NORTH AMERICAN MEAT INSTITUTE

August 13, 2020

Kristin Koegel
U.S. Department of Agriculture
Food and Nutrition Service
Center for Nutrition Policy and Promotion
3101 Park Center Drive, Room 1034
Alexandria, VA 22302

Re: Docket FNS-2020-015. Scientific Report of the 2020 Dietary Guidelines Advisory Committee.

Dear Ms. Koegel:

The North American Meat Institute (NAMI or the Meat Institute) is the leading voice for the meat and poultry industry. The Meat Institute has a rich, century-long history and provides essential member services including legislative, regulatory, scientific, international, and public affairs representation. Together, the Meat Institute's members produce the vast majority of U.S. beef, pork, lamb, and poultry, in addition to the equipment, ingredients, and services needed to produce the safest and highest quality products.

Consumer health is a key consideration in producing meat and poultry products, which not only includes offering nutrient dense protein food products but also improving and maintaining the safety of the meat and poultry supply. Meat and poultry products play an important role in a healthy, well-balanced diet and the industry is committed to offering diverse nutritional products. Including meat and poultry in the diet allows consumers to more easily fulfill their essential amino acid and nutrient requirements. Dietary guidance should be practical, affordable, and attainable, and should measurably improve the health of Americans as part of healthy dietary patterns.

The Meat Institute applauds the enormous task undertaken by the 2020 Dietary Guidelines Advisory Committee (DGAC or Committee) to review the science and provide its recommendations in the Scientific Report (Report) to the U.S. Departments of Agriculture and Health and Human Services (USDA and HHS or the Departments). The Departments now must translate the Report into policy that will provide meaningful dietary advice for the entire American population, from birth to older adults for the first time. The significant efforts to develop the 2020-2025 *Dietary Guidelines for Americans (Guidelines)* do not go unrecognized or unappreciated by the Meat Institute.

Because the Committee's Report found inconsistencies around the role of meat and poultry in healthy dietary patterns, the Meat Institute is extremely concerned that consumers will inaccurately perceive meat and poultry products as poor dietary choices, which may lead to a variety of unintended consequences, including nutritional deficiencies in certain sub-populations. USDA and HHS have the opportunity and responsibility to translate the Report's findings into clear, concise language that demonstrates the role meat and poultry can play in healthy dietary patterns throughout the entire life span, when consumed in recommended amounts.

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Meat and Poultry, Which Includes Red and Processed Meats, Are Part of Healthy Dietary Patterns.

The Meat Institute strongly supports nutritional guidance that encourages consuming nutrient-dense foods because diets are more likely to meet recommendations if such foods are selected.[1] Nutrient-dense foods provide substantial amounts of vitamins and minerals (micronutrients) and relatively few calories compared to foods that have solid fat and/or added sugars. Meat and poultry, which include red and processed meats, are nutrient-dense foods and can be a part of healthy dietary patterns. About 95 percent of Americans make meat and poultry products part of their diets, and for good reason.[2]

Meat and poultry products provide consumers with a convenient, direct, and balanced dietary source of all essential amino acids. Per serving, meat, poultry, and fish provide more protein than dairy, eggs, legumes, cereals, vegetables, or nuts. Protein is critical for developing, maintaining, and repairing strong muscles; is vital for growth and brain development in children; and is essential to prevent muscle loss in the aged.[3,4]

Meat and poultry products are also important sources of micronutrients, such as iron, zinc, selenium, vitamins B_{12}, B_6, thiamin, riboflavin, niacin, and potassium – nutrients essential in all life stages including the critical first 1,000 days, during periods of growth and development like childhood and adolescence, throughout adulthood and during older years to maintain physical function enhancing quality of life. The iron and zinc in beef, pork, lamb, poultry, and fish are also more bioavailable than from other sources, meaning these minerals are more easily absorbed and utilized by the body.

