare of combined agricultural and forestry land supplies 4.4 people. That is 0.2 ha per person. (See section 11 on Bristol's 'food footprint')
- The Soil Association has calculated figures for feeding populations from a sustainable organic system that uses rotations, based on typical yields from a mixed organic farm. Their work suggests that 0.5 ha per person is needed to produce an annual range of staple food items and that just 0.03 ha per person is needed to produce a range of annual vegetable requirements. The Soil Association have brought together a set of figures based on sustainable agricultural systems and typical yields, to work out an indication of the food needs of an urban community, and how that relates to land area and livestock numbers. (See appendix 1B on organic supply)

Using the Soil Association figures, the amount of veg required for Bristol would be 60,000 tonnes which would need to be grown on 12,000ha of land.

If Bristol has around 2000ha land potentially available for food production, this might be enough land to produce around 10000 tonnes of veg which could be around 16% of its requirements.

4. How much food can be grown on Bristol's allotments?

> *'The average gardener grew on their 300 square yard plot 745 kg of fruit and vegetables, the highest value items being things like raspberries and currants'.* ('What is your plot worth?' survey 2008-2009: National Society of Allotment and Leisure Gardeners)

The total number of allotments plots in Bristol is 3800 of which 3700 plots are let (97%).
Each plot is 250sq metres, which totals some 92 ha currently under food production.
A years worth of a single allotment plot's produce was monitored and measured by weight and value (compared with supermarket prices) on a month by month basis over a year from Oct 2008-Sept 2009. The total value was over £700 worth and the range of produce was over 40 different kinds of fruit, veg, herbs and salads. (Steve Clampin, Bristol City Council)

So, all things being equal, there is the potential for 3800 allotment plots in Bristol to collectively produce £2,660,000 worth of fruit and veg.

Or in weight, using the NSALG figures, (300 sq yards is 274sq metres), Bristol's 3800 allotment plots could collectively produce 2,831,000kg of fruit and veg (or 2831 tonnes).

Appendix 8

Who feeds Bristol: an assessment of current and potential local food provision

Report for Joy Carey representing the Bristol Partnership

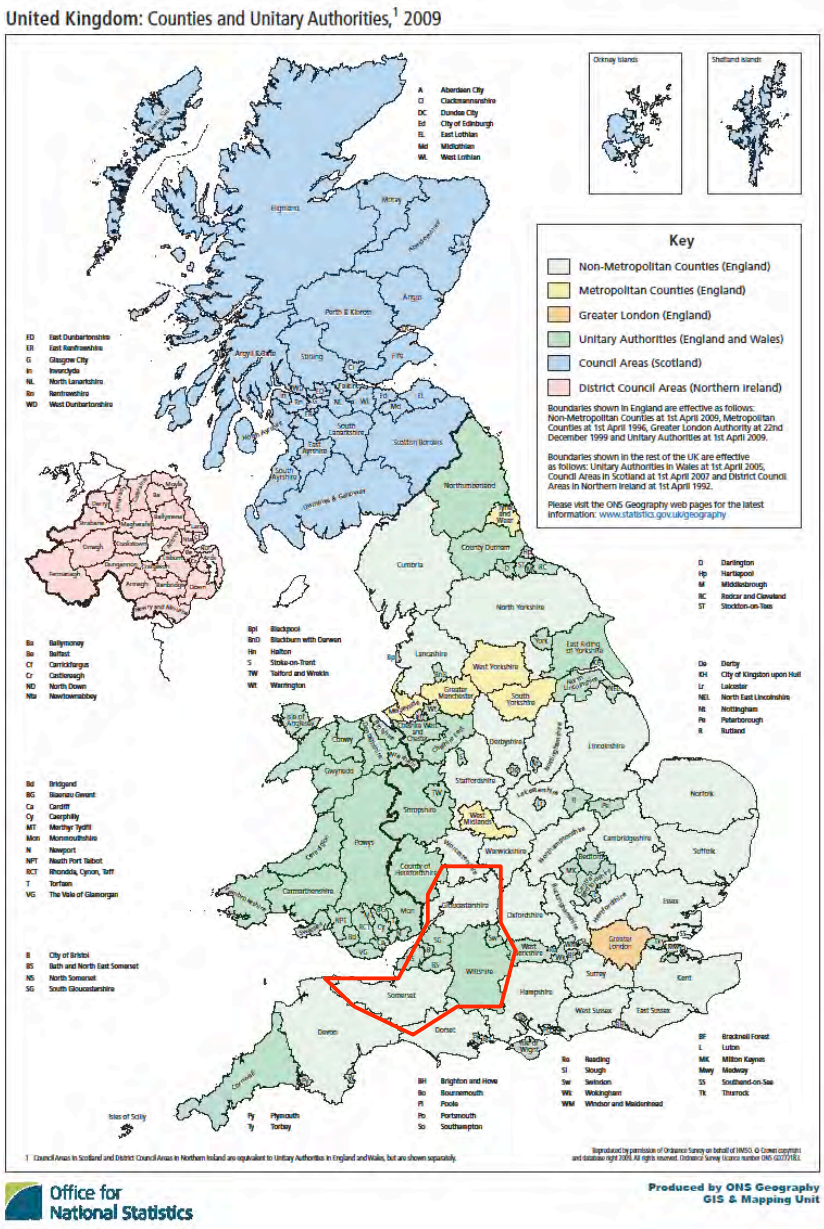
Authors: Laura Christele Rigo and Richard Baines

Royal Agricultural College
Cirencester
September 2010

1 Current agricultural land use around Bristol

The data used to define commercial agricultural production surrounding Bristol was based on DEFRA agricultural statistics (2010) and focussed on Bristol, North and North East Somerset, Somerset, South Gloucestershire, Gloucestershire and Wiltshire (Fig 1).

Figure 1: Local commercial farming regions around Bristol

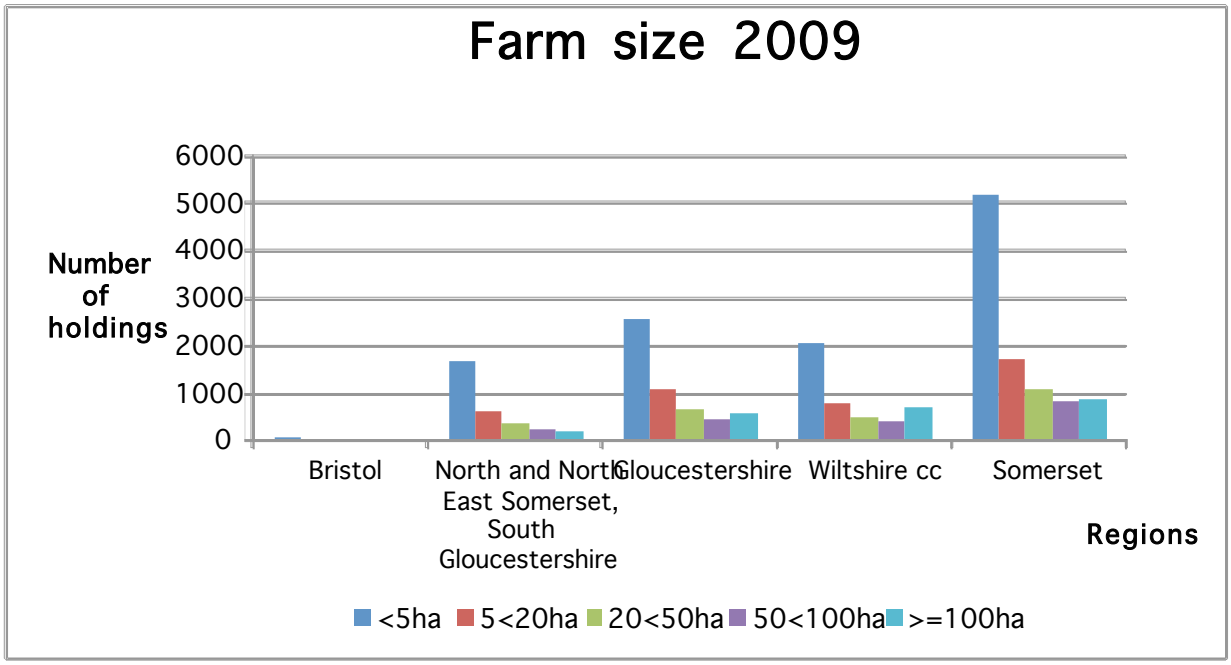


DEFRA classify farm holdings by size of holding (Fig 2) and by major enterprise use of land such as cereals, general cropping, pigs, dairy etc (Fig 3). Although year on year data analysis shows some minor variations in numbers and types of holding, due to minor anomalies in data gathering and reporting, the overall picture of land use remains remarkably stable over time.

1.1 Number of Holdings

Within the local area of this study, there are some 23,000 individual holdings made up of almost 12,000 holdings of less than 5 ha, 4,300 of 5<20 ha, 2680 of 20<50 ha, just under 2000 of 50<100 ha and 2400 >100 ha (Figure 2).

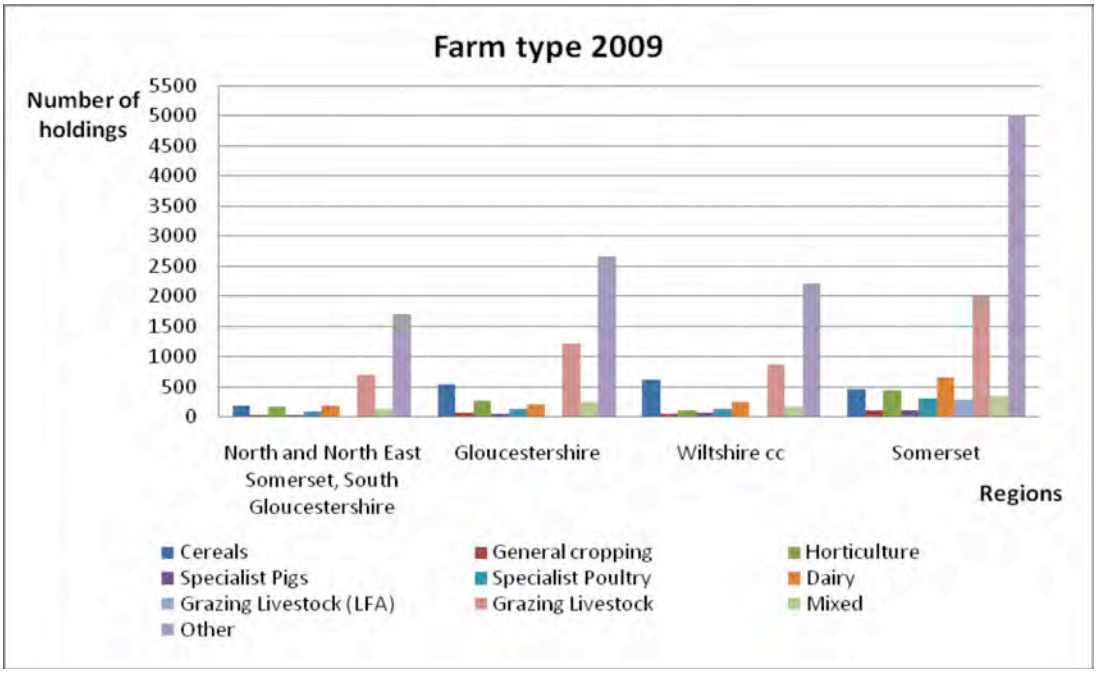
Figure 2: Farm holdings by size (source DEFRA 2010)



1.2 Types of Farm

In terms of major enterprises, there are some 18,000 cereal farms, 253 classed as general cropping, 1000 horticulture holdings, 282 specialist pig producers, 676 specialist poultry producers, over 1,300 dairy farmers, 5,000 grazing livestock farms (with 300 being in less favored areas in Somerset) and a further 900 mixed farms. In addition DEFRA classify another 11,500 holdings as 'other' typically meaning hobby farms, horse keeping and land not in production (Fig 3). Note: Bristol area data by cropping was withheld by DEFRA.

Figure 3: Farm type by major enterprise (source DEFRA 2010)



1.3 Land area and occupancy

The total farmland area in local region defined is 860,928 ha including 1438 ha within the Bristol administrative area (Fig 4). Of this land, 285,142 ha are rented and 579,690 ha is owned land.

1.4 Land area by use

The total farm area can be further divided into land in production and land not used for crops and livestock. Of the production land, 297,544 ha are under crops and bare fallow, 86,075 ha are under temporary grass (in rotation with some of the cropped land), 389,047 ha are permanent pasture and 38,959 is rough grazing. Non productive land includes 35,424 ha of woodland and 2,841 ha of 'other land' including tracks, buildings and curtilages (Fig 4).

Given this profile of land area, ownership and use, it is important to note that the decisions made by farmers in relation to what they produce is governed by five main factors:

- Land sutability for enterprises including soil type, slope, aspect and any physical constraints.
- Climatic conditions and their interation with land and soil factors.
- Market conditions and levels of profitablility
- Any support payments that may influence production such as agri-environment or access schemes, and,
- Farmer preference or interest in specific crops or livestock.

