Estimation of the Greenhouse Gas Emissions of the *Eatwell Week*

Dr Jennie Macdiarmid, Jennifer Loe, Dr Janet Kyle

Rowett Institute of Nutrition and Health,

University of Aberdeen,

Aberdeen.

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Table of Contents

Executive summary

The Food Standards Agency in Scotland's *eatwell week* was created to illustrate what a healthy balanced diet might look like over the course of one week in order to improve consumer awareness of what constitutes a healthy diet. It is based on the principles of Department of Health's eatwell plate model and meets the nutrient requirements of an adult woman based on an 8.1MJ/day diet. However, heightened awareness of the environmental impact of current dietary patterns and implications for climate change and food security raised questions about the impact of the *eatwell week* in terms of greenhouse gas emissions (GHGE). The aim of this study was therefore to estimate the GHGE of the *eatwell week*.

The methodological approach used in the recent Livewell project carried out by the Rowett Institute of Nutrition and Health was used to estimate the GHGE of the *eatwell week*. GHGE are generated throughout the life cycle of all food products, from agricultural production of ingredients to the end point of consumption and food waste disposal. The lack of full life cycle analysis for GHGE for food consumed in the UK, however, prevented the total GHGE of the *eatwell week* from being estimated. At the time of this study, the most comprehensive GHGE data included only GHGE from the first stages of the life cycle of a food, which includes the production to the farm gate and minimal processing of food ingredients, up to the point in the life cycle of the regional distribution centre (RDC) (i.e. pre-RDC GHGE). GHGE associated with manufacturing, distribution, retail, home use and waste disposal are not included in the pre-RDC data. The pre-RDC GHGE data are for raw products and therefore needed to be adjusted to be comparable with the food in the *eatwell week,* e.g. weight losses/gains through cooking (e.g. meat, pasta/rice), food items excluding the inedible parts (e.g. banana skins).

The pre-RDC GHGE of the *eatwell week* was estimated to be 19.11kgCO_2e/week (or 2.73kgCO_2e/day for the 8.1MJ/day diet). Compared with the estimated annual GHGE from the whole UK food system based on consumption, this would be equivalent to a reduction in pre-GHGE in the region of 28%. This is directly comparable with the 36% reduction achieved for the Livewell diet (pre-RDC GHGE 2.43kgCO_2e/day), which was also based on an 8.1MJ/day diet that met nutrient requirements for a woman. These estimated magnitudes of reduction of GHGE associated with these diets, however, need to be considered in the context of the limitations of the GHGE data.

The *eatwell week* had less meat, less high fat/high sugar foods and more fruit and vegetables than currently consumed in the average UK diet. This illustrates that to achieve a healthy diet will require all food groups in the diet to be rebalanced, not just changing intakes of a single food group. Singling out food groups (e.g. meat to lower GHGE) without considering the foods that might replace those removed can result in unintended consequences. For example, reducing some meat in the diets could be beneficial for health and reduce GHGE, but the degree of benefit will depend on the foods that replace the meat (e.g. replacing meat with cheese may not benefit health or climate change).

Both the *eatwell week* and Livewell project provide evidence that it is possible to have a diet that achieves dietary requirements for health and has lower GHGE, but this should *not* be extrapolated to assume that a healthy diet will always be more environmentally sustainable. Additional research has demonstrated it is equally possible to have a healthy diet with high GHGE or an unhealthy diet with low GHGE. The reason being is that a healthy diet can comprise many different combinations of food and depending on those foods selected it can be highly variable in GHGE. Therefore for any future work it is important that both the health and environmental impacts are always considered together to avoid these types of unintended consequences.

1. Background

A healthy balanced diet is a key component of a healthy lifestyle and plays an important role in the prevention of obesity and diet-related chronic diseases such as type II diabetes and heart disease. The Food Standards Agency in Scotland promotes healthy eating using the eatwell plate model, a pictorial representation of the balance of food groups that constitutes a healthy diet [(1)]. In recent years with heightened awareness of the environmental impact of dietary choices, particularly on climate change, the importance of the sustainability of human diets has been given a much higher profile. The term sustainability, however, encompasses many different elements including health, economic, social and environmental impacts. This report focuses only on climate change mitigation though the reduction of greenhouse gas emissions and how this can be balanced with a healthy diet.

