

Briefing:

Review of the Sustainability Evidence in the Dietary Guidelines Advisory Committee's Advisory Report

The 2015 Dietary Guidelines Advisory Committee has considered the role of food sustainability in its recommendations for the Federal government's 2015 Dietary Guidelines for Americans due out this fall. Their inclusion of sustainability considerations has generated warnings from food industry representatives that the final Dietary Guidelines for Americans document must only contain recommendations centered on nutrition and diet. In reality, topics beyond this limited view of our diet have been incorporated into past Dietary Guidelines—the 2010 Dietary Guidelines recommended the adoption of policies to limit food and beverage marketing to children,¹ and the 2005 Dietary Guidelines considered the cost and availability of healthy food.² The 2015 Advisory Committee reviewed the environmental impact of food production and determined that sustainability plays a critical role in meeting current and future food and nutrition needs. They conclude that the promotion of healthy dietary patterns that also are produced more sustainably will conserve resources for present and future generations and help ensure long-term food security for the U.S. population.

The Advisory Committee adopted the following definitions from the United Nations Food and Agriculture Organization (FAO):

Sustainable diets: Sustainable diets are a pattern of eating that promotes health and well-being and provides food security for the present population while sustaining human and natural resources for future generations.

Food security: Food security exists when all people now, and in the future, have access to sufficient, safe, and nutritious food to maintain a healthy and active life.

Below are highlights of the evidence from the Committee's Advisory Report that support the inclusion of sustainability considerations in the 2015 Dietary Guidelines.

- Food production methods have significant environmental impacts: global production of food is responsible for 80% of deforestation, more than 70% of fresh water use, and up to 30% of human-generated greenhouse gas emissions³
- Global food production is the largest cause of species biodiversity loss³
- The capacity to produce adequate food in the future is constrained by land use, declining soil fertility and soil loss, unsustainable water use, and over-fishing⁴

- Meeting current and future food needs will depend on altering individual and population dietary choices and developing food production practices that reduce environmental impacts and conserve resources while still meeting food and nutrition needs
- Foods vary in the type and amount of resources required for production; as consumer demand impacts food production, it will also influence how and to what extent resources are used³

To assess the relationship between population-level dietary patterns and long-term food sustainability, the Advisory Committee conducted a systematic review, consisting primarily of dietary pattern modeling studies that assessed related environmental outcomes. The review ultimately included 15 studies⁵⁻²⁰ (primarily Life Cycle Assessment (LCA) modeling studies or land-use studies from highly developed countries), published between the years of 2003 and 2014. Given the evidence, they concluded that “a dietary pattern that is higher in plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts, and seeds, and lower in animal-based foods is more health promoting and is associated with lesser environmental impact (greenhouse gas emission and energy, land, and water use) than is the current average U.S. diet.”

The Advisory Committee contends that sustainability considerations provide an additional rationale for following the Dietary Guidelines and should be incorporated into federal nutrition programs when possible. The Advisory Report concludes that the promotion of healthy diets that include foods that are more sustainably produced will conserve resources for present and future generations, ensuring Americans’ long-term access to a diet that is healthy, sustainable, and secure.

(Endnotes)

¹ U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2010*. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.

² U.S. Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans, 2005*. 6th Edition, Washington, DC: U.S. Government Printing Office, January 2005.

³ United Nations Environment Programme. *UNEP Year Book: Emerging Issues In Our Global Environment 2012*. Available from: www.unep.org/yearbook/2012/.

⁴ Nellemann C, MacDevette, M., Manders, T., Eickhout, B., , Svihus B, Prins, A. G., Kaltenborn, B. P. (Eds). *The environmental food crisis – The environment’s role in averting future food crises. A UNEP rapid response assessment* United Nations Environment Programme, GRID-Arendal; 2009. Available from: www.grida.no.

⁵ International Organisation for Standardisation. *Environmental management – Life cycle assessment – principles and framework*, Geneva, Switzerland 2006a.

⁶ Aston LM, Smith JN, Powles JW. Impact of a reduced red and processed meat dietary pattern on disease risks and greenhouse gas emissions in the UK: a modelling study. *BMJ Open*. 2012;2(5). PMID: 22964113. <http://www.ncbi.nlm.nih.gov/pubmed/22964113>.