The high iron content in meat and poultry products is important to certain low income subpopulations and teenage girls and pregnant women at a higher risk of anemia.[5] Although iron supplementation may be an option, the heme iron present in meat is the most absorbable form of iron and continued deficiency could lead to long-term adverse health effects, including decreased mood, shortness of breath, dizziness, and headaches, among others.[6] The natural presence of heme iron also

[1] Weaver, C.M, Dwyer, J., Fulgoni, V., King, J., Leveille, G.A., MacDonald, R.S., Ordovas, J. and Schnakenberg, D. 2014. Processed Foods: Contributions to Nutrition. Am J Clin Nutr DOI: 10.3945/ajcn.114.089284.
[2] 2018 Gallup Poll. https://news.gallup.com/poll/267074/percentage-americans-vegetarian.aspx.
[3] Campbell, W. W., et al. (1999). "Effects of an omnivorous diet compared with a lactoovovegetarian diet on resistance-training-induced changes in body composition and skeletal muscle in older men." Am J Clin Nutr 70(6): 1032-1039.
[4] Robinson, M. J., et al. (2013). "Dose-dependent responses of myofibrillar protein synthesis with beef ingestion are enhanced with resistance exercise in middle-aged men." Appl Physiol Nutr Metab 38(2): 120-125.
[5] http://www.hematology.org/Patients/Anemia/Iron-Deficiency.aspx. Accessed May 20, 2020.
[6] https://www.mayoclinic.org/diseases-conditions/iron-deficiency-anemia/symptoms-causes/syc-20355034. Accessed May 20, 2020.

aids absorption of non-heme iron.[7] It is clear meat and poultry play an integral role in ensuring adequate vitamin and mineral intake.[8,9,10,11]

A three-ounce serving of lean beef provides about 170 calories and is an "excellent" source of six nutrients, including protein, zinc, vitamin B_{12}, vitamin B_6, niacin, and selenium, and a "good" source of four nutrients—phosphorous, choline, iron, and riboflavin.[12] Pork is a lean, nutrient-rich food, and a three-ounce serving of pork tenderloin is a source of nine key essential nutrients—an "excellent" source of thiamin, selenium, protein, niacin, vitamin B_6, and phosphorus and a "good" source of riboflavin, zinc, and potassium.[13] And, today's pork is 16 percent leaner and has 27 percent less saturated fat than 29 years ago.[14] In addition, more than 60 percent of beef cuts sold at retail meet the regulatory definition for "lean," when cooked with visible fat trimmed.[15] A three-ounce portion of roasted skinless turkey breast contains only 3 grams of fat and is naturally low in sodium, containing less than 25 milligrams per ounce.[16] These are just a few examples of high quality nutrient dense meat and poultry products. And the Report provides that the totality of the evidence supports dietary patterns that include lean meat or poultry, among other nutrient dense food choices.[17] By including meat and poultry in the diet, consumers can maintain a steady balance of key nutrients that support overall health.

Processed Foods, Including Meat and Poultry, Can Help Americans Meet Nutrient Needs.

Food processing is an important component of ensuring a safe, accessible, affordable, nutritious, and sustainable food supply. Processing allows perishable products to last longer through freezing, canning, and other preservation methods. Such production practices allow for maximum utilization of crop yields and minimize the potential for food waste. Processing also allows for fortifying