Climate change is widely recognised as a major threat to future food security, caused by increased greenhouse gas emissions[1] (GHGE). The urgent need to mitigate climate change has been recognised and this has led to national and international targets being set to reduce GHGE; in Scotland the Climate Change (Scotland) Act 2009 set targets to reduce GHGE by 42% by 2020 and 80% by 2050[2]. It is estimated that food and drink consumed in the UK accounts for about 18-20% of total GHGE in the UK (excluding land-use change) [(2)].

GHGE occur throughout the whole food system from production, manufacturing, distribution, retail, storage, home use and waste disposal of food and the amount of emissions vary both between and within food groups depending on the type of food and production methods. GHGE differ by food groups, with animal-based products typically having higher emissions than plant-based food products [(2)]. GHGE can be reduced throughout the food system with modifications to the production systems but changes here are unlikely to be sufficient to reach the targets needed to mitigate climate change. Dietary intakes therefore also need to change across the population. This poses a challenge for public health nutrition; to develop dietary advice which promotes a healthy diet and is consistent with reducing GHGE, while being realistic and acceptable to consumers.

A recent study (Livewell project) showed that it is possible to create a diet that achieves dietary recommendations for health and has lower GHGE than the estimated current dietary intakes [(3)]. The Livewell project illustrated that a healthy diet can be compatible with one lower in GHGE, but this

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[1] Greenhouse gases include carbon dioxide, methane, nitrous oxide and various refrigerant gases and are known collectively as carbon dioxide equivalents (CO_2e) (2).

[2] The targets apply to GHGE associated with goods and services produced within the country (i.e. production-based emissions) and do not include emissions associated with imported products that are then consumed here (i.e. consumption-based emissions). However, when determining the dietary related contribution to GHGE it is essential to consider consumption-based emissions. http://www.legislation.gov.uk/asp/2009/12/contents

does not mean that a healthy diet will necessarily always have lower GHGE. Additional work has shown that it is equally possible to have a healthy diet with high GHGE and an unhealthy diet with low GHGE [(4,5)] (Figure 1). The GHGE of these diets vary depending on the type of foods selected and the nutrient recommendations for a healthy diet can be achieved through many different combinations of food.

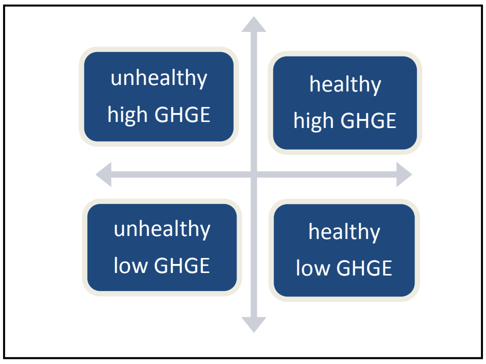

Figure 1: Dietary scenarios balancing health and greenhouse gas emissions

Based on the eatwell plate model, the Food Standards Agency in Scotland and the University of Glasgow developed the *eatwell week;* an example of what the healthy balanced diet might look like over the course of one week, in order to improve consumer awareness of what constitutes a healthy diet [(1)]. The *eatwell week* meets dietary recommendations for health based on the energy and nutrient requirements of an adult woman (8.1MJ/d diet). However, heightened concern about the environmental impact of current dietary patterns, along with the publication of the Livewell project [(3)], raised the question of the impact of the Food Standards Agency in Scotland's *eatwell week* in terms of GHGE.

2. Aim

To estimate the GHGE of the *eatwell week* based on the methodology used in the Livewell project[3].

[3] The lack of data for GHGE based on the full lifecycle analysis for foods means that the GHGE reported for the *eatwell week* are not the total GHGE of the diet (see methodology).