⁷ Baroni L, Cenci L, Tettamanti M, Berati M. Evaluating the environmental impact of various dietary patterns

combined with different food production systems. *Eur J Clin Nutr.* 2007;61(2):279-86. PMID: 17035955. <http://www.ncbi.nlm.nih.gov/pubmed/17035955>.

⁸ Barosh L, Friel S, Engelhardt K, Chan L. The cost of a healthy and sustainable diet--who can afford it? *Aust N Z J Public Health.* 2014;38(1):7-12. PMID: 24494938. <http://www.ncbi.nlm.nih.gov/pubmed/24494938>.

⁹ de Carvalho AM, Cesar CL, Fisberg RM, Marchioni DM. Excessive meat consumption in Brazil: diet quality and environmental impacts. *Public Health Nutr.* 2013;16(10):1893-9. PMID: 22894818. <http://www.ncbi.nlm.nih.gov/pubmed/22894818>.

¹⁰ Hendrie GA, Ridoutt BG, Wiedmann TO, Noakes M. Greenhouse gas emissions and the Australian diet--comparing dietary recommendations with average intakes. *Nutrients.* 2014;6(1):289-303. PMID: 24406846. <http://www.ncbi.nlm.nih.gov/pubmed/24406846>.

¹¹ Macdiarmid JI, Kyle J, Horgan GW, Loe J, Fyfe C, Johnstone A, et al. Sustainable diets for the future: Can we contribute to reducing greenhouse gas emissions by eating a healthy diet? *Am J Clin Nutr.* 2012;96(3):632-9. PMID: 22854399. <http://www.ncbi.nlm.nih.gov/pubmed/22854399>.

¹² Meier T, Christen O. Environmental impacts of dietary recommendations and dietary styles: Germany as an example. *Environ Sci Technol.* 2013;47(2):877-88. PMID: 23189920. <http://www.ncbi.nlm.nih.gov/pubmed/23189920>.

¹³ Peters CJ, Wilkins JL, Fick GW. Testing a complete-diet model for estimating the land resource requirements of food consumption and agricultural carrying capacity: The New York State example. *Renewable agriculture and food systems.* 2007;22(2):145-53. <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=1091328&fIeld=S1742170507001767>.

¹⁴ Pimentel D, Pimentel M. Sustainability of meat-based and plant-based diets and the environment. *Am J Clin Nutr.* 2003;78(3 Suppl):660S-3S. PMID: 12936963. <http://www.ncbi.nlm.nih.gov/pubmed/12936963>.

¹⁵ Pradhan P, Reusser DE, Kropp JP. Embodied greenhouse gas emissions in diets. *PLoS One.* 2013;8(5):e62228. PMID: 23700408. <http://www.ncbi.nlm.nih.gov/pubmed/23700408>.

¹⁶ Saez-Almendros S, Obrador B, Bach-Faig A, Serra-Majem L. Environmental footprints of Mediterranean versus Western dietary patterns: beyond the health benefits of the Mediterranean diet. *Environ Health.* 2013;12:118. PMID: 24378069. <http://www.ncbi.nlm.nih.gov/pubmed/24378069>.

¹⁷ Scarborough P, Allender S, Clarke D, Wickramasinghe K, Rayner M. Modelling the health impact of environmentally sustainable dietary scenarios in the UK. *Eur J Clin Nutr.* 2012;66(6):710-5. PMID: 22491494. <http://www.ncbi.nlm.nih.gov/pubmed/22491494>.

¹⁸ van Dooren C, Marinussen M, Blonk H, Aiking H, Vellinga P. Exploring dietary guidelines based on ecological and nutritional values: A comparison of six dietary patterns. *Food Policy.* 2014;44(0):36-46. <http://www.sciencedirect.com/science/article/pii/S0306919213001620>.

¹⁹ Vieux F, Soler LG, Touazi D, Darmon N. High nutritional quality is not associated with low greenhouse gas emissions in self-selected diets of French adults. *Am J Clin Nutr.* 2013;97(3):569-83. PMID: 23364012. <http://www.ncbi.nlm.nih.gov/pubmed/23364012>.

²⁰ Wilson N, Nghiem N, Ni Mhurchu C, Eyles H, Baker MG, Blakely T. Foods and dietary patterns that are healthy, low-cost, and environmentally sustainable: a case study of optimization modeling for New Zealand. *PLoS One.* 2013;8(3):e59648. PMID: 23544082. <http://www.ncbi.nlm.nih.gov/pubmed/23544082>.