[7] National Academy of Sciences. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. National Academy Press. Washington, DC. 2001.
[8] Institute of Medicine, National Academy of Sciences. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. National Academy Press., Washington, DC. 2001. http://www.nap.edu/openbook.php?isbn=0309072794
[9] Institute of Medicine, National Academy of Sciences. Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids. National Academy Press. Washington, DC. 2000.
[10] National Academy of Sciences. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. National Academy Press. Washington, DC. 2000.
[11] Sharma, S., et al. (2013). Contribution of meat to vitamin B(12), iron and zinc intakes in five ethnic groups in the USA: implications for developing food-based dietary guidelines" J Hum Nutr Diet 26(2): 156-168.
[12] U.S. Department of Agriculture, Agricultural Research Service. FoodData Central. USDA National Nutrient Database for Standard Reference legacy NDB Number 13364. April 2018. https://fdc.nal.usda.gov/fdc-app.html#/food-details/170208/nutrients. Accessed August 11, 2020.
[13] National Nutrient Database for Standard Reference, Release 23. Based on 3-ounce cooked servings (roasted), separable lean only.
[14] National Pork Board. https://www.pork.org/cooking/pork-nutrition/. Accessed August 11, 2020.
[15] IRI/Freshlook, Total US MULO, 52 weeks ending 5/21/17, Categorized by VMMeat System..
[16] National Turkey Federation. https://www.eatturkey.org/healthy-eating-made-easy/. Accessed August 11, 2020.
[17] Dietary Guidelines Advisory Committee. 2020. *Scientific Report of the 2020 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Agriculture and the Secretary of Health and Human Services.* U.S. Department of Agriculture, Agricultural Research Service, Washington, DC. Part D: Evidence on Diet and Health. *Current Dietary Intakes through the Life Course.* Chapter 8: Dietary Patterns. p. 47.

nutrients that may not be consumed naturally in adequate quantities to meet nutrition requirements. Processed food can be nutrient-dense foods.[18]

Meat and poultry products, including processed meats, can be a part of healthy dietary patterns. Processing extends the shelf-life to an otherwise perishable food, reduces waste by using all the cuts of meat available, and provides consumers with convenience, flavor, and cultural identity. However, the perceived lack of health benefits and potential adverse health outcomes with meat consumption are at the center of many scientific studies. Among the issues further clouding the debate are confusion, misinformation, and misunderstandings of how meat is processed. Specifically, there are many misunderstandings with the science underpinning meat and processing nomenclature, product labeling claims, and ingredient safety.

All foods require preparation and processing to varying levels and meat may simply be the primary ingredient in a product, just as flour is the base ingredient in a host of cereal, bakery, and pasta products. Meat preparation for consumption generally includes cutting meat into a smaller size; adding non-meat ingredients, and cooking.[19]

Generally, the main ingredients used in preparing many processed meats are water, salt, nitrite or nitrate, phosphates, sugar, spices, and fat, which are recognized as safe by the Food and Drug Administration. Many ingredients serve multiple purposes. They can be used for flavor, functionality, enhanced nutrition profile, and microbial safety. For example, salt plays a critical role in producing meat products – whether used by large commercial processors, local butchers, or in the consumer's home – to improve the flavor, texture, and safety of those products.

Several processing techniques can be used when preparing these products. Processed meat and poultry products can be smoked, dried, cured, cooked, ground, and marinated, among other processes. These processes add flavor, texture, or can act as a preservation step to extend a product's shelf-life.

Common processed meat and poultry products are deli meats like turkey, ham, bologna, pastrami, and corned beef. Other common products are bacon, sausages, and salami. Each product can be prepared with different ingredients and product formulations. Nutrient needs vary widely due to each individual's disease status, age, preference and there are processed meat and poultry products available to meet everyone's individual nutrient and lifestyle needs. There is a product center on www.meatpoultrynutrition.org, which helps consumers and health professionals find prepared meat and poultry products fitting particular nutrition profiles – like low fat and reduced sodium among other regulated claims. Given the variety of product types and formulations there are thousands of different processed meat products.

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[18] Weaver, C.M, Dwyer, J., Fulgoni, V., King, J., Leveille, G.A., MacDonald, R.S., Ordovas, J. and Schnakenberg, D. 2014. Processed Foods: Contributions to Nutrition. *Am J Clin Nutr* DOI: 10.3945/ajcn.114.089284. http://ajcn.nutrition.org/content/99/6/1525.

[19] Seman, D. L., D. D. Boler, C. C. Carr, M. E. Dikeman, C. M. Owens, J. T. Keeton, T. D. Pringle, J. J. Sindelar, D. R. Woerner, A. S. de Mello, and T. H. Powell. 2018. Meat Science Lexicon. *Meat and Muscle Biology* 2:1-15. doi:10.22175/mmb2017.12.0059.