The first two factors (land and climate) largely determine what is physically feasible to produce on any area of land. In other words this defines the typical dairy beef, sheep and cropping areas. The location of pig and poultry units, especially if housed, may be

located more flexibly but are often associated with sources of primary feed or access to slaughter/markets. This is why pigs and poultry are concentrated in the UK in the east of England (where cereals dominate the cropping landscape). The other factors listed above can change over time depending on market conditions of the political will of policy makers..

Figure 4: Agricultural land use per region in 2009 (Source DEFRA 2010)

	Bristol	North and North East Somerset, South Gloucestershire	Gloucestershire	Wiltshire CC	Somerset	Total
Farmed area (ha)	1438	83285	215095	272038	289073	**860928**
Rented area (ha)	126	26135	64961	109158	84762	**285142**
Owned land (ha)	1305	56885	152759	162790	205951	**579690**
Crops & bare (ha)	67	21412	86619	122857	66589	**297544**
Temporary grass (ha)	130	8419	21669	22636	33221	**86075**
Permanent grass (ha)	922	48480	84831	89936	164878	**389047**
Rough grazing (ha)	68	1373	4710	20496	12311	**38959**
Woodland (ha)	204	2465	12887	10587	9280	**35424**
All other land (ha)	47	1135	4379	5526	2794	**2841**

1.5 Agricultural and horticultural cropping

In considering crop areas, the data for Bristol has been deleted as it would be possible to identify specific holdings based on the data provided; therefore some 1438 ha are not counted in Figure 5.

The major crops grown local to Bristol include wheat (107,146 ha), barley (61,872 ha), oils seed rape (36,244 ha), maize (32,661 ha) and field beans (13,639 ha).

Commercial horticultural production is made up of field vegetables (2,174 ha), top fruit (1,990 ha), soft fruit (518 ha) and glass houses (94 ha). As a result horticultural crops for human consumption are grown on 4,776 ha of land with field grown potatoes grown on a further 2,095 ha.

Other crops grown include oats, sugar beet, linseed and dry peas (Fig 5).

Figure 5: Cropping areas local to Bristol (source DEFRA 2010)

Total area of arable crops of which	North and North East Somerset, South Gloucestershire	Gloucestershire	Wiltshire CC	Somerset	Total
Wheat	6840	31504	45070	23733	**107146**
Barley	4514	18659	29600	9099	**61872**
Oats	-	2377	4344	1760	**8482**
Oilseed rape	2443	11682	18112	4007	**36244**
Linseed	349	657	1794	600	**3399**
Potatoes	71	661	154	1209	**2095**
Sugar beet (not for stock)	5	123	38	48	**214**
Peas for harvesting dry	12	629	966	294	**1901**
Field beans	870	4812	4647	3309	**13639**
Maize	3400	6824	8485	13951	**32661**
Total area of horticultural crops of which:					
Vegetables grown outdoors	94	487	533	1060	**2174**
Glass house crops	15	28	11	39	**94**
Top fruits	217	658	30	1085	**1990**
Small fruits	18	199	25	276	**518**
Outdoor plants and flowers	8	4	25	11	**48**

1.6 Livestock numbers

The local region to Bristol rears a significant number of livestock due to the type of land and the wetter climate as refelcted in the high proportion of grassland compared to cropped land (514,081 ha compared to 297,544 ha). Much of this grassland is utilised by cattle (291,332 Dairy and 515,917 beef) and sheep (1.9 million over 1 year and 515,917 under 1 year). It should also be noted that this area has over 9,000 goats recorded which are probably mainly associated with milk production.

Pig breeding units are made up of 16,952 breeding sows and 2,358 gilts in pig as repalcements. The number of meat producing pigs is estimated to be over 120,000 (based on 6 months growing less breeding replacements).

Poultry numbers are made up of 7.25 million table fowl, 2.2 million layers, 1 million breeding fowl and growing pullets, plus 533,650 other fowl including turkeys, ducks and geese. (Fig 6).

Note: the data in fig 6 does not include livestock kept on farms within the Bristol administrative area. DEFRA statistics noted some 500 breeding ewes in this area but suppressed other livestock numbers because of the risk of associating stock to specific farm holdings.

Figure 6: Livestock numbers local to Bristol. (Source DEFRA 2010)

Total cattle and calves of which:	North and North East Somerset, South Gloucestershire	Gloucestershire	Wiltshire CC	Somerset	Total
Dairy cows	21 252	25 361	38 614	85 612	**170 839**
Dairy Dry	5 114	5 151	7 008	18 564	**35 836**
Dairy replacements	10 951	13 685	19 541	40 480	84 657
Beef cows	8 035	14 458	18 478	33 312	**74 331**
Beef cows – no calf	3 869	5 223	5 091	11 384	**25 567**
Beef < 1 year	23 499	34 096	43 306	82 980	**183 925**
Beef 1-2 year	16 573	27 250	25 590	46 918	**116 364**
Beef > 2 year	3 979	6 990	5 201	11 128	**27 299**
Total sheep and lambs of which:					
Ewes breeding	37 928	146 551	73 752	227 000	**485 728**
Rams	977	3 802	1 889	5 754	**12 422**
Sheep over 1 year	4 647	6 303	4 150	11 187	**26 288**
Replacements (estimate)	3800	14600	7400	22700	**48500**
Lambs under one year old less replacements	41740	162092	80990	229845	**466167**
Total pigs of which:					
Sows in pig and other sows for breeding	999	2077	9363	5109	**17547**
Gilts in pig	122	223	1150	606	**2101**
Pigs 50-80 kg	3 869	6 384	9 928	22 998	**43 180**
Pigs 20-50 kg	3 651	7 922	20 160	23 719	**55 452**
Pigs <20kg	5 845	5 805	24 482	26 951	**63 083**
Total Goats:					
Goats	857	5 196	682	2 580	**9 362**
Total poultry of which:					
Table fowl	273341	1874826	2015014	2850073	**7013254**
Laying fowl	396177	465393	562028	626835	**2050433**
Growing pullets	16282	177644	240501	120429	**554856**
Fowls for breeding	157791	249016	173776	41246	**621829**
Turkeys, ducks, geese and all other poultry	3800	74105	122837	279101	**479843**

2 Crop and Livestock Yields

All crop and livestock yields were calculated taking in account the average performance figures for each enterprise based on figures found in "The Agricultural Budgeting & Costing Book November 2009" where performance within the top 25% of producers was used. These data were then linked to crop areas and livestock numbers provided by DEFRA statistic (Section 2). From this we are able to estimate the total tonnage of crop and livestock commodities (Figs 7 & 8).

2.1 Field and horticultural crop yields

Aggregate yields of crops local to Bristol (Fig 7) reflect both the soil and climatic conditions prevailing in the region, but also the intended markets for products. Much of the South West of England is dominated by livestock production and hence many of the crops grown go to feed these livestock. There are a number of crops that are destined for human consumption such as horticultural outputs, most potatoes and around 30% of wheat or are used jointly for example oil seed rape where most extracted oil goes for human use and the pressed meal for animal feed. This is outlined later (see section 4).

Figure 7: Total production of field and horticultural crops local to Bristol

Arable crops	Total yield Tonnes
Wheat	787,524
Winter Barley	136,315
Spring Barley	241,668
Winter Oats	57,679
Potatoes	94,263
Sugar beet	14,571
Field beans	53,191
Oilseed rape	106,014
Linseed	8,073
Forage maize	261.285
Roots	69,150
Peas dry	7,223
Horticulture Yield (t/ha)	
Small fruits	5,875
Top fruits	35,824
Vegetables	35,113

2.2 Livestock production

Livesock predominate farming in the South West; however, in considering outputs to market it is important to separate growing animals in any one year from those that are finishing and will be sold. As such, only a proportion of each livestock group will be producing outputs for sale.

Milk volumes have been estimated based on average yields (spring, autumn, winter and all year calving. All meat production has taken into account killing out percentages and de-boning for the different livestock species and egg production is based on average of cage and free range prodcution per year. The main livestock outputs considered are detailed (Fig 8).

Figure 8: Livestock outputs local to Bristol

Livestock	
Dairy production (Litres)	1107549237
Dairy goats (Litres)	5476770
Beef (average)	38071
Lamb (average)	8545
Pig (average)	9617
Poultry	
Table duck (tonnes)	1045
Table geese (tonnes)	26
Farm fresh turkey (tonnes)	172
Broilers (tonnes)	7560
Egg production (dozen)	615129900

3 Supplying Bristol from the local area

The per capita consumption in UK for main agricultural products can be derived from National Food Survey statistics; however, the methods of data gathering and analysis have changed recently to include sex and age profiels plus 4-day food diaries as opposed to 7 day diaries (ESDS, no date). For this reason the 2000 dataset was used as a reasonable approximation of current consumption.

In order to derive the food demand for these commodities for Bristol, annual consumption per capita was multipled by the number of people in Bristol (Bristol population of 416,900). Once the total weight or volume of each commodity was determined, this was expressed as a % of the total produced in the Bristol local area (from Figures 7 and 8). Furthermore, any compounding factors for each commodity have been factored in such as the proportion of a commodity that goes for animal feed v human consumption (Figure 10)

Figure 10: Per capita and total Bristol consumption of local agricultural commodities and the proportion of locally produced food this equates to.

Product consumed	Annual consumption per capita per year	Consumption in Bristol	Proportion of local production %
Crops			
Bread and cereals	78.4 kg	32685 tonnes	125
Potatoes	102 kg	42524 tonnes	45
Fruits combined	59.8 kg	24931 tonnes	590
Vegetables	57.2 kg	23847 tonnes	103
Livestock			
Milk and cream	108 litres	45.03 million litres	3
Dairy cheese	5.8 kg	2418 tonnes	1.5
Beef (average)	20 kg	8338 tonnes	28
Lamb (average)	3.7 kg	1543 tonnes	18
Pig (average)	43 kg	17927 tonnes	186
Poultry			
Combined Poultry	29 kg	12090 tonnes	73
Eggs	91 eggs	3161492 eggs	0.5

Notes:10 L milk per kg cheese; 1/3 of wheat used for human consumption; 10% of fruit is home grown; 30% vegetables imported,

In terms of the proportion of local production required to 'theoretically' meet Bristol consumer needs, the following conclusions can be drawn:

Wheat: As only 1/3 of UK wheat enters the human food chain, with most of this being grown in the drier East of England, Bristol demand would require 125% of wheat currently grown.

Potatoes: The demand for potatoes in Bristol would require 45% of the tonnage harvested in the local region

Fruits (combined): As the UK is only 10% self sufficient in fruit, largely due to consumer interest in more exotic fruits, supplying Bristol with only local fruits would require almost 600% of production

Vegetables: Again, UK consumers are only some 70% self sufficient in vegetables due to the interest in exotic varieties and the demand to have fresh produce all year. However, if Bristol only consumed local vegetables then 103% of current production would be needed

Milk, cream and dairy products: Due to the predominance of grassland and grazing livestock in the South West, there is significant production of milk and dairy product with only 3% of milk production and 1.5% of milk for cheese being required to satisfy Bristol consumer needs

Beef: UK Beef self sufficiency has dropped in recent years to around 80%, largely due to the marketing restrictions associated with BSE for over 30 month cattle and the relatively cheap imports of beef from South America. However, Bristol demand for beef would only require 28% of regional supply to be dedicated

Lamb: Although lamb is imported such as NZ lamb, there are significant exports to the EU. As such the UK has an excess of production over consumption. Therefore only 18% of local production would satisfy Bristol consumer needs.

Pork and Bacon: Although there are fluctuations year on year, the UK is almost self sufficient in pork and bacon. However, pig production in the West is limited with most production being realised in the East near to feed cereals. As such, Bristol's demand for pig meat would be 186% of current production.

Poultry meat: The UK is self sufficient in fresh table birds, but chicken meat used in recipes and pre=prepared meals is generally imported due to the lower costs of Brazilian and Thai chicken. If we assume that the UK is 90% self sufficient in all poultry meat, then meeting Bristol consumer demands would account for 73% of local production.

Eggs: In contrast to poultry meat, egg production in the Bristol region is significant and only 0.5% of production would be needed to satisfy Bristol consumers.

In making these assumptions, however, we should also consider the other major urban areas that depend to some extent on local food production such as Swindon, Bath, Taunton for example.

4 References

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ESDS (no date) National Food Survey list of data sets – 2000 dataset (accessed September 2010) http://www.esds.ac.uk/findingData/nfsTitles.asp

Appendix 9

What is Bristol eating?

An analysis of purchasing behaviour for convenience foods compared with fresh "Cooking From Scratch) ingredients in Bristol (Wales & West region)
Prepared for Joy Carey, 'Who Feeds Bristol?', 2010

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The information below is a summary of data provided to the Who Feeds Bristol study.

Sustainable Food Systems

Additional Analysis

October 2010

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Objectives

- Joy Carey from Sustainable Food Systems is investigating to what extent Bristol residents are eating prepared convenience foods compared to cooking from scratch with fresh ingredients.
- The data provided in this report comes from dunnhumby whose database comprises purchasing data from a sample of 1.7million supermarket shoppers.
- This report follows on from an earlier report in July 2010 and contains the following information:

1. **Key measures** for a selection of product categories to show performance for fresh ingredients compared to convenience foods in the Wales & the West region (which includes Bristol) over the last 12 months for large **Hypermarket Stores** and small **Convenience Stores**
2. **Store Level Data** showing customer penetration and spend per customer for selected product groups in the following Large Hypermarket Stores:
   - Bristol Eastville
   - Brislington
   - Bradley Stork
3. **Cross-Shop Analysis** showing how many shoppers in Wales & West purchase only fresh ingredients, only convenience foods, or buy both in **Hypermarket stores**.