3. Methodology

3.1 Eatwell *week*

The *eatwell week* was created by the University of Glasgow to meet energy and nutrient requirements of an adult woman (8.1MJ/day). The quantities of food and drinks in the *eatwell week* are summarised in the Appendix, with more detailed information about the development of the *eatwell week* in their main project report [1]. The allocation of each food or drink item in the *eatwell week* into one of the five eatwell plate food groups was discussed and agreed upon with the Food Standards Agency in Scotland. Some foods could have been placed in more than one group, for example, butter or ice-cream could be placed in the high fat and/or high sugar group or the dairy section. In this case they were placed in the high fat and/or sugar group as it was considered the most appropriate place in terms of health, but it could be argued that for environmental reasons they should be placed in the dairy section based on the origin of the foods. There were also a very small number of foods that did not fit into any of the five food groups and these were classified as 'other food' (i.e. herbs and spices, tinned soups, hummus).

3.2 Estimate of greenhouse gas emissions

The methodology and approach developed for estimating the GHGE for the Livewell project [3] was used to assess the GHGE for the *eatwell week*.

Greenhouse gas data*:* Full life cycle analysis includes the estimate of GHGE from every stage of a product's life from production, processing, distribution, retail, home use to waste disposal (Figure 2) [2]. One of the biggest limitations, however, in estimating the total GHGE of a whole diet is the lack of data for individual food items based on full life cycle analysis (LCA) using a standard methodology [6] (i.e. the total GHGE of a product: 'cradle to grave'). Most of the existing GHGE data for food only include GHGE either up to the point of the 'farm gate' or slightly beyond to the 'regional distribution point' for the food [7]. Since the GHGE will vary depending on which stages of the life cycle are included, it is important in reporting any study associated with GHGE to define the system boundary for the GHGE data (i.e. which stages of the LCA are included and excluded in the estimation of GHGE). The boundaries can often vary significantly between studies and therefore caution is needed when comparing absolute GHGE figures between different studies to ensure the comparisons are valid.

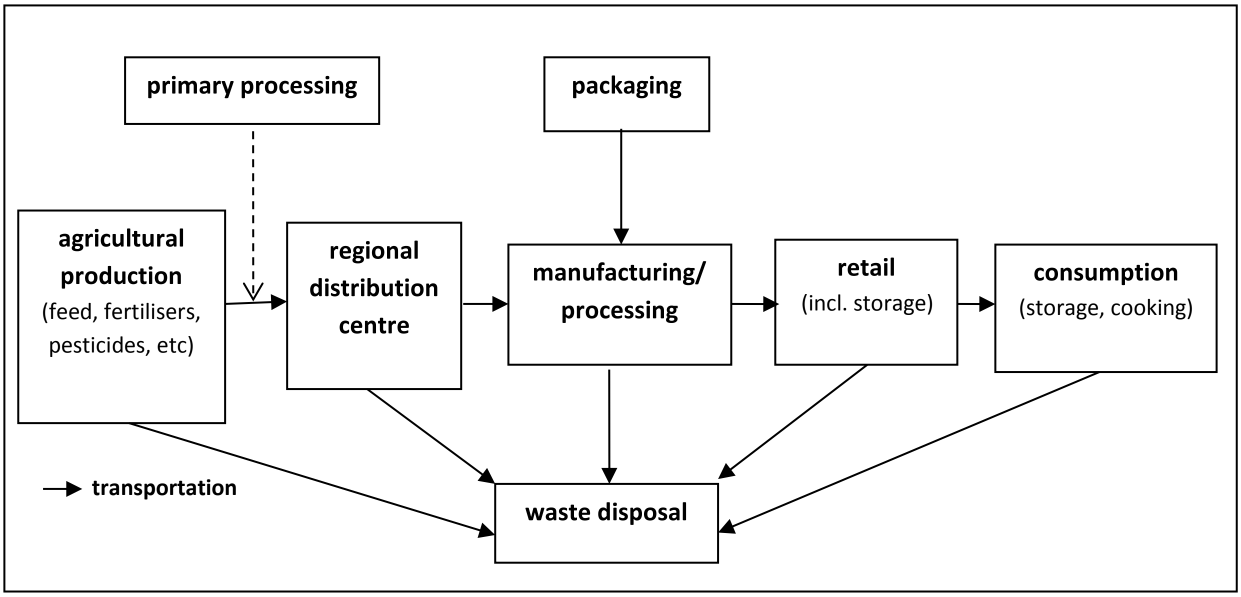

Figure 2: Simplified diagram of the life cycle stages of a product *(adapted from Garnett [10])*

