Clemens, Roger A. President, Institute of Food Technologists, Chief Scientific Officer, E.T. Horn Company

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Title: Dietary Guidelines - Implications for the food, nutrition and health continuum

Abstract:

The first edition of The Dietary Goals of the United States, issued in 1977, noted the eating patterns and diets had changed over the previous 50 years, and that those changes presented a public health concern. The fundamental dietary recommendations from this early assessment have not changed over the ensuing years; only the quality of the data and research to justify those recommendations has improved. Importantly, during this period and despite the dietary recommendations, the public health issues linked to eating patterns and lifestyles remain significant.

The past three decades of research at the intersection of agriculture, food science, nutrition, medicine and health have contributed to an improved understanding of these factors and their impact on acute and chronic diseases. Challenges at this intersection include the frequent inconsistency of outcomes, their clinical relevance and their potential translation to public policy. Examples of these inconsistencies include saturated fatty acids and trans-fatty acids and cardiovascular disease, the myriad of carbohydrates and their impact on heart health as well as diabetes, and even select minerals, such as Na^{+}, K^{+}, Ca^{2+}, and Mg^{2+} on blood pressure modulation.

One of the next quests at this intersection includes the human genome and the influence of foods and specific nutrients and other substances on genetic expression. Examples of this gene-nutrient interaction include single nucleotide polymorphisms (SNPs) in the two desaturase encoding genes (FADS1 and FADS2) and SNPs associated with the APOA1/C3/A4/A5 gene cluster which affect fasting lipids and post-prandial lipid profiles. Thus, the next generation of food scientists and nutritionists must comprehend the continuum of health outcomes and their clinical relevance throughout their research, in the development of future food products, and during “personalized” health advisement and marketing to consumers.