Products/Categories

The following Product categories were used for the analysis:

- Flour
- Fruit
- Grains/Rice/Pasta
- Vegetables/Salad
- Meat & Poultry
- Dairy
- Eggs
- Bread
- Cereals
- Fish
- Prepared Ambient Rice/Pasta/Snack Meals
- Prepared Fresh Fruit
- Prepared Meat & Poultry
- Prepared Chilled Ready Meals
- Prepared Frozen Ready Meals
- Prepared Fresh Vegetables/Salad

Glossary of Terms

- **Sales Growth**
  - Year on year growth of sales, by volume and value
  - Indication of 'winners' and 'losers'
- **Customer Penetration**
  - % of shoppers who have made at least one purchase in the last year
  - Indication of scope for attracting new buyers
- **Frequency of purchase**
  - The average number of units purchased per customer per year
  - Indication of scope for increasing product usage
- **Repeat purchase rate**
  - Indication of product performance and shopper loyalty
  - % of shoppers who have made at least two purchases in the category in the last year
- **Spend Per Customer**
  - The average spend per customer per year
  - Shows which products/categories shoppers spend most on

1.a) Key Measures – Wales & West Region – **Large** Hypermarket Stores (52 weeks, to 3-Oct-2010)

LARGE STORES	Year on Year % Change		Customer Penetration	Purchase Frequency	Repeat Rate	Av Spend per Customer
	Sales Value	Sales Volume				
Cfs - Flour	-2	-2	23.26%	2.89	51.4%	£2.95
Cfs - Fruit	2	-1	66.42%	11.21	72.1%	£40.82
Cfs - Grains/Rice/Pasta	-4	3	38.51%	4.43	61.8%	£6.98
Cfs - Vegetables/Salad	0	-2	69.76%	12.51	73.3%	£44.91
Cfs - Meat & Poultry	3	2	54.75%	8.74	70.4%	£64.64
Bread	-2	-3	56.61%	9.61	70.2%	£13.92
Cereal	1	0	54.09%	7.41	69.2%	£22.43
Eggs	1	-2	44.31%	6.14	66.2%	£10.97
Fish	3	1	33.72%	5.32	62.9%	£22.64
Dairy	-1	-1	75.37%	13.70	73.7%	£53.65
Prepared Ambient Rice/Pasta/Snackmeals	7	5	22.71%	3.71	55.7%	£8.70
Prepared Fresh Fruit	18	23	14.55%	3.19	47.8%	£6.47
Prepared Meat & Poultry	14	12	26.94%	4.29	58.0%	£15.94
Prepared Chilled Ready Meals	7	1	43.36%	6.32	65.9%	£28.43
Prepared Frozen Ready Meals	1	3	30.52%	5.03	62.2%	£15.00
Prepared Vegetables/Salad	8	7	48.92%	6.62	66.4%	£11.98
Source: © dunnhumby 2010						

1.b) Key Measures – Wales & West Region – **Convenience** Stores (52 weeks, to 3-Oct-2010)

CONVENIENCE STORES	Year on Year % Change		Customer Penetration	Purchase Frequency	Repeat Rate	Av Spend per Customer
	Sales Value	Sales Volume				
Cfs - Flour	15	17	3.68%	1.32	17.5%	£1.42
Cfs - Fruit	24	31	38.96%	4.96	57.6%	£9.39
Cfs - Grains/Rice/Pasta	21	36	10.54%	1.89	35.5%	£2.30
Cfs - Vegetables/Salad	26	25	39.15%	5.05	59.3%	£7.51
Cfs - Meat & Poultry	53	61	20.48%	3.26	49.9%	£14.14
Bread	15	20	42.53%	5.39	59.7%	£5.97
Cereal	23	29	22.88%	3.01	48.2%	£6.10
Eggs	35	16	17.65%	2.48	43.5%	£4.45
Fish	35	21	8.89%	2.31	40.0%	£7.44
Dairy	16	17	61.02%	8.09	64.6%	£14.12
Prepared Ambient Rice/Pasta/Snackmeals	34	42	6.51%	2.05	35.5%	£4.22
Prepared Fresh Fruit	62	65	14.61%	3.04	44.6%	£4.73
Prepared Meat & Poultry	25	27	9.20%	2.16	37.5%	£7.34
Prepared Chilled Ready Meals	41	38	23.08%	3.56	52.8%	£11.77
Prepared Frozen Ready Meals	44	51	7.90%	2.15	36.1%	£5.00
Prepared Vegetables/Salad	28	28	33.05%	4.12	55.4%	£6.59
Source: © dunnhumby 2010						

2. Customer Penetration & Spend Per customer in three **Bristol Stores** (52 weeks to 3-Oct-2010)

Store	Bread		Dairy		Cereal		Fish	
	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer
BRISLINGTON	52.83%	£14.49	72.17%	£52.08	48.76%	£22.33	29.69%	£21.07
BRISTOL EAST	40.51%	£8.47	63.83%	£30.26	37.58%	£14.89	22.13%	£16.89
BRADLEY STOKE	51.09%	£15.11	70.00%	£54.92	50.98%	£23.68	29.89%	£22.52

Store	CFS Meat		Prep Meat		CFS Fruit & Veg		Prep Fruit & Veg	
	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer
BRISLINGTON	52.32%	£63.37	24.09%	£17.43	73.21%	£73.04	45.97%	£13.29
BRISTOL EAST	39.33%	£38.02	12.63%	£9.78	64.36%	£42.51	35.21%	£7.64
BRADLEY STOKE	50.17%	£69.54	26.72%	£16.61	70.79%	£80.85	46.89%	£14.86

Store	CFS Ingredients		Prep Ingredients		Ready Meals		Eggs	
	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer	Customer Penetration	Spend per Customer
BRISLINGTON	34.23%	£7.06	19.71%	£9.02	42.92%	£31.69	41.13%	£11.80
BRISTOL EAST	28.17%	£6.23	10.62%	£5.71	29.33%	£17.11	30.67%	£8.45
BRADLEY STOKE	35.61%	£7.73	20.48%	£9.53	43.81%	£35.63	41.01%	£11.72

7

3. Cross-Shop Analysis in Wales & West Region in **Hypermarket** Stores (52 weeks, to 27-June-10)

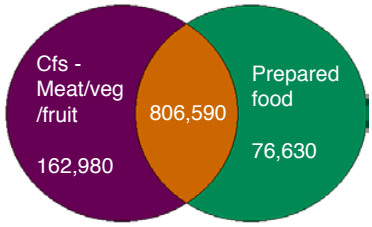
- The following slides contain venn diagrams showing cross-shopping behaviour of customers in the Wales & the West region, specifically in large Hypermarket stores.
- Cross-shop analysis enables you to see the numbers of customers purchasing across different product categories. For example the number of customers buying only Fresh Ingredients, those buying only Convenience foods, and those buying both.
- The following slides show the cross-shopping analysis between:

a) CFS Ingredients and Prepared Foods (Total)
b) CFS Ingredients and Prepared Ready Meals
c) CFS Meat & Poultry and Prepared Meat & Poultry
d) CFS Fresh Fruit and Prepared Fresh Fruit
e) CFS Vegetables and Prepared Vegetables
f) CFS Grains/Pasta/Rice and Prepared Ambient Rice/Pasta/Snack Meals

8

a) Cross-Shop: CFS Ingredients and Prepared Foods (Total) (52 weeks, to 27-June-10)

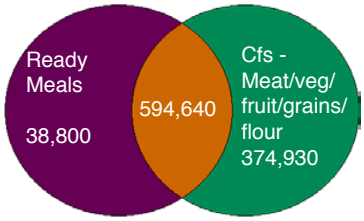
Diagram shows Numbers of Customers



9

b) Cross-Shop: CFS Ingredients and Prepared Frozen and Chilled Ready Meals (52 weeks, to 27-June-10)

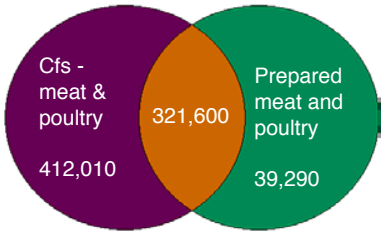
Diagram shows Numbers of Customers



10

c) Cross-Shop: CFS Meat & Poultry and Prepared Meat & Poultry (52 weeks, to 27-June-10)

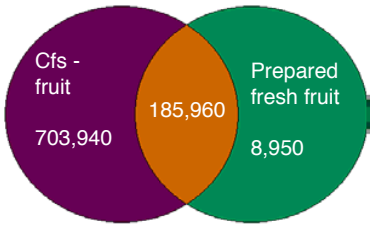
Diagram shows Numbers of Customers



11

d) Cross-Shop: CFS Fresh Fruit and Prepared Fresh Fruit (52 weeks, to 27-June-10)

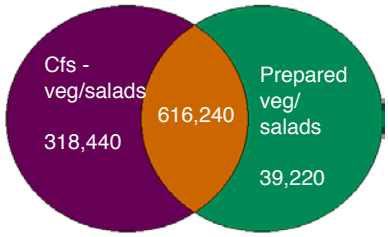
Diagram shows Numbers of Customers



12

e) Cross-Shop: CFS Vegetables and Prepared Vegetables
(52 weeks, to 27-June-10)

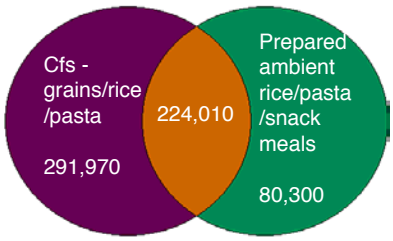
Diagram shows Numbers of Customers



13

f) Cross-Shop: CFS Grains/Pasta/Rice and Prepared Ambient Rice/Pasta/Snack Meals (52 weeks, to 27-June-10)

Diagram shows Numbers of Customers



14

Appendix

Kent Business School | Centre for Value Chain Research (VCR²)

15

dunnhumby Data

- 2 years of weekly supermarket transactions
  - 1.7 million shoppers
    - Representative of 40% of UK households
  - Over 30,000 food products
  - Segmented by:
    - Lifestage (young adults, young families, older families, older adults, pensioners)
    - Lifestyle (Up-market, Mid-Market and Less Affluent shoppers)
    - Region (13 TV advertising regions)

Lifestage Segmentation

Lifestage segment	% shoppers	Age & family
Young Adults	16%	Adults aged 20-39 with no children
Older Adults	14%	Adults aged 40-59 with no children
Young families	15%	Adults with all children under 10
Older families	16%	Adults with one or more child over 10
Pensioners	9%	Adults over 60 with no children
Mixed	28%	Multigenerational households

Lifestyle Segmentation

Lifestyle segment	% shoppers	Key Characteristics
Up-Market	28%	Affluent shoppers who enjoy luxury products and premium brands
Mid-Market	46%	Mainstream shoppers, typically purchasing mid-price brands
Less Affluent	26%	Price conscious shoppers likely to be on a lower income, shopping for value

Regional Segmentation

Region	% shoppers	Region	% shoppers
London	20%	Scotland	9%
Midlands	15%	Yorkshire	8%
Southern England	11%	South West	4%
Lancashire (NW)	10%	North East	3%
East of England	9%	Northern Ireland	3%
Wales & the West	9%		

About Us

Kent Business School | Centre for Value Chain Research (VCR²)

About us (the VCR² initiative)

- Structure
  - 2005: Joint ventured between KBS and dunnhumby
- Mission
  - To help farmers and food SMEs improve their businesses by developing a better understanding of consumer preferences
- Delivery Model
  - *PhD studentships, funded by organisations (industry and government) representative of different commodity sectors and regions*

About us (the VCR² initiative)

Centre for Value Chain Research

Contacts

Kent Business School | Centre for Value Chain Research (VCR²)

Next steps

For further information on how to obtain more information like this for your business, please contact

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8 m.felgate@kent.ac.uk

Appendix 10

Threats to Agricultural Land and Food Production in the Bristol city region

The main immediate threats to agricultural land in the region are most likely to be either flooding or development. But there are also other threats that could affect the region's food production, resulting from a changing climate.

