

MyPlate: An Analysis of Climate Change Impact

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The recently released [MyPlate](#) website from the USDA provides practical information on making better food choices and building healthier diets. The purpose of this technical brief is to provide some insight into the climate change implications of a typical diet based on the MyPlate recommendations.

Data and Methodology

Based on average daily amounts of each food group for adults¹ as recommended by MyPlate, we constructed a hypothetical diet using the most commonly consumed food items within each food group taken from the most recent [food availability data from the USDA](#)², as shown in Table 1. Within each food group, we allocated the total consumption across the different food items in roughly the same proportion that these items are consumed today.

We then performed a life-cycle assessment of GHG emissions from the production, processing and delivery of these food items (assuming an average freight transport distance of 1500 miles from production/processing to retail). We adjusted the production quantities to account for typical weight change in cooking for foods such as meats, rice and beans due to moisture loss or gain. We also adjusted the production quantities to account for inedible parts of fruits and vegetables.

The analysis does not include the impacts of food packaging, food waste (other than inedible parts) and energy used in cooking. The analysis was done using the [FoodCarbonScope™](#) life-cycle assessment (LCA) software and the associated life-cycle inventory database.

Table 1: Hypothetical diet based on MyPlate recommendations and commonly consumed foods

Food Group	Food Items	Per-capita Quantity Consumed (oz/day)
Grains	Whole-wheat bread or equivalent	4.00
Grains	Rice or rice-based	0.10
Grains	Breakfast cereal	1.20

¹ For the 31-50 age group, average of men and women.

² Except for the grains food group, for which comparable USDA data are not available in terms of purchased items such as bread and pasta. We have independently estimated the composition of this group.

Grains	Pasta	1.20
Vegetables	Potatoes	6.89
Vegetables	Broccoli	0.32
Vegetables	Cabbage	0.48
Vegetables	Lettuce	1.42
Vegetables	Tomatoes	3.06
Vegetables	Carrots	0.83
Fruits	Apples	2.47
Fruits	Bananas	2.77
Fruits	Oranges	1.11
Fruits	Peaches	0.59
Fruits	Grapes	1.11
Fruits	Strawberries	0.90
Dairy	2% milk ³	11.44
Dairy	2% yogurt	2.32
Dairy	Natural cheese	1.97
Dairy	Cottage cheese	0.17
Dairy	Evaporated milk	0.43
Dairy	Powdered milk	0.18
Protein	Beef	1.54
Protein	Chicken	1.59
Protein	Pork	1.00
Protein	Egg	0.63
Protein	Fish	0.19
Protein	Shellfish	0.10
Protein	Peanuts	0.19
Protein	Tree Nuts	0.08
Protein	Dry Beans	0.18

Results

Table 2 and Figure 1 show the daily per-capita GHG emissions from the production, processing and delivery of the foods. For those adopting a typical diet based on MyPlate, the annual per-capita emissions would be about 1.1 metric tonnes of CO₂e. The results also show that protein – which is heavily weighted toward animal products based on current consumption patterns – dominates the total emissions because most animal-based foods are much more emissions-intensive than plant-based foods. Even with the higher levels of fruit and vegetable consumption recommended by MyPlate, over 80% of the total emissions are a direct result of the animal products in the protein and dairy groups.

³ Fluid quantities are given in weight for consistency with other food items.

Table 2: GHG emissions by food group

Food Group	Per-capita GHG Emissions (Kg CO2e/day)	% of Total Emissions
Grains	0.22	7.19%
Vegetables	0.17	5.63%
Fruits	0.15	5.03%
Dairy	1.07	35.34%
Protein	1.41	46.80%
Total	3.02	

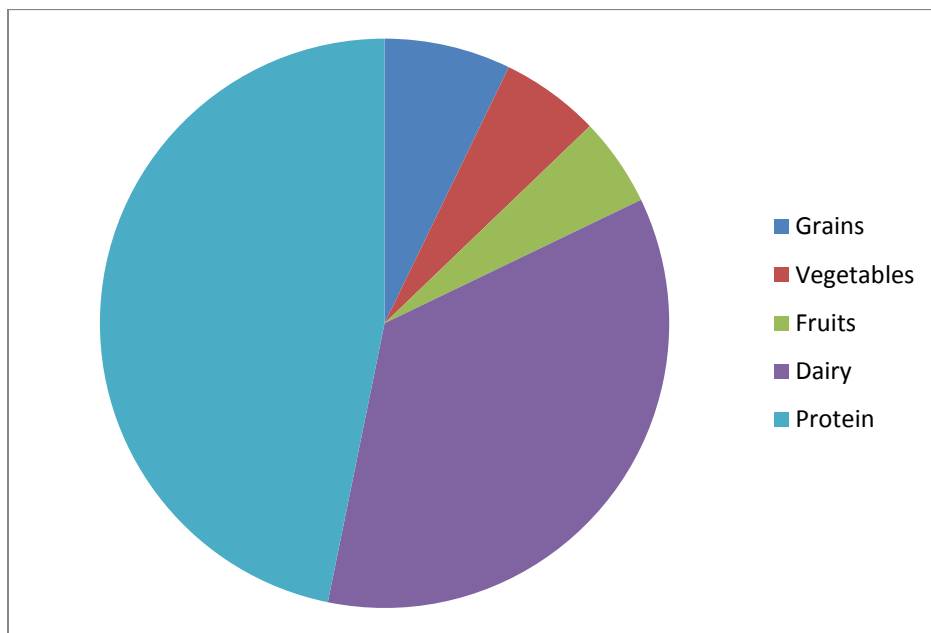


Figure 1: GHG emissions by food group