At the time of this study, the most comprehensive publically available list of GHGE data for primary food commodities consumed in the UK was published by Audsley *et al*[7]. Primary food commodities are the basic food ingredients (e.g. wheat, sugar, potatoes, milk) and do not include composite or processed food (e.g. bread, crisps, pizza). The system boundaries for the GHGE data here include the production of the primary ingredients up to the nominal boundary of the regional distribution centre (pre-RDC) (see Box 1). For example, jam includes GHGE from the production of the fruit and sugar but excludes emissions from processing and packaging in making the jam, retail, home use and waste disposal. The RDC is described by Audsely *et al.* [7] as a *nominal* boundary because for some products a small amount of processing of the raw ingredients may have occurred prior to the distribution point but not for all products. He estimated that 56% of the total GHGE of the food in the UK diet occur up to the point of the RDC, but recognises that this average figure does not reflect the variation in production, processing and use pre- and post-RDC between individual food products. The lack of complete LCA data is a well recognised limitation within this area of research.

Box 1: System boundary for greenhouse gas emissions for the *eatwell week*

The estimate of the GHGE for the eatwell week presented in this study is not the total GHGE of this diet. The GHGE are based on the primary ingredients up to the nominal boundary of the regional distribution centre (pre-RDC) (see Figure 2). The GHGE values do not include emissions generated by processing, packaging, retail, storage, cooking, or waste disposal.

GHGE not only vary between food groups but also vary for the same food item depending on how it is grown or produced, which often varies between countries [7,8]. The GHGE data for food consumed in the UK [7] are given according to the different regions of the world in which the food is produced or grown (i.e. UK, Europe, rest of the world). Given the variation in GHGE by region and the fact that in the UK we eat food from around the world, it was important to capture this when estimating the GHGE of food consumed in the UK and therefore the *eatwell week*. The GHGE data were adjusted for the proportion of imported and domestically produced food for UK consumption based on the most recently available data from HM Revenue & Customs UK Trade Statistics (2006) [9].

***Compatibility of GHGE and nutrient data*:** Before the data could be used to estimate the GHGE of the *eatwell week* several additional adjustments had to be made to make them compatible with the nutrient data. The nutrient data were expressed as the weight of the food *as eaten* (e.g. cooked, edible portions) while the GHGE data were based on the weight of the raw food item.

Food as eaten: The food list from the *eatwell week* included a mixture of raw and cooked foods. Since GHGE values are based on the weight of the raw product, some of the values had to be adjusted to represent the weight of the food as eaten to take account of weight changes after cooking or the weight difference between the whole food and the edible portion of food. GHGE values were increased where weight losses occur during cooking (e.g. meat, fish) or the inedible portion of a food was not included (e.g. banana skin). Other GHGE values were decreased to account for weight increases through hydration when cooked or infused (e.g. rice, pasta).

Composite food: As described above the pre-RDC GHGE data are only for primary ingredients, therefore the processed or composite foods in the *eatwell week* GHGE were estimated by summing the GHGE of the primary ingredients in the composite food. Recipes from the sixth edition of McCance and Widdowson's The Composition of Foods and Supplements and food labelling information were used for the list of ingredients. This approach is consistent with methodology used by other researchers where there was a lack of data for GHGE of composite foods [11].

A more detailed description of the methodology for estimating the GHGE of the diet can be found in the Livewell project report [3].

4. Results

4.1 Estimated pre-RDC GHGE of the *eatwell week*

The pre-RDC GHGE of the *eatwell week* was estimated to be approximately 19.11kgCO_2e/week (an average of 2.73kgCO_2e/day based on an 8.1MJ/day diet).