Protecting productive soils

> "*Depending upon its location, development, or other irreversible change in land use, will also reduce the nation's finite stock of high quality agricultural land. However, these fertile, well drained soils will often be where settlements have grown up as a result of the trading opportunities provided by agricultural produce and land most suited to building. There is a trade off between using these soils for agriculture and the growth requirements of urban areas. The least versatile soils will often be found in upland areas where there is significantly less development pressure on land, although other environmental constraints may come into play.*
>
> *By protecting highly productive soils which could be used for agriculture and food production if required, and valuing the other benefits, for example aquifer recharge and flood control, whilst allowing for other required land use changes such as the creation of new habitats, coastal change and the development of the rural economy, will also allow us to respond positively to the challenges of food security in the future. This high quality resource is also that which is likely to be most flexible, productive and efficient in response to inputs and can therefore make a positive contribution to sustainable agriculture.*" Gill Shaw, Natural England

Agricultural land around Bristol

To understand which areas of land are most valuable for food production, there are official soil grades. The soil map grades describe the different types of land and what each one can be used for. Grades 1, 2 and 3a are considered the best land for agricultural use and producing food and in terms of planning policy are together referred to as 'Best and Most Versatile Land'. The soil map gives an overview of land quality in the Bristol area. Non-agricultural land is predominantly large areas of woodland and areas used for military use.

(See land maps in report section 15).

Agricultural Land Classification System

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. Good for top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown. May not be so easy to grow more demanding crops such as winter harvested vegetables and arable root crops.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield.

Subgrade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass.

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops e.g. cereals and forage crops, the yields of which are variable.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

(***Data source:*** *Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (1988) MAFF Publications.*

Threats to land in the region

1. Land development

It is possible to get more detailed maps for specific areas and these types of maps are often used in connection with local plans or specific planning applications because they show the split between subgrade 3a and 3b which is important in terms of planning policy which refers to 'Best and Most Versatile land' (Grades 1, 2 and 3a). The fact that the land is Best and Most Versatile (BMV) does not mean that it won't be developed. This is because the planning guidance (PPG7) says that other factors have to be taken in to account. However, Government Planning policy seeks to protect BMV because it contributes to both sustainable development and sustainable agriculture outcomes. The map below shows areas of grades 1, 2 and 3a: good quality agricultural land on the very perimeter of the city is currently under threat of development. A key element of a resilient food plan would be to protect the best quality agricultural land for food production as close to the city as possible.

(See Bristol and M32 land and food maps in report section 15).

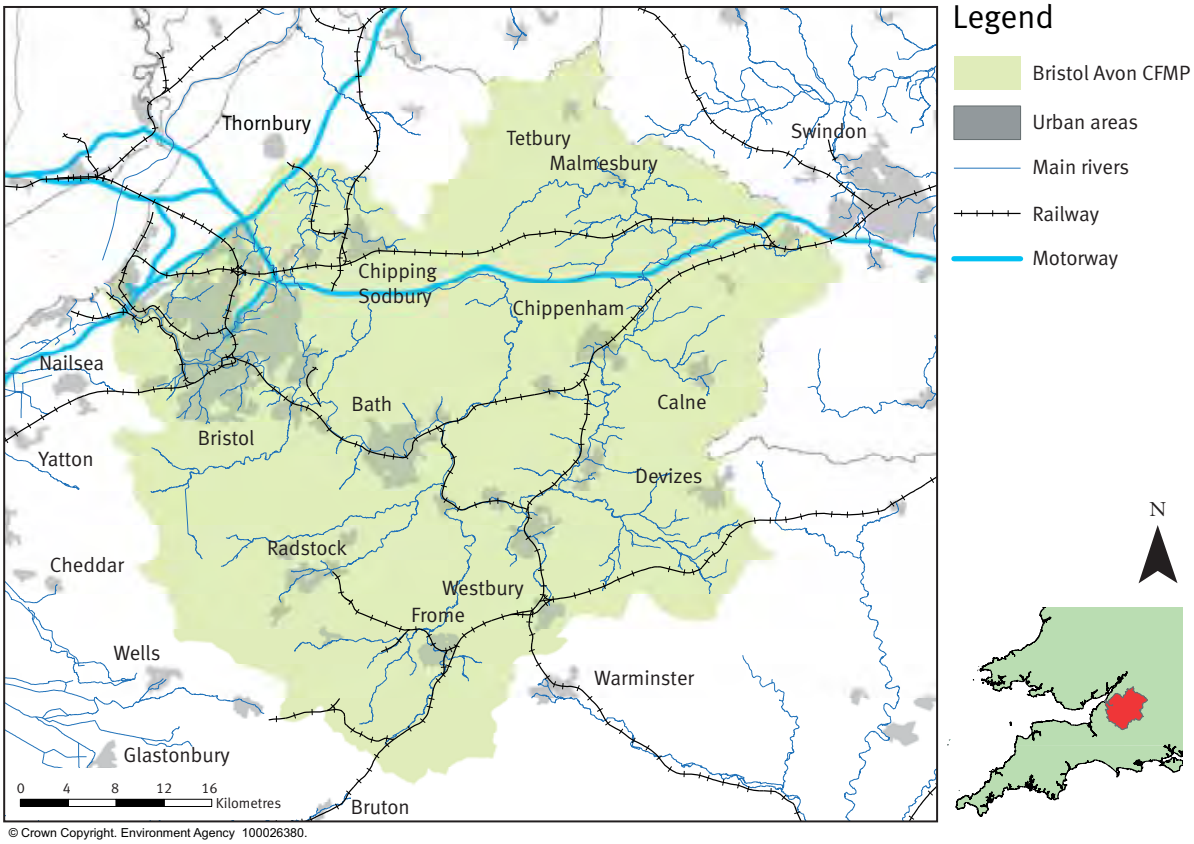
2. Flooding and impact on food production & transportation

As yet there has not been any detailed assessment by any of the four unitary authorities of the risk from flooding in the region to agricultural land and the impact this might have on agricultural and food production although the Environment Agency have produced various catchment flood management plans. There are maps that show the status of soils in the region and where the most valuable agricultural land is located. There are separate maps that show flood risks. Ideally these two sets of maps need to be overlaid and further investigation carried out into what the impact of flooding could be to food supply in the region.

The Cabinet Office has identified flooding as the main risk to food transportation. Bristol City Council flood risk maps indicate that there is a risk of Avonmouth flooding, which would affect the largest area of agricultural land within the city boundary and also would affect the food warehousing, distribution centres and the M5 itself. A risk of flooding on sections of the M32 has also been identified.

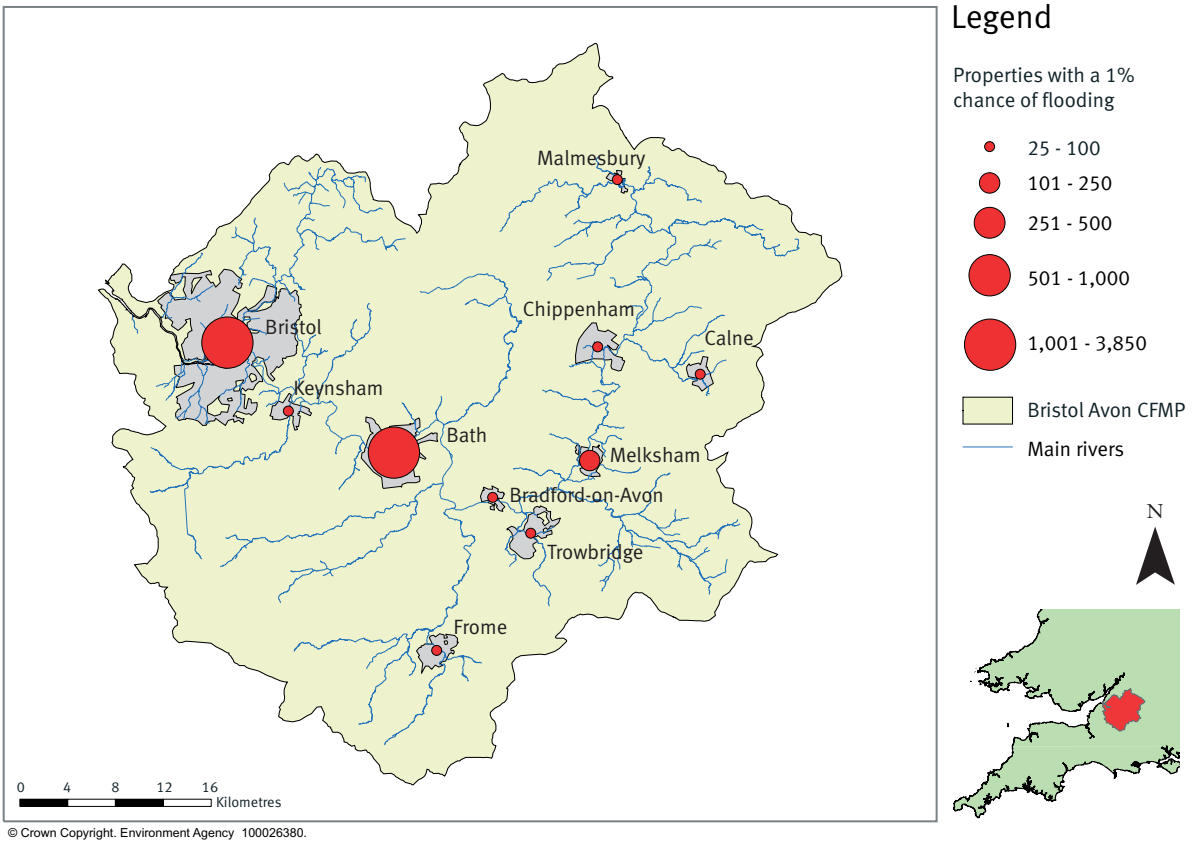
The map below shows where the main rivers are in the Bristol city region and flood risk to property. There is currently no map that looks specifically at flood risk to food production.

Map 1: Location and extent of the Bristol Avon CFMP area



(***Data source:*** *Bristol Avon Catchment Flood Management Plan, Summary Report December 2009: Environment Agency)*

Map 2: Flood risk to property in a 1% annual probability river flood, taking into account current flood defences



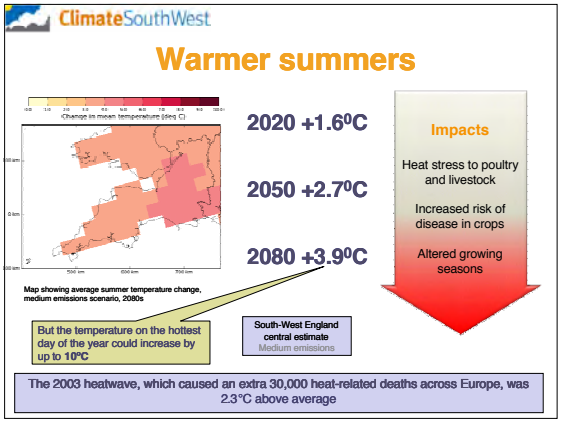
(***Data source:*** *Bristol Avon Catchment Flood Management Plan, Summary Report December 2009: Environment Agency)*

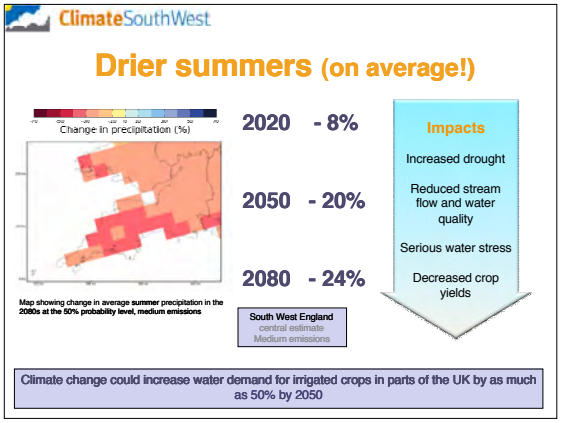
3. Impacts of a changing climate on food production

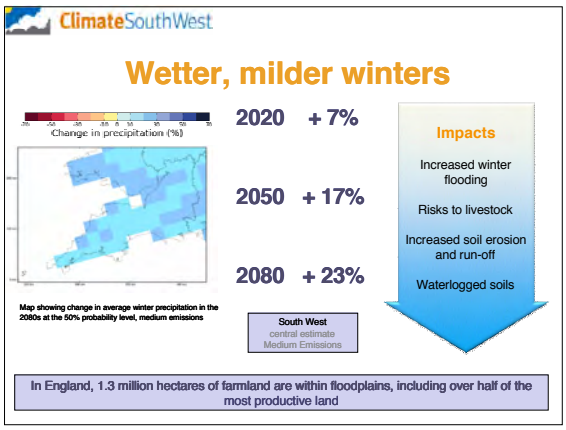
The main changes that the region is likely to see will have a significant impact on farming and food production including warmer drier summers with heat stress and droughts, wetter milder winters and flooding, plus rising sea levels. (*UK Climate Projections 09, UKCP09*).

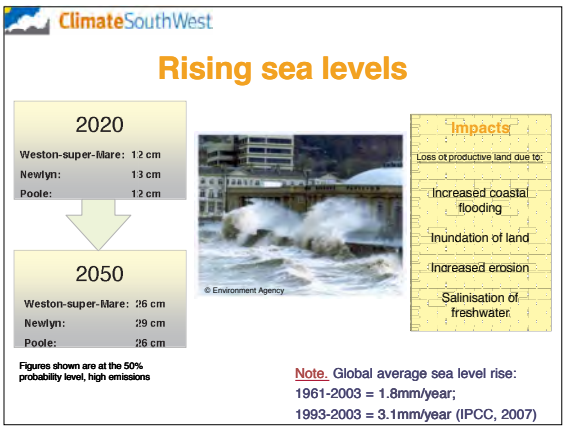
The South West region is vulnerable to existing climate events. For example, Climate South West reported on the impacts of flooding in Gloucestershire in the summer of 2007. Impacts included: water and power supplies lost; transport routes disrupted; 1177 hectares of arable land and 2185 hectares of grassland were flooded over 33km2. Farmers lost an average £1,150 per flooded hectare and cost UK agriculture an estimated £50 million.