Recognizing that food choices can be improved, a more appropriate approach is shifting dietary practices. Guidance to limit or reduce red and processed meats could affect an aging population, a population with decreased appetite and increased protein needs relative to calories. The importance of the high protein quality in meat and meat products in maintaining autonomy and musculoskeletal health (*i.e*., preventing falls, sarcopenia) in older adults cannot be overstated. A review in the journal *Applied Physiology, Nutrition, and Metabolism* stated that the growing body of evidence indicates that protein intakes well above the current Recommended Dietary Allowance help promote healthy aging.[20] Higher protein intakes may help prevent age-related sarcopenia, loss of muscle mass that predisposes older adults to frailty, disability, and loss of autonomy. Processed products are options to help this population subgroup meet nutrient requirements.

Processed foods, including meat and poultry, should not be vilified but recognized for the important role they play in the diet. Discouraging consumption of processed foods, including meats, may discourage the consumption of nutritionally adequate food with negative consequences on nutrient intakes. It is critical the Departments consider possible unintended consequences when making recommendations for or against processed foods.

Protein Foods Are Consumed at Recommended Levels.

Using the Healthy Eating Index 2015 (HEI) to evaluate adherence to the 2015-2020 *Dietary Guidelines for Americans,* the average diet quality score was 59 out of 100, demonstrating Americans have poor diet quality.[21,22] The overall HEI-2015 score is made up of 13 components that reflect different food groups and key recommendations. Of the nine adequacy components, where a higher score indicates higher consumption, total protein foods and seafood and plant proteins are the only components to score five out of five or 100 percent. Of the seven remaining adequacy and four moderation components, there appear to be significant gaps to improving the overall diet quality of Americans.[23] Further the Report recognizes intake for total protein is within the range of recommended amounts except for females age 12-19 and 70 + years.[24] The Report also reflects that almost half of pregnant women and one in six lactating women have low intakes of total protein foods.[25,26] These age groups are life stages when nutrients provided in animal sourced proteins are critical to development and muscle maintenance. Changes in the intake of protein foods has not changed significantly.[27]

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[20] Phillips SM, Chevalier S, Leidy HJ. Protein "requirements" beyond the RDA: implications for optimizing health. Appl Physiol Nutr Metab. 2016 May;41(5):565-72. doi: 10.1139/apnm-2015-0550. Epub 2016 Feb 9.
[21] National Center for Health Statistics, *What We Eat in America/National Health and Nutrition Examination Survey, 2013-2014*.
[22] Healthy Eating Index-2015. U.S. Department of Agriculture, https://www.fns.usda.gov/resource/healthy-eating-index-hei.
[23] Healthy Eating Index: HEI Scores for Americans. https://www.fns.usda.gov/hei-scores-americans. Accessed May 18, 2020.
[24] Dietary Guidelines Advisory Committee. 2020. *Scientific Report of the 2020 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Agriculture and the Secretary of Health and Human Services.* U.S. Department of Agriculture, Agricultural Research Service, Washington, DC. Part D: Evidence on Diet and Health. *Current Dietary Intakes through the Life Course.* Chapter 1: Current Intakes of Foods, Beverages, and Nutrients. p. 45.
[25] Ibid. p. 49.
[26] Ibid. p. 51.
[27] Ibid. p. 45.

While animal protein intake has increased slightly over the last 50 years, there has been a shift in the product category. Attributable to nutritional recommendations to reduce red meat consumption and cost, per capita consumption of all red meats, *e.g.* beef, veal, pork, lamb, and mutton, has decreased from 145.8 pounds (retail) in 1970 to 111.9 pounds in 2019 – a 23 percent decrease.[28] During that same time, poultry consumption increased from 48.4 pounds in 1970 to 112.5 pounds in 2019. The American population has been listening to dietary guidance to reduce red meat intake and choose poultry. Given that obesity and adverse health outcomes have increased over the same time period, red meat consumption alone cannot be the root cause. Americans generally do not understand the relationship that portion size and energy balance have with weight. The Departments should recognize this fact and provide context in the *Guidelines*.