4.2 Contribution of GHGE from different food groups

Table 1 shows contributions of pre-RDC GHGE from the different food groups in the *eatwell week* compared with the relative quantities of food in each group (consistent with the eatwell plate model). The greatest contribution of GHGE in the *eatwell week* was from '*fruit & vegetables*' which reflects the large amount of these food items in a healthy diet (42% of the diet by weight); fruit accounted for 10.8%, vegetables 17.9% and fruit juice 7.7% of the GHGE. Starchy foods contributed 21% of the food by weight but accounted for only 7% of the emissions because these types of foods tend to be relatively low in pre-RDC GHGE. In contrast, only 10% of the *eatwell week* by quantity of food came from '*meat, fish, eggs & other non-dairy protein*', but accounted for 27% of the pre-RDC GHGE. Within this group even with a relatively small quantity of meat (409g/week) and fish (285g/week) together they accounted for 23% of the GHGE, reflecting the higher GHGE associated with animal based foods, especially from ruminants. It is important to remember, however, that these are pre-RDC GHGE not the total GHGE and for foods which requires a lot of processing or chilled/frozen storage (i.e. post-RDC), the pre-RDC GHGE will be disproportionately lower than if total GHGE were used.

Table 1: Contribution of pre-RDC GHGE in the *eatwell week* compared to the relative quantities of food in the diet in each food group.

food groups	**eatwell plate**	***eatwell week***	
	relative amounts*	relative amounts*	Pre-RDC GHGE
Fruit & vegetables	33%	42%	36%
Bread, rice, potato, pasta & other starchy foods	33%	21%	7%
Meat, fish, eggs, & other non-dairy sources of protein	12%	10%	27%
Milk & dairy	15%	11%	16%
Foods & drinks high in fat & / or sugar	8%	12%	12%
Other foods	-	4%	2%

* the weight of food (all liquids were halved to account for the high water content).

5. Discussion

The pre-RDC GHGE of the *eatwell week* for an 8.1MJ/day diet was estimated to be 19.11kgCO_2e, equivalent to 2.73kgCO_2e/day. Currently there is no directly comparable estimate of the GHGE of the dietary intake of the UK population for direct comparison with the *eatwell week*. While it could be compared with the National Diet and Nutrition Survey (NDNS) [(12)] given the magnitude of under-reporting in the NDNS, the GHGE of the current diet would be underestimated. Using the methodology adopted for the Livewell project[4] the pre-RDC GHGE for the *eatwell week* were compared against the annual UK food based GHGE for the UK from 1990 data (consumption-based data). Given the limited information on GHGE of the UK diet, at the time of writing this report, this was considered the most appropriate comparison. From the annual figures it was calculated that the average pre-RDC GHGE for the dietary intake of a woman in the UK was equivalent to approximately 3.77kgCO_2e/day (based on the UK population size in 2010) [(3)]. The *eatwell week* therefore is roughly 28% lower in pre-GHGE than the current UK diet. This can be compared directly to the 36% reduction in pre-RDC GHGE seen for the Livewell diet which was also based on dietary requirements for an adult woman (8.1MJ/day) (pre-RDC GHGE 2.43kgCO_2e/day) [(13)]. The *eatwell week* and Livewell diet have lower pre-RDC GHGE than the estimate of the UK food consumption-based GHGE, but both the absolute GHGE value and magnitude of reduction should be interpreted taking into account the assumptions used in the methodology and limitations of the data. As previously stated these values can only be compared with other published studies in the context of knowing the system boundaries for GHGE data in each study. In this case the *eatwell week* can be directly compared to the Livewell project since the same system boundaries and assumptions were used.