The illustrations below were prepared by Climate South West, a regional partnership initiative to enhance the region's resilience to climate change impacts. For the sake of simplicity, they show data from the **medium emissions scenario** which is the path that Defra state we are currently on, at the **central estimate** of 50% probability.









(***Data source:*** *Climate South West. http://www.oursouthwest.com/climate/*

Threats to agricultural land conclusions

Climate South West has forecast the threat of more frequent and intense weather events including floods, droughts, storms and heatwaves. Impacts could include crop damage and loss, soil erosion, drainage and building maintenance costs, disruption to transport, stress to livestock and increased fire risk.

It is important to have a clear understanding of where the best agricultural land is, and the risk under which it may be from development or flooding in the immediate future. Decisions about land use also need to be made in the context of building the regions food security and resilience.

Enabling the transport and distribution of food into the Bristol and the West of England from areas as near as possible may well need to become a priority. This type of planning needs to be done in a collaborative way across departments, agencies and local authorities. The longer term issues of working in partnership with farmers are already underway but there is more to do.

Case Studies

Case Study 1

Bristol Sweet Mart, St Mark's Road shopping area

Company:	Bristol Sweet Mart
Business:	Independent food retailer/wholesaler & delicatessen
Address:	71- 84 St. Marks Road, Bristol BS5 6JH
Tel:	0117 9512257 (Retail)
Owner:	Majothi family
Website:	www.sweetmart.co.uk; E: sales@sweetmart.co.uk

Bristol Sweet Mart was established in 1978 by Mr.Kassam Majothi, a Ugandan refugee who immigrated to the UK. This well known food retail business began as a simple one-shop family business selling Indian home-made foods in Easton. Located in the heart of a vibrant local community, the business has expanded along St. Marks Road now offering a local food shop, a wholesale service plus a new delicatessen, which is the brainchild of family members Rashid and his wife Tehseen. Its product range has grown to include specialist Indian and exotic foods, fresh fruit and vegetables as well as a wide selection of herbs and spices.

The business is now managed by Mr Majothi's four sons, who attribute their success to meeting customers' needs, clean and hygienic premises, a large range of local and organic as well as exotic food products plus helpful friendly staff. Bristol Sweet Mart stocks 11,000 different products in store and sells on-line via its website. They try to source their products locally and from the UK, Europe and Asia. Around 30% of their range of fresh produce and dairy products are sourced locally and from the SW region. They buy in bulk goods from Essential Trading based in Bristol and Queenswood based at Bridgwater. The business promotes local sourcing and has experienced an increase in demand for local and organic foods from their regular customers. The eldest son Abdul commented "*awareness of the importance of local food has increased since the start of the recession, food is an 'affordable luxury' and local people are interested in contributing towards reducing carbon emissions*".

The business is very much part of the local community and has built a loyal customer base. In total around 80% of its sales are to local customers, Bristol restaurants and cafes. It supplies over 100 Indian restaurants, take aways and specialist food outlets in the Bristol area including the Thali Café and Café Maitreya. The rest of its sales are to customers and businesses across the SW region. The new delicatessen is succeeding in generating around 10% of current sales. It sells a wide range of cooked Indian deli foods that are prepared on the premises in their own kitchens. The business owns 4 branded delivery vans which make wholesale deliveries in the Bristol area. On-line sales are

dispatched via DHL couriers and Post Office. They are planning to expand delicatessen sales by opening new branches next year and possibly a Cookery School.

The business is planning to develop sales to local schools, colleges and hospitals. Sweet Mart believes in promoting 'healthy eating' and fostering interest in international foods and 'fusion cuisine'. Every month they are supplying 1000s of local customers, alongside many restaurants and cafes, plus some schools and hospitals, both sectors with which they are keen to expand trade. This family business employs over 50 staff of which almost 20 are family members. The business generates several million pounds worth of trade every year.

The family have developed and diversified Sweet Mart's food retail business in response to the rich variety of cultures and communities within Bristol. They regard this diversity as one of the strengths of Bristol's food system and over the years they have responded by stocking Polish, Kosovan and Japanese foods, alongside more traditional Indian and European products. However, like other retailers their supplies of imported foods were affected by the volcanic ash cloud, making local sourcing a higher priority. As a second generation food retail business they have benefited from being able to source many of the skills they have needed from within the family including web-sales and marketing, design and packaging. Like other businesses during the recession, they are aware of limited access to affordable finance plus rising interest rates as they have partly self financed several new projects. Abdul remarked that access to training and support in for example IT, retail sales, health and safety would be helpful to develop their staff team's professional skills.

Bristol Sweet Mart holds a special place in the city's local food sector. Local chefs are able to source a wide range of world and local foods to create a rich variety of cuisine. In addition, for many years Sweet Mart has supported the St Mark's Road Street Party in August, providing local people and visitors with opportunities to taste exotic home-cooked dishes. It is now planning to build on this legacy by helping to motivate young people and families to learn how to prepare healthy foods through cooking classes. In the 1990s Abdul was Chairman of BEST supporting community enterprise and new entrepreneurs. These days the family is employing young talented people at Sweet Mart to develop the new delicatessen and web-sales. They are planning to develop new trade with buying groups across the city, SW region, UK and Europe. Bristol City Council has recognised the late founder of Bristol Sweet Mart, Mr Kassam Majothi, for his contribution to the local community and food economy with a plaque on St Marks Road in honour of his achievements.

Case Study 2

M & D Kidner, Wholesale market, St Philips, Bristol

Company:	M & D Kidner
Business:	Fruit and vegetable wholesaler
Address:	Bristol Wholesale Fruit Centre, St Philips, BS2 0YP
Owner:	Mark Kidner
Website:	www.kidners.co.uk

Ownership & scale of operation

M & D Kidner is a small independent wholesale company that operates out of the Bristol Wholesale Fruit Centre in St Philips. Mark Kidner set up the business 20 years ago and it has been at the St Philips site for 9 years. Like other fruit and vegetable wholesalers the company buys in European produce. However Kidners specializes in supplying farm shops with as much English and local produce as possible. When available, it also sources surplus local produce from the farm shops it supplies, as part of its sourcing approach. The company is one of the smallest in the market, employs 25 people and has an annual turnover of £12 million. Its organic enterprise is very marginal in comparison, just a few hundred thousand. Kidners buys from approximately 50 suppliers and has around 100 customers. Most of its activity is delivery, perhaps 70% of the business and the rest is spent on site.

Customers

Around 70% of Kidners customers are farm shops, and the rest are mainly secondary wholesalers who supply caterers, some fruit & veg shops and small restaurants mostly in the Bristol city region. Most of these customers want local and UK produce. In Bristol city, customers are mainly Asian shopkeepers who come to the market in person, mostly to buy onions and potatoes. Organic produce customers in Bristol include Penny Brohn Cancer Care and the Watershed.

Local and organic supply

When it is seasonally available, 75-80% of produce sold by Kidners is English. Otherwise the produce is imported. Supporting local growers by buying high quality produce and locally distinctive varieties where possible is part of Mark Kidner personal conviction. The proportion of locally sourced produce varies according to season. Local produce includes purple sprouting broccoli, peas, beans, swedes, parsnips, potatoes, carrots beetroots, eggs, soft fruit, plums, apricots, apples. Most of Kidners supply is to farm shops and the company has developed return buying from the farms as part of its local produce sourcing. Kidners also work with small scale local growers, but finds there is not enough produce grown in the local area. Kidners supplies Farringtons organic farm shop and will in return buy organic produce grown on Farringtons farm. Independent retailers generally do not sell much organic produce so Kidners have developed an organic box scheme for retailers. The shops collect and pre-sell orders for boxes. The company also works closely with Somerset organic link.

Public sector supply

Kidners are aware of the opportunity to tender for a contract to supply for school meals in Bristol but have two major concerns: the time-consuming red tape and paper work involved; the terms of payment which may mean the company has to wait 2 months or more before receiving payment. Cashflow is a key issue and the company pays its suppliers within 21 days.

Case Study 3

Essential Trading Co-operative Ltd

Company:	Essential Trading Coop Ltd
Business:	Workers cooperative - natural/organic/vegetarian/Fairtrade wholesaler
Address:	Unit 3, Causeway Trading Estate, Fishponds, Bristol BS16 3JB
Tel:	0117 943 0800
Co-Director:	Andy Down (Sales & Marketing)
Email:	andyd@essential-trading.coop
Website:	www.essential-trading.co.uk

Essential Trading Co-operative was established in 1971. It provides a wholesale service to 2,000 'active' accounts, holding 5,000 accounts in total, and has its own 'Harvest' retail outlets in Bristol and Bath that serve local communities. Its customers include wholesale and retail customers, plus buying groups in the West of England area alongside several groups across UK and Europe. In total 30% of their trade is in the Bristol area, 70% across the SW region and the rest UK and Europe. Within Bristol 60% of their trade is with independent retailers, while 40% is trade with restaurants, caterers and buying groups.

Essential offers a catalogue of 6,000 products including a complete range of natural, vegetarian, Fairtrade foods, 80% of which are organic, including dried, tinned and preserved foods, bulk commodities including flour, rice, lentils, beans, nuts and seeds, plus teas and coffee, household products, sweets and savories. It sells pre-pack and own label branded products to a range of Bristol retailers including Better Food Company, Sweet Mart and Wild Oats. Also it provides wholesale foods to local cafes and restaurants including Watershed, Canteen, Clifton Lido, Relaxation Centre, plus farm shops in the area and festivals like Glastonbury.

As a workers cooperative it employs 70 full time workers and 20 casual and part time workers. The business turnover is around £12million a year. Originally its focus was selling into the SW region and Wales but it has expanded sales across the UK including Scotland and is developing export trade with retailers in Europe and the Middle East.

Sourcing local and natural foods is very important to Essential, it buys dairy products from Yeo Valley, LyeCross Farm, Nether End Farm and Pertwood Farm, cereals from Sharpham Park, spices from Bart Spices, teas from Pukka, olives and oil from the Real Olive Co. The co-operative is very customer-led and shapes its catalogue of products to meet its customers needs, for example stocking gluten free and raw foods, local and organic, Fairtrade and GM free products. It makes local deliveries across Bristol every day for orders over £150, plus wholesale deliveries as far as Birmingham and S.Wales. It exports to retailers in Scotland including Green City, Infinity and Rainbow retailers plus engages in inter-trading with wholesalers like Highland Wholefoods.

Essential promotes 'healthy eating' and already sells to Steiner schools and Camphill communities and is seeking to develop hospitals and state schools as new customers. These are markets that buy centrally and require formal tenders for large contracts. The business identifies the leading supermarket chains as major competitors who are now selling local, organic and Fairtrade brands

at competitive prices. However, Essential and its Harvest shops have a strong reputation for ethical trading and a large loyal customer base across Bristol and Bath, helping to feed widespread communities of people committed to local, vegetarian and Fairtrade foods. Essential regards itself as a radical business using its ethical trading to support for example Fairtrade coffee producers in Mexico, donating part of its profits to be reinvested in local clean water projects. In addition, it was a founder of GM Alert and in 2002 began supplying some of the first tinned Italian organic tomatoes.

Despite the recession Essential has seen its business continue to expand with the growth of buying groups and shoppers returning to independent retailers to buy higher quality local foods supported by personal customer service. Ethical trading and their community enterprise model are helping Essential to withstand both the recession and competition from the supermarkets. However, they identified a need for support from local government to help maintain a thriving independent retail sector of local food shops, by addressing high street business rates in Bristol and Bath and the procurement policy of hospitals, schools and government offices. Essential plays an important role in supplying high quality natural foods sourced locally to Bristol and Bath communities, in the face of rising competition from the supermarkets with cheap foods, own brands and 2/1 deals.

Case Study 4

Mark's Bread, Bedminster

Company:	Mark's Bread
Business:	Artisan/craft bakery
Address:	291 North Street, Southville, Bristol BS3 1JU
Tel:	07910 979 384
Ownerr:	Mark Newman
Email:	mark@marksbread.co.uk
Website:	www.marksbread.co.uk

Mark's Bread was established in 2009 by Mark Newman. It bakes and sells a wide range of breads including sourdough, rye and spelt loaves, wholemeal, baguette and ciabatta, cakes, croissants and buns. The bakery's customers are local residents and businesses including the Tobacco Factory Theatre, Riverside Garden Centre, Hen & Chicken Pub. The bakery sells to around 300 customers per day, alongside 5 wholesale customers.

The bakery employs 6 staff and has a turnover of £12-16k per month. They sell between 200 and 500 loaves per week in addition to cakes and croissants. Mark's prices range from £1.90 for a basic white loaf to £3.50 for specialist breads. He has been marketing his baked goods via his bakery shop and website, positive media coverage and word of mouth. Currently all sales are generated within the Bristol area, but Mark is considering repeating his bakery model elsewhere in the region.