Mixed Dishes Play Important Roles in Healthy Dietary Patterns.

The Report's findings indicate that Americans have significant room for improvement in their diets across many food groups and nutrients. Consumers choose foods for a variety of reasons, including flavor, tradition, convenience, cost and lifestyle.

Many American mealtime solutions are found within the mixed dish category, including burgers and sandwiches, omelets, frozen entrees, stir-fries, pasta dishes, and soups, among others. They are prepared from scratch or conveniently pre-assembled for purchase at retail. Mixed dishes are commonly "center of the plate" entrees found fresh, frozen, and in shelf-stable packaging. In addition, mixed dishes can provide an easily transportable and affordable alternative to a more expensive and potentially less healthy mealtime option.

Mixed dishes are a broad category, of which burgers and sandwiches are a subcategory. Burgers and sandwiches contribute significantly to the diet, they were referenced separately at times in the Report but are included in the following discussion of mixed dishes unless otherwise noted.

The Report states the majority of energy comes from burgers and sandwiches, snacks and sweets, and mixed dishes. Burgers and sandwiches are the primary source of energy across most age groups.[29] Two of the three food subcategories that provide significant amounts of protein foods in the diet for Americans of all ages are burgers and sandwiches, and meat, poultry, and seafood mixed dishes.[30] Intakes of burgers and sandwiches contribute to most food groups, nutrients, and food components that fall outside recommended ranges.[31]

Mixed dishes are an integral part of the American diet. While recognizing the contribution of nutrients of public health concern, the benefits of consuming mixed dishes, *e.g.* increased intake of vegetables, shortfall nutrients, a variety of plant and animal proteins, dairy, *etc*., should not be discounted.[32] Although foods like mixed dishes contribute to energy intake, they occupy an important place in dietary patterns because they provide high concentrations of key nutrients critical to health. These foods help us feel full and satisfied and energize us to be physically active and to sleep well.

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[28] USDA Economic Research Service. *Livestock, Dairy and Poultry Outlook.* All Supply and Disappearance, Historical, table 5. https://www.ers.usda.gov/webdocs/DataFiles/51875/MeatSDFull.xlsx?v=7566.4. Accessed May 18, 2020.
[29] Ibid. Part D. Chapter 1. p. 88.
[30] Ibid. p. 46.
[31] Ibid. p. 77.
[32] Ibid. p. 92.

Foods in this category, when consumed in the correct proportion, can also reduce over consumption of other foods, which should be consumed sparingly, *e.g.* cakes, cookies, salty snacks.

The Report concludes there is excessive sodium intake among all age-sex groups of Americans and "mixed dishes" are a primary source. No one food is responsible for excessive sodium intake. Rather, it is the ubiquitous patterns of intakes from food subgroups high in sodium that contribute to this issue. Sodium used in food processing is the key contributor to intake, rather than sodium added by the consumer.[33]

By including mixed dishes in the diet, consumers can maintain a steady balance of key nutrients that support overall health. Lean meats, fish, eggs, dairy products, nuts, and seeds, and fat containing fruits (avocado, olives, coconut) are examples of foods that need to be present in a diet in the correct proportion.

Sodium is Critical to the Safety, Functionality and Quality of Meat and Poultry Products.

Salt, or sodium chloride, plays a critical role in producing meat products – whether used by large commercial processors, local butchers, or even within the consumer's home – to improve the flavor, texture, and safety of those products. In addition to playing a critical role in meat production salt is also intrinsic. Reducing sodium is not as simple as adding less and sending the product to market. The meat and poultry industry must ensure there are no unintended food safety consequences to product reformulation, while still meeting consumer flavor and quality expectations.