The relative reduction in pre-RDC GHGE is a due to changes in both the type and quantities of foods in the *eatwell week* compared to current average dietary intakes in the UK. The large quantity of fruit and vegetables in the *eatwell week* (591g/day compared with current average intakes of 274g/day [(12)]) meant that this food group was the largest contributor to pre-RDC GHGE in the total diet. The *eatwell week* contained only 409g/week of meat (200g/week of red meat) which is significantly less than reported average intake for women of 616g meat/week (385g/week red meat) [(12)]. This is a reduction of almost 50% in red meat, which would account for a significant reduction in GHGE. The *eatwell week* is not only a reduction in total meat intake from current dietary patterns

[4] The annual GHGE estimate for food consumed in the UK is for the whole population and this had to be converted to GHGE per person to be compared with the *eatwell week*. Energy intakes vary across the population by age and sex and therefore the estimate of GHGE could not simply be divided by the total population; it had to be adjusted to reflect the average energy intake of a woman to be compared with the *eatwell week* (it was also based on the UK population in 2010 to be comparable with the Livewell project). The annual figure is the total GHGE, so for pre-RDC GHGE the estimate made by Audsely *et al.* (1) that 56% GHGE of the total diet occurs pre-RDC was used (see the Livewell report for a more details of the methodology and assumptions (2)).

but also a shift in the ratio of red to white meat in the diet; *eatwell week* is approximately 50:50 and current intakes are approximately 63:37. In order to meet dietary recommendations the *eatwell week* had to include two portions of fish, which is significantly more fish than is currently eaten (285g/day *vs*. 161g/day), and this food group has relatively high GHGE (similar to white meat). This also remains an area of conflict between health and environmental sustainability; with environmental concerns about the long-term sustainability of some fishing practices and fish stocks being balanced with ensuring that there is sufficient fish to meet nutritional recommendations for the population [(14)].

As with the Livewell project, the *eatwell week* shows that it is possible to create a diet that can meet dietary requirements and have a lower GHGE, but it must *not* be interpreted that healthy diets will always be lower in GHGE. Two recent studies have modelled a series of dietary scenarios showing that a healthy diet can be high GHGE and that a diet low in GHGE diet can be unhealthy depending on the food selected (Figure 1) [(4, 15)]. This can occur because dietary requirements for health are mainly based on nutrient intakes which can be achieved by many different combinations of food, while GHGE are specific to foods. Conveying simple messages about diets that are both healthy and lower in GHGE therefore face similar challenges to those of describing a healthy diet; it is not necessarily about foods that are 'good' or 'bad' but rather the balance of food in the whole diet. For example, while reducing intakes of meat is likely to lower GHGE, the magnitude of the reduction will depend on the foods that replace the meat in the diet. In a recent study Vieux *et al*. showed that reducing meat to only 50g/day across the population and replacing it with an iso-caloric quantity of fruit & vegetables actually resulted in an increase in GHGE [(15)]. Therefore, a simple message such as 'reduce meat intake' could have unintended consequences for the environment or health depending on what foods people choose to substitute for meat; replacing meat with high fat cheese may not be beneficial for health or the environment.

5.1 GHGE data: uncertainties and the importance of system boundaries

It is important in any study of this nature to recognise the uncertainties and limitations of the data. There is a standardised methodology proposed for estimating GHGE of products using full life cycle analysis (i.e. PAS2050 British Standards [(6)]), but there is still a lack of data for food products using this methodology. Most of the existing food related GHGE data only include the agricultural/production stages of the life cycle (and used in this study) rather than the full life cycle. There are clearly limitations to this, not least that the GHGE pre-RDC and post-RDC will vary for different foods; for example 90% of the total GHGE of milk occur pre-RDC but for ice-cream only 61% occur pre-RDC since significant emissions post-RDC are generated in making and storing ice-cream in freezers [16]. Therefore a food could appear to be low in GHGE up to the point of the RDC but this may not always be a good indication of the total GHGE. The post-RDC for the same food can also vary depending on the processing, type of storage and uneaten wastage of the food. Fresh, frozen or tinned vegetables will have the same GHGE prior to any processing (i.e. pre-RDC), but with different processing, storage and potential wastage the post-RDC will differ. In many of these cases there will be trade-offs that need to be balanced; food industry refrigeration accounts for approximately 15% of the total food chain emissions [2] but it extends the shelf life of many products, allows wider distribution of food (e.g. more variety in the diet), reduces potential for food waste and can increase food safety. Even at the level of food preparation in the home (e.g. electric oven vs. microwave oven) or type of food packaging (aluminium can vs. glass bottle) can vary the total GHGE. WRAP estimated fruit and vegetables and bakery products (e.g. bread) accounts for 42% and 23% of all household food waste respectively which is not accounted for in the pre-RDC GHGE [17].