Mark sources local organic flour from Shipton Mill in Gloucestershire. For specialist breads the nuts, seeds and spices are sourced from Essential Trading in Bristol, olives from the Real Olive Co, olive oil from Kassare, local free range eggs for cakes are from a local producer and catering dry goods from Burtons Go Bananas at Avonmouth. Local sourcing and sustainability are very important to both Mark and his customers. Recently he invested £2k in a Dutch delivery bicycle and trailer so the shop can deliver larger orders of baked goods to its customers in south and central Bristol in a sustainable way while beating the traffic. Despite Bristol being a 'Cycling City' he was not able to secure funding towards the cost of the bike.

Mark established the bakery in response to the resurgence of public interest in 'real bread'. Despite the recession reducing disposable income, his customers are choosing to buy good quality organic bread from a local bakery that offers a welcoming shop and personal service from friendly staff. Mark regards Bristol communities as offering a 'critical mass of interest in local food' and a market that offers opportunities for new local bakeries. He benefited from start-up business support from Brave Enterprise Agency and Business Links. In addition, he organized his own apprentice baker's training with Shipton Mill and business mentoring from Paul Merry a master baker from Shaftsbury. Mark believes his bakery plays an important role in feeding Bristol by providing 'high quality, nutritious healthy bread at affordable prices' as an alternative to mass produced supermarket bread.

Case Study 5

Story Group Ltd, Chew Valley

Company:	The Story Group Ltd
Business:	Farmer-owned meat marketing group
Address:	Herons Green Farm, Compton Martin, Bristol, BS40 6NL
Website:	www.thestorygroup.co.uk

Luke Hasell and Jim Twine took over their neighbouring family farms in the Chew Valley in 2004 and now farm in partnership as an organic beef enterprise which covers 415 acres and supports a strong suckler herd of 60 cattle. They do not buy in any animal feed since the animals are all grass-fed and the farm grows their own cereals for winter feed. Since 2008 they have been working in partnership with the National Trust to reintroduce summer grazing into Leigh Woods on the outskirts of Bristol by grazing 6 cattle on 85 acres of woodland. The conservation scheme has restored the traditional practice of woodland grazing, providing cost effective habitat management and benefiting the farm as the public see the cattle while walking in the woods and learn about why the animals are there.

Challenge of Supermarket Producer Prices

In 2010 Luke and Jim sold 40 beef animals. Around 80% of their beef goes to supermarkets via an organic producer group and meat marketing company who carry out their own killing at various large plants around the UK. In order to meet the supermarket requirements, the marketing company buys the whole carcass at £2.90 to £3.00 per kg which is below the cost of production. If the meat doesn't make the grade they often have to deduct an extra10p-20p per kg.

> "*Until consumers become more engaged with the food that they eat and more interested in buying local boxes we are working against the trend. Buying groups and pick up points would strengthen our business and help towards changing the buying habits of supermarket customers so that they do not rely just on supermarkets for their food.*"
> Luke Hasell, Beef Farmer, Chew Valley

Benefits of Farmers Working Together

Jim and Luke established the Story Group Ltd to develop direct sales, a buying group and promotion of their organic meat box scheme. The Story Group markets their meat direct to pubs, restaurants, schools and box scheme customers. On average the Group sells one animal per month directly which has the advantages of adding abattoir and haulage costs into the retail price of the meat. On average the Group sells one animal per month directly to customers. Selling direct has the advantage of enabling them to add abattoir and haulage costs into the retail price of the meat. This means Jim and Luke can cover all their costs within the price they charge their customers.

In 2010 Bill and Emma Yeats joined forces with Story Group Ltd. They manage an organic poultry farm in Wrington producing 200 chickens a week and a small amount of pork and lamb. The benefits of working together include a wider range of branded products, plus the opportunity to develop a farm shop and collective meat processing area. The company now has 4 directors, 1 full time employee on the farm and 1 part time employee working for the Group. Bill and Emma now breed some of their stock of chickens on Luke and Jim's farms.

The Story Group uses 3 local abattoir and meat cutting businesses, Langfords of Bristol University, Bakers of Nailsea and Will Simmons of Priddy. At the moment the Group delivers on a monthly basis to customer collection points. Its main customers in Bristol are the Better Food Company, St Christopher's School, Pony and Trap pub and Stoke Inn in Chew Valley, plus several box scheme customers. Currently, 40% of total sales are generated in the Bristol area and the aim is to expand direct sales to increase income. A major challenge for the Group is that they do not turnover enough product to enable the business to offer customers the same discounts and deals as the supermarkets. The Story Group organic meat box scheme cannot compete with supermarkets offers on premium meat products.

> "*Increased prices for the producer would be a good start for the majority of farmers. There is a huge difference between organic and non-organic prices in supermarkets but the actual price paid to the organic producers is vastly reduced in comparison*."
>
> Luke Hasell, Beef Farmer, Chew Valley

The Story Group plan to continue to supply quality produce to the city of Bristol, develop personal links with customers and enable them to have a direct link to the farms where all the meat is produced. They will encourage pick up points and buying groups within businesses and schools in and around Bristol.

Case Study 6

Aberystwyth University Canteen
Sustainable local food procurement

"University leads by example in 'buy the Welsh one' campaign"

Marion Jones, July 21, 2010
Farmers Union of Wales farming and rural affairs news
http://fuwdenbighshire.northwalesblogs.co.uk/2008/07/university-leads-by-example-in.html

Aberystwyth University's canteen now sources 80% of its beef, pork and lamb and 20% of its fruit and vegetables from university-owned farms, with the remainder coming from small local producers. This excellent example of local food procurement was initiated by Aberystwyth University's farm manager Huw McConnochie and head of hospitality Kevan Downing. They got together in early 2010 and agreed that the university's 10 organic and conventional farm units throughout mid and north Ceredigion should start providing fresh meat and vegetables for its four restaurants and large conference catering service.

"*We began with beef and have just introduced lamb. In September we intend to supply potatoes and we also plan to grow about 180 acres of cereals and set up a partnership with Penlon Brewery at Llanarth to supply them with malted barley for their beers,*" said Mr McConnochie.

"*We started by taking two steers or two heifers just 18 miles to William Lloyd Williams' slaughterhouse at Machynlleth and we are now picking up the ready-packed meat when we deliver another two animals for slaughter two weeks later*.

"*A fortnight ago we started killing lambs when we took six to the slaughterhouse. All in all, we travel just 18 miles there and 18 miles back - you can't have fewer food miles than that. We have even introduced a meat box scheme for staff who can order from a weekly e-mail we send them.*"

Mr Downing said he and Mr McConnochie were extremely keen on serving local food to staff, students and the increasing number of the public using the university's catering facilities.
"We also serve meat from butcher Robert Rattray, Rachel's Organic yoghurt and dairy products and Birchgrove eggs - all fresh food suppliers from within a few miles of the university's Penglais campus.

"*We compost our own waste and Huw is now talking about growing oil seed rape for cooking oil for us to use, and for bio-fuel and mulch to feed to our own cows. He is passionate about making the farms a central and irreplaceable part of the university and I am keen that he and I grow our businesses together in a strong partnership*."

Mr Williams, an FUW member, said: "*What's better in this day and age than to feed students with food that comes from the University's own farms, rather than sending their produce away while buying in food from god knows where? Their approach stands in contrast to that adopted by others. For example, I am very unhappy that many unitary authorities are quite willing to take community charges from us and put the business rates up every year, and yet not give local businesses a proper chance to cater for local needs with local produce. Aberystwyth University has shown that it does not take very much imagination for an institution to work around these problems and set up a sustainable supply chain that benefits everyone*."

Case Study 7

Early Years Catering Company and the Food for Life Catering mark - Silver

The challenge of providing ethical school meals on a tight budget "It validates our ethos."

Company:	Early Years Catering
Business:	Catering
Address:	Unit 12, Easton Business Centre, Felix Rd, Bristol BS5 0HE
Website:	www.earlyyearscatering.co.uk

Early Years Catering is a small but rapidly growing Bristol business, run by 3 owner/directors, and won the contract with Bristol City Council to supply meals for 15 nursery schools in the city. The contract document specifically requested that the applicant consider the wider aims of the Food for Life catering mark. The company also supplies a further 28 privately run nurseries, totaling 43. Since setting up in 2006, they've seen an increase in staff members from 3 to 13 and the number of meals they serve each day rise by over 1,500, to 2,100.

Early Years Catering decided to join the Soil Association accreditation scheme for caterers and have now gained the Silver Level 'Food for Life Catering Mark' award. Parents increasingly want reassurance that their children's food at school is fresh, honest and additive-free. They want to know that the issues they care about, from animal welfare to climate change, have been taken into account by the caterers when they decide which food to buy. This means nurseries are looking for food they can be sure meets the highest standards in terms of the environment, nutrition and animal welfare. The Food for Life catering mark is a Soil Association accreditation scheme to help caterers give their customers that reassurance.

Signing up to the Catering Mark has meant Early Years now question the credentials of their suppliers more than before. The clear criteria enable them to find suppliers who meet the stringent environmental and animal welfare standards. Today, many of their suppliers are local businesses including Essential Trading Co-op and Yeo Valley. All of their fish is certified by the Marine Conservation Society and the meat is sourced from producers in Gloucester, Somerset and Devon.

There has been a pleasant surprise with some prices – switching to organic yoghurt has actually resulted in a saving on the non-organic yoghurt previously used. Early Years have found that meeting the Catering Mark criteria, while keeping within strict cost constraints, has required some creativity e.g. having more expensive items such as free range chicken on lower volume days.

There are still challenges. Recently the Local Authority has been pioneering the use of nutrition in nursery food and is keen to increase the amount of protein in the meals. While there are many ways of meeting this that would still demonstrate compliance to the Catering Mark (pulses, lentils etc), the nutritionists have requested an increase in the use of chicken. It is a challenge for Early Years. The Silver standard specifies high welfare chicken and both free-range/organic chicken production incurs an increased cost. For Early Years, cost is a limiting factor when constructing price- sensitive menus. However, reducing the amount of intensively produced white meat we eat is hugely important in terms of sustainability and climate change.

To reach the gold standard, Early Years Catering will need support from parents and nurseries as it is likely to mean increased ingredient costs. However there are definite opportunities to source more local and organic food whilst keeping to a budget and Early Years are positive about looking at these in more detail. Key to the success will be communicating the benefits of what they're doing and ensuring parents and nurseries understand its fundamental importance and value.

Case Study 8

FareShare South West – food redistribution

"No Good Food Should Be Wasted"

Website: www.faresharesouthwest.org.uk

FareShare is a nationwide network of community based partnerships comprised of regional organisations and charities working to address food poverty and food waste. Launched in 2004 it is now operating in 13 locations around the UK. Originally established as a project by the homelessness charity Crisis in 1994, FareShare aims to help vulnerable groups within our communities including homeless people, elderly and children in food poverty. Fareshare works in partnership with the food industry to take surplus food that is fit for consumption but would otherwise go to landfill. FareShare is managed by partners who operate as 'social franchises' to deliver these services to their local communities.

Food is sorted and distributed by a team of volunteers to hostels and day centres, night shelters, breakfast clubs, women's refuges, after school clubs, drop-in centres, supported housing units. In return volunteers receive skills training in safe food preparation, nutrition, warehouse work plus assistance with finding paid employment.

Social and Economic Impact of Fareshare

A daily average of 29,000 people around the UK benefit from the service FareShare provides. In 2008/09 redistribution of food that otherwise would have gone to landfill helped businesses reduce CO2 emissions by 13,950 tonnes. In 2009/10, the food redistributed by FareShare contributed 6.7 million meals. Community Initiatives South West is a registered charity and FareShare South West is at present its leading project. It is funded through membership fees and grants from trusts and foundations.

FareShare SW has a Project Manager and Operations Manger plus 25 volunteers per week, with over half of these volunteers coming from beneficiary projects. Volunteers benefit from training and NVQ qualifications in a range of work including driving, warehouse operations, cleaning, admin and support. FareShare covers the whole of Bristol city with some food collected from the West of England area. It accepts most foods apart from out of date food, alcohol or shell fish.

It receives around 30 tonnes per month from their main suppliers NFT distribution that sorts Sainsbury waste food, Pullins bakers, Brakes brothers, Bristol Fruit and Veg Market and Gerber Juice. Food is delivered or collected on a weekly basis, sorted by weight and repacked for deliveries to local projects that cook it or distribute it as food parcels. Projects with kitchens take meat and veg to cook hot meals, supported housing projects prefer ready meals as many people have limited cooking skills. If there is too much food to redistribute FareShare gives it to the city farms.

> "*Most of our young people are in receipt of minimum income. FareShare means we are able to support young people with food parcels, who would otherwise go hungry. The resource also allows many young people to sample foods they couldn't usually afford. It's great and thoroughly recommended*." Community Member of '16-25 Housing' which supports four hundred 16-25 year old homeless people

In 2009/10 FareShare SW redistributed 274 tonnes of food that would have gone to landfill, contributing towards around 652,000 meals benefiting 5,000 people in 32 projects around the city. In terms of employment and skills FareShare delivered 18 accreditations with 4 vulnerable volunteers going into further education and 2 volunteers securing paid work.

