Sustainability of the Irish diet and implications for policy.

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The contribution of food consumption towards climate change has received increasing attention in recent years. In its present form, food consumption is responsible for as much as 30% of EU greenhouse gas (GHG) emissions. Therefore, individual food choices have the potential not only to substantially influence health but impact on the environment as well.

Are there any food choice behaviours or is it possible to have a sustainable diet that can achieve both dietary guidelines and minimal environmental impacts? The Food and Agricultural Organisation define sustainable diets as "*diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems,* ***culturally*** *acceptable, accessible,* ***economically*** *fair and affordable;* ***nutritionally*** *adequate, safe and* ***healthy****; while optimizing natural and human resources".*

GHGs associated with food production are measured in carbon equivalents (CO_2eq) to produce a carbon footprint which is used to give an indication of the climatic impact of food consumed. In general, plant-based foods are low in GHG emissions, whereas foods from animal sources are higher; especially from ruminant animals. It is worth noting that the European Commission has found that Ireland has one of the lowest carbon footprints of animal products in Europe[1]. Foods from animal sources provide many essential nutrients necessary for good health and therefore are an important part of a healthy diet. Hence, environmental and human-health issues should be considered together to ensure socially and nutritionally optimal outcomes for both.

Research is on-going in Teagasc in conjunction with University College Cork (UCC) examining the carbon footprint of the Irish diet and food-consumption behaviours. The aim is to determine the quantity of (GHG) emissions associated with food consumption patterns among Irish adults and to determine what patterns of food consumption were sustainable from both an environmental and nutritional perspective in order to provide evidence for policy. Information on foods consumed was available from the National Adult Nutrition Survey, which collected information over four days of all foods and beverages consumed by a sample of 1,500 Irish adults. Each food consumed was multiplied by a CO_2eq conversion factor specific to each food group to generate the carbon footprint associated with the amount of food or drink consumed by each individual. These conversion factors were sourced from published literature and not calculated by Teagasc.

Research findings:

- The average Irish adult generates 6.5kg CO_2eq daily arising from the food they eat. These levels of dietary emissions are comparable to other European nations, such as the UK, and are slightly below the EU average of 7.1kg CO_2eq.
- As might be expected based on relative size of multipliers, more than two-fifths of GHG emissions came from red meat, with dairy and starchy staples contributing approximately one tenth each.

[1] http://ec.europa.eu/agriculture/analysis/external/livestock-gas/full_text_en.pdf

- When one looks at dietary patterns as opposed to individual food categories, the relative influence of different food groups can change. This research found three distinct dietary emission patterns in Ireland. The dietary emission pattern with the highest levels of GHGs generated a large proportion of GHGs from discretionary foods such as alcohol, savoury snacks, carbonated beverages, and processed meats.
- Two lower impact emission patterns differed in the total amount of food consumed as well as the foods that made up the overall diet. This meant that the GHGs for the group that had the highest quantity of GHGs from red meat was similar to the group that had the lowest emissions from red meat (but more from fish, fruit and vegetables) because they consumed less food overall.
- While red meat contributed the largest proportion of emissions of food consumed in Ireland due to the high multiplier applied, the highest consumers of red meat did not have the highest carbon footprint. Instead, consumption of unhealthy discretionary foods had the largest impact on overall dietary GHG emissions.
- Food consumption and energy intake beyond our nutritional requirements contributes to obesity as well as dietary GHGEs. Promoting a healthier diet and lifestyle, which encourages a reduction in energy consumption, to meet energy requirements may result in the food system becoming less carbon-intensive.
- Global dietary recommendations fail to acknowledge the prevailing cultural consumption patterns and have an over-reliance on changing consumer behaviour.

The findings from this research support the notion that any policy measures should be evidence based and consider the prevailing cultural food consumption patterns of a population. CAP reform and any associated food-policy instruments developed for sustainability reasons should be holistic in nature, take other parameters such as health and nutrition into consideration rather than concentrating on one food group.

Note:

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Further reading

1. Hyland J, McCarthy SN, McCarthy MB, Henchion M. The climatic impact of food consumption in a representative sample of Irish adults and implications for food and nutrition policy. Public Health Nutrition 2017;20:726-738
2. Hyland J, Henchion M, McCarthy MB, McCarthy SN. The role of meat in strategies to achieve a sustainable diet lower in greenhouse gas emissions: a review. Meat Science. 2017;132:189-195
3. Hyland J, Henchion M, McCarthy MB, McCarthy SN. Dietary emissions patterns and their effect on the overall climatic impact of food consumption. International Journal of Food Science & Technology 2017;52:2505-2512
4. S McCarthy, M Henchion, J Hyland, M McCarthy. Energy in:Carbon out. *TResearch,* Winter 2018
5. J Hyland, S McCarthy, M Henchion M McCarthy. Unhealthy diet; unhealthy climate. *TResearch* Winter 2016

A copy of the above references may be obtained by emailing sinead.mccarthy@teagasc.ie