Many discussions in this area of research have focused on animal vs. plant-based food because when GHGE data are expressed as the functional unit of weight (e.g. kgCO_2e/kg of product) animal-based products tend to have higher emissions than plant-based foods. However, if GHGE are expressed as a function of energy (e.g. kgCO_2e/MJ) the pattern can change significantly, with low energy dense food such as fruit and vegetables appearing to have higher GHGE, and therefore have a higher relative contribution in the diet. This is an important consideration for future understanding of GHGE associated with the diet and associated dietary advice.

5.2 Sustainable diets: wider environmental considerations

This study estimated the GHGE of the *eatwell week* but this is only one of many complex interacting environmental, ethical and economic issues associated with a sustainable diet. Broader environmental issues such as land use, water resources, pollutants and biodiversity of plant cultivars and animal breeds need to be considered for a truly environmentally sustainable diet. Factoring in more parameters increases the complexity but it is important to be aware of the wider issues to avoid unintended consequences of any action or recommendations. For example, importing fruit and vegetables from water scarce areas may provide trade and employment for these countries, but depending on the agricultural practices it could deplete and be polluting water sources for their own population. This creates an ethical, economic and environmental dilemma which needs to be carefully balanced when considering sustainability of the food system and future food security. In addition, care is needed to ensure that making food production more energy and cost efficient does not drive agricultural practices that could be detrimental to animal or human welfare. These simple examples only touch on the surface of the huge complexities of achieving a truly sustainable food system to provide healthy sustainable diets. It also highlights the importance of always defining 'sustainability' and the context in which it is being used; in this study it only refers to GHGE and health.

5.3 Summary

Based on the GHGE data currently available it is estimated that the *eatwell week* has lower pre-RDC GHGE than that of the current UK diet. This adds to the previous research supporting the evidence that it is possible to design diets to meet dietary requirements for health and with lower GHGE than the current UK dietary intakes. As discussed this must not be interpreted that healthy diets are environmentally sustainable diet; they can be but it is not always the case. This type of work highlights the need to consider the whole diet rather than singling out individual food groups and the importance of studying the impact of the diet on health and environment together. Research into understanding what constitutes a healthy sustainable diet is still in its early stages and the methodology being developed.

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6. Appendix: *eatwell week* food list