> "*At Wild Goose we feed on average 1500+ people per day. The food we receive from FareShare is always of the highest quality, including stews, pies, pasta and rice dishes. Fruit and juice are always available and cheese is often used in the dishes. Many of the people we serve are homeless and rely on the service we provide, many of them live in hostels and squats and this is their main source of food. If we did not receive food from FareShare we would find it very difficult to provide such high quality and nutritious meals*"
> Community Member of Wild Goose

Working in Partnership to Expand Supply

FareShare SW would like to see all the supermarkets, wholesalers and distributors working with their local charities to redistribute their surplus and damaged goods. The main barriers to developing these initiatives are time and investment as FareShare would require more staff and resources plus extra transport to expand supply to additional projects. Further support from the distributors in terms of deliveries of a wider range of foods to FareShare would help to increase supplies to local projects. FareShare plays an important role in feeding vulnerable groups with good quality nutritious food that they would not be able to afford themselves.

Case Study 9

Hartcliffe Health & Environment Action Group Ltd

A 'plot to plate' holistic approach to work on food issues

Address: The Gatehouse Centre, Hareclive Rd, Hartcliffe, Bristol BS13 9JN
Website: www.hheag.org.uk

Hartcliffe Health and Environment Action Group Ltd (HHEAG) is a community group that has developed a range of projects in South Bristol since 1990. It is based on an outer city housing estate, recognised as an area of deprivation by Bristol City Council and the NHS Primary Care Trust. The Action Group was established following local consultation on health and well being in the area. It is managed by a committee of local residents using a community development approach to encourage and support local people to work together for change.

HHEAG has developed projects in response to the community's needs. Cooking classes began 14 years ago followed by market gardening and allotments. Around 1,500 people have attended their cooking and nutrition courses. The Action Group has encouraged healthier eating among local residents by offering opportunities to learn and take part in growing healthy food, cooking skills and healthy eating.

"During a school visit to the market garden, a child told the development worker that his mum was coming to the cooking classes at the Gatehouse Centre. This child was able to make the connection between his food growing activities and his mum's cooking class."

Greens Community Market Garden produces a range of fresh vegetables, herbs, fruit and flowers for the local community on sites in Hartclffe and Withywood. It seeks to involve as many people as possible in producing, selling and eating the produce. Greens provides a range of fruit and vegetables for HHEAGs courses on nutrition and cooking and for the "Food for All" food co-op.

Around 120 to 150 people have been involved with growing activities over the last ten years, some have been involved since the beginning. It has provided work experience and training for young people, opportunities for gardening volunteers and access to allotments. The project has helped participants learn how to grow their own food and work together. For some young people it has led towards a career in gardening, working at a garden centre or farm work.

A new site is being developed at Bourchier Gardens to increase community growing and allotment provision in the area, alongside plans for a new community orchard. In 2009 the **'Sow and Grow' Community Garden** was transferred from Hartcliffe Farm to the Community Market Garden Site following vandalism. The new site now has raised beds, a fruit cage and polytunnel. Currently there are 10 growers, probably the maximum number the site can accommodate.

The '**Food for All' Food Co-operative** is run by members and buys good quality food in bulk at wholesale prices. The co-op helps to makes healthy food affordable and available to everyone who lives, works, studies or volunteers in the Hartcliffe area. Members pay an annual membership fee of £2 a year and get 10% off marked prices. It has over 200 member households and operates a shop at the Gatehouse from Monday to Friday at 10am until 2.30pm.

> "*Processed foods and imported out of season foods were introduced after WWII and since them have become the norm in food culture. It could take several generations to re-establish locally grown seasonal foods in our food culture.*"

The Co-op provides a wide range of local, Fairtrade and wholefood products including: rice, beans and lentils; sandwiches and fruit salad; Fairtrade juice, tea, coffee and chocolates; Alvis Brothers meat and cheese to order; local free range eggs; eco toiletries and cleaning products; local bread, milk and honey; organic fruit and veg from Leigh Court Farm; fresh veg from Greens Community Market Garden.

HHEAG is minimising food waste from the Food Co-op and gardens by making vegetable soups to sell in the shop. In addition, food waste is composted on their allotments including fruit skins and tea bags from the office, food waste from the cooking room and vegetable waste from the Food Co-op.

The Community Cooking Project offers local residents the opportunity to increase their knowledge about healthy eating, improve their cooking skills and learn how to plan healthy, low cost meals for the family. There are two series of healthy-eating cooking classes. Under the guidance of a qualified tutor, participants learn how to cook tasty low cost and healthy meals in a purpose built kitchen.

The first series is for pregnant women, young mothers and parents with young children. Beginning with an ante-natal nutrition course, followed by a course for mothers with children under 2 years which aims to develop their knowledge, skills and confidence to plan, buy produce and make healthy family meals on a small budget. The second series is for people who have a diet-related illness or condition including diabetes and coronary heart disease, as well as people who are overweight, have high blood pressure or high cholesterol levels. Additional courses are offered for carers, playworkers and people with learning difficulties, alongside combined nutrition, cooking and exercise courses.

Case Study 10

Growing Power in an Urban Food Desert

'Inspiring communities to build sustainable food systems that are equitable and ecologically sound, creating a just world, one food-secure community at a time.'

Website: www.growingpower.org

Milwaukee is one of the largest cities in the United States. In 2008 the city's population was 604,477 and the population of the wider metropolitan area was 1,739,497. Growing Power is an active farm producing large quantities of food based on the only land within the city limits zoned as farmland. The farm has 14 greenhouses on two acres of land in the midst of a northern suburb of the city. It operates as a food distribution hub and provides a training center. Founded by Will Allen, it is central to an expanding network of similar community food centers, including a Chicago branch run by Allen's daughter Erika. Growing Power lies within an 'urban food desert', a part of the city that lacks grocery stores but features fast-food places, off licenses and convenience stores.

> "*Growing Power is probably the leading urban agricultural project in the United States. It is not just talking about what needs to be changed, it's accomplishing it.*"
> Jerry Kaufman, Professor Urban and Regional Planning University of Wisconsin–Madison

Since 1993 Will has focused on developing Growing Power as an urban agriculture project growing vegetables and fruit in its greenhouses, raising goats, ducks, bees, turkeys and freshwater fish, in total 159 varieties of food. Growing Power also has a 40-acre rural farm in Merton outside Milwaukee, with five acres devoted to intensive vegetable growing and the balance used for sustainably grown hays, grasses, and legumes which provide food for the urban farm's livestock. Growing Power worm composts 6 million pounds of food waste a year, including the farm's own waste, material from local food distributors, spent grain from a local brewery and grounds from a local café. Will knows you can't grow anything without good soil.

Pollution and overfishing killed the Lake Michigan perch fishery. Growing Power's fish farm raises 10,000 fish to market size in nine months. The water from the fish tanks flows into a gravel bed, where the waste breaks down to produce nitrogen in a form plants can use. The gravel bed supports a crop of watercress, which further filters the water. The nutrient-rich water is then pumped to overhead beds to feed crops of tomatoes and salad greens. The plants extract the nutrients while the worms in the soil consume bacteria from the water, which emerges virtually pristine and flows back into the fish tanks. The vertical growing system multiplies the productivity of the farm's limited space.

Growing Power's farm shop is a vital community meeting place and provides 35 jobs in an area of high unemployment. The staff team are a diverse mix of young and old, African-American, white, Asian, Native American and Latino. The farm shop is the only place for miles around that carries fresh produce, free-range eggs, grass-fed beef, and homegrown honey. Even in winter, customers can buy fresh-picked salad greens. Growing Power supplements its own products with food from the Rainbow Farming Co-operative, which Allen started at the same time as Growing Power. The

co-operative is made up of about 300 family farms in Wisconsin, Michigan, Northern Illinois, and the South. The southern farmers make it possible to offer fresh fruits and vegetables all year round. The produce goes into Growing Power's popular Farm-to-City Market Baskets. A week's worth of 12-15 varieties of produce costs $16. A $9 "Junior/Senior" basket, with smaller quantities of the same produce, is also available. Every Friday Growing Power delivers 275–350 Market Baskets of food to more than 20 agencies, community centers, and other sites around Milwaukee for distribution.

After working as an executive for Kentucky Fried Chicken and Proctor and Gamble, Will returned to farming. He has taken the knowledge he gained growing up on the farm and supplemented it with the latest in sustainable techniques and his own experimentation to bring farming and fresh foods back into city neighborhoods. Growing large amounts of food in a small space is a remarkable achievement but it's only part of Growing Power's mission. Producing healthy food is part of a wider transformational social justice project. Will promotes the 'Growing Food and Justice Initiative' a national network of 500 people that fights 'food racism' in the food system where grocery chains do not wholesome food in impoverished minority neighborhoods.

> "*Low-quality food is resulting in diabetes, obesity, heart disease and sickness from processed food. Poor people are not educated about nutrition and don't have access to stores that sell nutritious food*." Will Allen

> "*It's a wonderful thing to change people's lives through changing what they're eating*." Karen Parker, Growing Power Co-Director

Four middle and high schools bring students to Growing Power to learn about vermiculture (raising worms) and growing crops, and to eat the food they've grown, the impact can change young peoples' lives. Anthony Jackson started working at Growing Power when he was 14, with half of his earnings going to school clothes and half to a savings account for college.

> "*At Growing Power I learned a good work ethic, you'd see Will doing the same things he asked you to do. Early on, the importance of healthy food really didn't hit home, but when I got a degree in natural resources, it came to mean a lot more*." Anthony Jackson (aged 29)

Working with young people in the community is central to Growing Power's work for the future. It provides year-round gardening activities for young people aged 10-18 at its farm and offers summertime work experience on its parcel in Merton. Growing Power recently leased five acres at Milwaukee's Maple Tree School and built a community garden in partnership with the school. Growing Power also assists school gardens at the Urban Day School and the University School of Milwaukee.

> "*For kids to make their own soil, grow their own food, and then get to eat it, that's a very powerful experience. There's nothing like hands-on experience, they get excited about what they're learning and then take it back to their classes.*" Will Allen

> "*It's a good learning experience working at Growing Power, you learn the importance of good food. I never understood how food was grown. Now I can grow my own garden.*"' Loretta Mays (aged 21) Marketing Department

Growing Power aims to 'create a just world, one food-secure community at a time'. To demonstrate the techniques pioneered in Milwaukee can work anywhere, it is helping establish five projects in impoverished communities across the United States, including training centers in Forest City in Arkansas, Lancaster in Massachusetts, Shelby and Mound Bayou in Mississippi.

The largest application of Growing Power's model is in Chicago, where Will's daughter Erika is carrying on the family tradition. The Chicago project started in the Cabrini-Green public housing project, where Growing Power's techniques helped the Fourth Presbyterian Church transform a basketball court into a flourishing community garden fueled by Will's worms composting. Growing Power also has a half-acre farm in Grant Park, in downtown Chicago. The Grant Park project focuses on job training for young people, involving them in all aspects of growing the 150 varieties of heirloom vegetables, herbs, and edible flowers the farm sells in Chicago farmers markets and through the Farm-to-City Market Basket Program.

> "*The work of involving people in producing and distributing healthy food in Chicago's food deserts is part of equalizing American society. The most important element is to see it inspiring other people. When people in communities like Detroit are really suffering, we can show that we did it in Chicago, with women and teenagers.*" Erika Allen

Will has a vision for changing the food system around the world, partly through education and training. Every year, 10,000 people tour the Growing Power farms. About 3,000 young people and adults participate in training sessions, learning how to build aquaponics systems, construct 'hoop houses' (low-cost plastic greenhouses), use compost to heat greenhouses, use worms to turn waste into rich fertilizer, and other low-tech, high-yield farming techniques.

Case Study 11

The Community Farm, Chew Valley

Address: The Community Farm, Denny Lane, Chew Magna, Bristol BS40 8SZ
Website: www.thecommunityfarm.co.uk

> "*Reliance on imports from across the UK and abroad is an important factor in the inherent fragility of our current supply chains. Providing food from Bristol's doorstep in a sustainable way, while educating members to grow some of their own food or even become commercial producers, will help Bristol become less reliant on external inputss*"
> Ben Raskin, Community Farm grower

Community Farm Enterprise

The Community Farm is 8 miles from the centre of Bristol in the Chew Valley. It is a community-owned farm enterprise based on environmental sustainability and community engagement that supplies local and organic seasonal produce. The enterprise has been established on 22 acres of land which are currently in production growing organic vegetables. This will be extended to 50 acres in the next few years. The Farm is being developed in partnership by the Better Food Company, the Story Group (local farm business managed by Luke Hasell and James Twine) and a committed voluntary steering group.

Established as a Community Benefit Society it launched a public share offer in October 2010 giving local people the opportunity to invest in their local farm. The money raised will be invested in buying the existing vegetable growing business, vegetable box delivery service and wholesale business developed by the Better Food Company, enabling the Community Farm to deliver vegetable boxes straight away. People living in Bristol, Bath and the Chew Valley area will be able to take out annual membership. Benefits to members will include a discount on veggie boxes, involvement in growing, community farmer days, horticulture courses and the satisfaction of supporting a social enterprise that is helping to build the local food economy.