Starchy foods	**grams (g)**
PITTA BREAD, WHITE, TOASTED	95
BREAD WHOLEMEAL TOASTED	520
ROLLS WHITE CRUSTY	112
NAAN BREAD PLAIN	80
POTATO CHIPS OVEN READY THICK CUT BAKED	165
PASTA MACARONI, RAW	100
PASTA SPAGHETTI WHOLEMEAL BOILED	150
WHITE RICE BASMATI BOILED	180
OATS, ROLLED, PLAIN, DRY WEIGHT, NOT QUAKER, READY BREK/ INSTANT OATS	68
WEETABIX AND OTHER WHOLEWHEAT BISKS	75
MALTED FLAKE CEREAL, NO ADDITIONS, NOT SPECIAL K	60
POTATOES OLD RAW	715
FLOUR WHITE HOUSEHOLD PLAIN	21
Foods high in fat and/or sugar	
CHEESECAKE LOW FAT FRUIT TOPPING PURCHASED	120
CUSTARD READY TO SERVE CANNED	240
ICE CREAM, DAIRY, VANILLA, HARD, BLOCK	75
CHOCOLATE MOUSSE	60
MAYONNAISE (RETAIL)	66
BUTTER SALTED	10
DIGESTIVES HALF COATED IN CHOCOLATE	78
MARS BAR	58
POTATO CRISPS IN SUNSEED OIL EG WALKERS, SENSATIONS, SAINSBURY,TESCO	34.5
POPPADOMS/PAPPADOMS READY TO EAT PURCHASED OR RETAIL	26
GARLIC (& HERB) BREAD	40
OATCAKES	52
JELLY, CONTAINING FRUIT JUICE, PURCHASED	125
SUGAR WHITE	12
JAM WITH EDIBLE SEEDS PURCHASED	30
MARMALADE WITH PEEL	15
REDUCED FAT SPREAD (70-80%) PUFA LOW IN TRANS	140
OLIVE OIL	49
MINT SAUCE	4
CHUTNEY MANGO	10
SOY SAUCE LIGHT	2.5
TOMATO KETCHUP	10
WORCESTER SAUCE	2.5
FRENCH DRESSING	30
Milk & dairy foods	
CHEESE CHEDDAR ANY OTHER OR FOR RECIPES	60
CHEESE PARMESAN	12.5
YOGURT LOW FAT FRUIT	125
YOGURT LOW FAT NATURAL UNSWEETENED	156
MILK SEMI-SKIMMED PASTEURISED WINTER	1250
LATTE (ESPRESSO AND SKIMMED MILK) TAKEAWAY ONLY	350

Meat, fish, eggs & beans	grams (g)
MINCED BEEF EXTRA LEAN RAW	50
BEEF STEWING STEAK RAW LEAN AND FAT	100
BACON RASHERS BACK GRILLED LEAN AND FAT	50
CHICKEN ROAST MEAT ONLY	109
TURKEY WHITE MEAT RAW	100
HADDOCK IN BREADCRUMBS FROZEN GRILLED/BAKED	120
SALMON STEAMED NO BONES	120
TUNA, CANNED, IN SPRING WATER, FISH ONLY	45
EGGS BOILED	60
EGG WHOLE RAW	100
BEANS BAKED CANNED LOW SUGAR/ NO ADDED SUGAR	200
PEANUTS	25
Fruit & vegetables	
APPLES EATING RAW FLESH & SKIN ONLY	250
APPLES COOKING RAW FLESH ONLY	125
APRICOTS DRIED UNCOOKED DRY WEIGHT	25
BANANAS RAW FLESH ONLY	450
GRAPES WHITE RAW FLESH & SKIN WEIGHED WITH PIPS	225
KIWI FRUIT RAW FRESH NO SKIN	30
ORANGES RAW FLESH ONLY	560
STRAWBERRIES RAW	24
PRUNES DRIED UNCOOKED NO STONES	25
RAISINS DRIED WEIGHT	55
TOMATO PUREE (NOT CANNED)	30
TOMATOES RAW	283
TOMATOES, CANNED, WHOLE CONTENTS	400
BROAD BEANS CANNED DRAINED WEIGHT	100
FRENCH BEANS/GREEN BEANS BOILED	104
BROCCOLI SPEARS CALABRESE FROZEN BOILED	85
CARROTS-FROZEN BOILED	260
CAULIFLOWER-FROZEN BOILED	30
COURGETTES FRESH RAW	143
CUCUMBER-RAW	105
GARLIC RAW	8
LETTUCE UNSPECIFIED RAW	53
MUSTARD CRESS RAW	2
MUSHROOMS RAW	50
ONIONS RAW	360
ONIONS-SPRING-BULB & TOP RAW	10
PEAS FROZEN BOILED	110
PEPPERS GREEN FRESH-RAW	113
PEPPERS-RED-FRESH UNCOOKED	60
SWEETCORN, CANNED, DRAINED	60
ORANGE JUICE UNSWEETENED PASTURISED	958
Other foods	
BASIL (DRIED)	1.5
DRIED MIXED HERBS	1.5
HUMMUS, NOT CANNED	60
CREAM OF TOMATO SOUP CANNED	200
CURRY POWDER	10
LENTIL SOUP CANNED	200