Sourcing Local Food

The farm currently supplies 350 boxes per week, the Better Food Company shop, a small number of farmers markets around Bristol and some wholesale trade to restaurants and pubs. The farm grows a wide range of seasonal produce and has a small area of protected cropping which it plans to increase to enable the farm to supply a good range of veg throughout the year.

Currently, the farm plays a small part in feeding Bristol but the Better Food Company will be opening a second shop in the city this autumn that will expand its customer base. Increased support from more people in Bristol, Bath and surrounding areas will help the future of the business, both as members buying food and being involved in the work of the farm.

"*One of the Community Farm core objectives is to include as diverse a group of members as possible. Diversity is key to bridging the gaps between the haves and have-nots*"
Phil Haughton, Better Food Company

Reconnecting People with Local Production

In addition to weekly volunteers, the farm runs volunteer days and work days for staff groups from organisations based in Bristol and Bath. Volunteer help with the potato and squash harvest and weeding parties helps to reduce large labour bills. Like many organic growing enterprises in the current economic system, the farm faces low food prices in return for high labour costs.

"*As long as cheap farm inputs in non organic systems are available, and cheap oil continues to support long distance transport of fresh produce, public perception that local and organic food is too expensive is hard to change.*" Ben Raskin, Community Farm grower

The farm would like to see more weekly markets selling a wide range of fresh foods supplied by local producers like themselves. In addition, it would like to see revised planning regulations that prevent supermarket chains from opening more stores on our high streets to sell cheap imported foods.

"*Community and education are key to our plans for the farm. We offer working and learning opportunities to members. We are passionate about bringing people back to the land, applying sustainable technologies and reconnecting the land with the population that feeds from it.*" (Ben Raskin, Community Farm grower)

Case Study 12

Better Food Company – organic & local retail

Company:	**The Better Food Company**
Business:	**Organic and local food retailer**
Address:	**The Bristol Proving House, Sevier St, St Werburghs, BS2 9QS**
Ownerr:	**Phil Haughton**
Website:	**www.betterfoodcompany.co.uk**

> "*By making links with other like minded businesses, Better Food Company is building a more resilient food group with people at the core. If the company concentrates on retail and nurtures the partnership with the Community Farm and others like it in the future, Bristol could have many more large scale food growing community enterprises and 20 stores like ours*" Phil Haughton, Better Food Company

Building a Resilient Food System

The Better Food Company was established in1992 by the owner Phil Haughton and has 6 shareholders. The motivation for setting it up was a passion for sustainable food and farming. The company has 65 employees and £2.2 million turnover. The business activities cover Bristol and its surrounding area combining retail, a fruit and vegetable box delivery scheme and a wholesale operation.

In total the business sells local foods to around 7,000 people per week. This includes 4,500 customers served by the shop, box scheme deliveries to around 500 customers and a wholesale operation supplying 15 customers who sell on some further 2,000 people.

Sourcing Local Food

Local supply is a top priority for the business after organic. We source fresh veg, fruit, meat, milk, cheese, eggs and some cereals direct from farms within a 50 mile radius of Bristol. We need to source more local produce, especially top fruit, cereals and cheese but the barrier is finding more producers.

The company sources local food products from 150 suppliers of various sizes and from two large distributors, Essential Trading based in Bristol and Queenswood Natural Foods Ltd based in Somerset. Meat is sourced from Adeys farm in the Severn Vale, Graig Farm Producers' Group (Wales and the borders) and the Story Group in North Somerset. Dairy products come from Somerset Organic Dairy and various small cheese producers. Fruit and veg is sourced from the Community Farm in Chew Valley (set up through BFC), Somerset Organic Link, and Farringtons Organic Farm in Farrington Gurney. Cereals come from Shipton Mill in Tetbury and bread is supplied from three local bakeries including Hobbs, Herberts and Bordeaux Quay. Food is delivered to the shop either by these local companies or is collected by our own vans.

Risks and Innovation

The business needs to maintain its margins to stay viable and will have to reduce dependency on fuel wherever possible. Better Food Company has a policy of not buying in any air-freighted products, so it was unaffected by the ban on air travel in the spring of 2010.

The business is dependent on the value people place on food. To reduce this vulnerability it will require more people to take an interest in what is needed to produce sustainable food. Currently, the company plays a tiny role in feeding Bristol but customer numbers are growing. One of the aims of the Community Farm is to help connect people in Bristol with what it takes to produce sustainable food and this may help attract new customers.

> "*I'd like to see national and local government invest real money on connecting people with food and farming. I think Jamie Oliver's cookery workshops are great because they get to those parts of cities where it can be difficult to make connections.*"
> Phil Haughton, Better Food Company

Community Business Partnership

The supermarket model of non-involved company shareholders is the biggest hurdle to change at the moment. The supermarket board room has an overriding obligation to offer maximum returns to shareholders. In contrast Better Food Company is seeking further financial investment, without expectation of big returns. Based on the company's commitment to local involvement it has established a new Community Farm with the intention of it becoming a community owned food enterprise that could take over its existing vegetable growing business, vegetable box delivery service and wholesale business.

The Community Farm is in its infancy, but with 3 or more satellite businesses that all share the same values, the group are demonstrating a model of community and business in partnership. This model could be replicated elsewhere around Bristol. This initiative is providing a diverse group of people the opportunity to have a stake in their own food production and learn about growing. The company already offers all its customers the chance to connect directly with local food and farming and in future intends to directly involve more people in its business.

Producer survey

Bristol Food Plan

1. Introduction

This survey is a brief scoping exercise to help us understand who supplies the Bristol area, who is interested to expand or start supplying to the Bristol area, what the current situation is and what needs to be done to sell more local produce in Bristol. For the purposes of this survey, we are defining Bristol as the area covering the four unitary authorities of Bristol, Bath, South Gloucs and North Somerset (i.e. area formerly known as Avon).

This work has been commissioned by the Bristol Local Strategic Partnership, a group of organisations from the business, public, community and voluntary sectors.

All information will be confidential and anonymous.

1. How much land do you farm (in acres)?

Grassland	
Arable	
Horticultural land	

2. How much livestock have you got?

Beef	
Lamb	
Pork	
Dairy cows	
Other	

Bristol Food Plan

3. Which markets do you sell your produce to?

	National wholesale market or processor	Wholesalers/ processors supplying the SW region	Direct sales in the Bristol area (e.g. farmers markets, butchers, restaurants)	Other	Does not apply
Fish	€	€	€	€	€
Veg	€	€	€	€	€
Fruit	€	€	€	€	€
Beef	€	€	€	€	€
Lamb	€	€	€	€	€
Pork	€	€	€	€	€
Poultry	€	€	€	€	€
Game	€	€	€	€	€
Cured or cooked meats	€	€	€	€	€
Dairy	€	€	€	€	€
Eggs	€	€	€	€	€
Bread	€	€	€	€	€
Preserves	€	€	€	€	€
Non-alcoholic drinks	€	€	€	€	€
Other	€	€	€	€	€

please name other products and markets

4. Please tell us if you would like to maintain or expand your direct sales (e.g. farmers markets, independent retailers) in the Bristol area.

	currently selling, no plans to expand	currently selling, would like to expand	not selling currently but would like to start
Fish	€	€	€
Veg	€	€	€
Fruit	€	€	€
Beef	€	€	€
Lamb	€	€	€
Pork	€	€	€
Poultry	€	€	€
Game	€	€	€
Cured or cooked meats	€	€	€
Dairy	€	€	€
Eggs	€	€	€
Bread	€	€	€
Preserves	€	€	€
Non-alcoholic drinks	€	€	€
Other	€	€	€

Please specify

5. How many employees do you have?

- none
- below 5
- 6-10
- 11-20
- 21-50
- over 50

6. What is your annual turnover?

- below 25,000
- 25,000 to below 50,000
- 50,000 to below 100,000
- 100,000 to below 250,000
- 250,000 to below 500,000
- 500,000 and over

7. What percentage of your turnover comes from different sales:

	none	below 10%	over 10 to 25%	over 25 to 50%	over 50 to 75%	over 75 and below 100%	100%
National wholesale market or processor; e.g. livestock market, abattoir	é	é	é	é	é	é	é
Wholesalers/ processors supplying the SW region	é	é	é	é	é	é	é
Direct to consumers in the Bristol area; e.g. farmers markets, farm gate, box schemes	é	é	é	é	é	é	é
Independent retailers in the Bristol area; e.g. butchers, farm shops	é	é	é	é	é	é	é
Caterers, restaurants and pubs in the Bristol area	é	é	é	é	é	é	é
Mailorder in the Bristol area	é	é	é	é	é	é	é
Other	é	é	é	é	é	é	é

please name if you have ticked other

8. If you currently sell direct in the Bristol area (former Avon), how much more would you like to sell to this market?

- é None
- é Approx 25% more
- é Approx 50% more
- é Approx 75% more
- é Approx 100% more
- é Other

Please specify

Bristol Food Plan

9. If you would like to start selling direct in the Bristol area (former Avon), how much of your produce would you like to sell to this market?

- é Not interested in selling direct in Bristol
- é Approx 25%
- é Approx 50%
- é Approx 75%
- é 100%
- é Other

Please specify

10. Please list outlets, wholesalers or processors in the Bristol area (former Avon) that you are supplying to. All data will be anynomous.

11. What are the main barriers to selling direct in the Bristol area? (e.g. can't afford the time required, don't know where to sell, insufficient volumes of produce, no method of distribution)

12. What would help you to start or expand supplying into outlets in the Bristol area?

Bristol Food Plan

13. Please use this space to add any further information that you think may be helpful for this survey.

14. If you would be happy for us to contact you to follow up this survey, please enter your contact details below. This information will be used for contact purposes only and will not be linked to the survey results.

name	
company	
website	
email	
telephone	
postcode and nearest town	

Thank you for your help.

Engaging the supermarket retail chains in the 'Who Feeds Bristol' research.

Early in June 2010 a personalised letter was sent from Dr Hugh Annett to the Chief Executive Officers for the eight largest supermarket chains, namely:

- Aldi UK
- Asda
- Co-operative Group
- Lidl UK
- Morrisons
- Sainsbury's
- Tesco
- Waitrose

The content of the letter is shown here:

NHS Bristol

South Plaza
Marlborough Street
Bristol, BS1 3NX

Tel: 0117 976 6600
Fax: 0117 976 6601
Minicom: 0117 900 2675

Date:
Ref:

Dear

RE; Food supplies for Bristol residents

As Director of Public Health for Bristol I have commissioned a report on "Who Feeds Bristol; Towards a Resilient Food Plan". As part of this work it would seem short-sighted not to initiate a conversation with the supermarkets that provide the vast majority of food retail services for my 400,000 residents. I have no doubt that you also will be looking at the potential impacts, for the food industry, of world economic forces, depletion of fossil fuels, and environmental factors including climate change.

My question therefore is about whether and how you might consider providing us with any assistance with our "Who Feeds Bristol" project? The specific information that we feel is important for us to understand includes;

A) Outline volumes of the types of food that you supply to the residents of Bristol through your stores here
B) Any information regarding the logistics and general distribution of those foods that you think may be helpful to us
C) Assessment of key vulnerabilities and future plans for increasing the resilience of food supply

I appreciate that much of this information may be regarded as 'commercial in confidence'. Nevertheless, the need to work together to build a system for provision of healthy food, that is resilient to economic shocks, fossil fuel price rises, and climate events, is I am sure an aim that you care about as I do.

Yours sincerely,

Dr Hugh Annett
Director of Public Health
NHS Bristol and Bristol City Council

Cc Dr David Pencheon, NHS Sustainable Development Unit

Replies were received as follows:

Aldi UK – short reply appreciating our interest, declining to provide data, and wishing us well

Asda – no response

Co-operative – arranged a helpful one-hour conference call for Joy Carey (Who Feeds Bristol Researcher) and Angela Raffle (Who Feeds Bristol Advisory Group Chair) with Cathryn Higgs, the Food Policy Manager for the Co-operative Group

Lidl UK – two-page reply assuring us of Lidl's commitment to Corporate Social Responsibility and wishing us well. The letter refers to ethical behaviour, quality of life for their workforce, for local communities and society at large, that Lidl is proud of its commitment to high quality, that it stocks Fair Trade, organic and Red Tractor Assured meat, dairy, and fruit and vegetables, that frequent "healthy eating" promotions take place and fitness products are sold. The letter also mentions delivery consolidation, regular checks and servicing of delivery vehicles, which keeps emissions and transport impacts to a minimum. Many deliveries are outside of working hours.

Morrisons – no response

Sainsbury's – one-page reply regretting that they do not have information to help the research and emphasising their work with farmers to help them reduce carbon footprint (further information available on the Corporate Social Responsibility section of Sainsbury's website) and their work with Cabinet Office on Emergency Assistance Procedures in the event of a major incident.

Tesco – no response. A follow up letter from Dr Annett resulted in a telephone call and provision of a contact name but no information was supplied.

Waitrose – short reply applauding the Who Feeds Bristol work, assuring us of their commitment to ethics and sustainability but declining to provide information.