Salt's role as a preservative and food safety ingredient is one aspect of a multi-hurdle approach used to maintain product safety. In the last 20 years, the meat and poultry industry has also learned in more quantitative fashion the importance of sodium chloride in managing pathogenic bacterial risks presented by *Listeria monocytogenes*, *Salmonella*, and pathogenic *Escherichia coli* in meat and poultry items.

L. monocytogenes is of particular concern in ready-to-eat processed meat and poultry items because it is very difficult to eradicate from the environment and if products are contaminated, the organism will survive and grow – even at refrigerated temperatures – unless growth inhibitor systems are used. Three common ingredients used for this purpose are sodium chloride, sodium or potassium lactate, and sodium diacetate. These inhibitors are used in up to 70 percent of processed meat and poultry items in the U.S. marketplace. Reducing one requires a concomitant increase in another to maintain the same degree of safety. Alternatives to these ingredients exist, but are not widely used because of ease of use, economic, and product quality issues - specifically loss of consumer acceptance for flavor, decreased shelf-life, and loss of myofibrillar functionality, among others.

Additionally, the functionality of sodium and sodium compounds when added to muscle tissues will affect the quality of a meat or poultry product. Sodium in the form of sodium chloride is the primary source of added sodium to meat and poultry products. Sodium phosphates, sodium nitrite, sodium lactate, among others, are all sodium compounds used by the meat and poultry industry in developing their products. Compounds such as sodium chloride have important quality, shelf-life, myofibrillar functionality, and food safety properties that improve the quality of meat and poultry products.

[33] Ibid. Part D. Chapter 1. p. 88.

If sodium substitutes cannot be used, another option is to shorten product shelf-life. However, if this approach is taken, costs would increase. Products with a shorter shelf life could also lead to food waste. The current production and distribution system is complex and balances manufacturing efficiency gained from long production runs with minimal changeovers, coupled with the time needed to distribute products to a variety of retail outlets. Shorter product shelf life will require more frequent product changeovers in facilities. Efficiency losses are caused by the need to address essential safety and legal functions involving allergen control, proper labeling, and meat and poultry species segregation. These efficiency losses will result in higher operational costs to manufacture products and higher capital costs to provide additional assets to meet supply requirements. The economic burden of these changes will be felt by the consumer.

The *Dietary Guidelines for Americans* Inform Product Development.

The meat and poultry industry, and the food industry generally, is committed to providing safe, wholesome, and diverse nutritious products to consumers so they can make educated decisions when choosing the foods that best fit their personal lifestyle and family needs. The food industry uses outcomes of the *Guidelines* policy to guide much of its product development. For example, since the first *Guidelines* in 1980, and based on consumer research, the food and beverage industry has added new, healthier products to the food supply for consumers of all ages.

Over the years, the *Guidelines* have led to the development and increased availability and diversity of product choices that provide options for sodium, fat, sugars, caloric restriction, and fiber-rich products, among others. Options for consumers to prepare or purchase healthier mixed dishes are available in the marketplace. The Meat Institute encourages HHS and USDA to develop strategies to better educate the public on how to choose options that allow for the greatest adoption in their lifestyle, and this will be achieved not by restricting mixed dishes, but by providing guidance on portion control and ways to create and choose healthier meals.

Americans enjoy the mixed dishes they serve their families. There is risk that the foods chosen to replace mixed dishes would be less nutrient dense. Small dietary modifications while preparing mixed dishes, such as recommending more vegetables, using whole grain breads or brown rice, lean proteins and low-fat dairy products, can allow consumers to enjoy their favorite mixed dishes and help them meet their nutrient needs. Reducing nutrient dense mixed dishes and increasing nutrient poor foods could be an unintended consequence of advice to reduce mixed dishes.

Providing practical, affordable, and achievable guidance by demonstrating how to choose healthier alternatives or incorporate mixed dishes in a balanced diet is needed. Guidance that does not consider how Americans live and eat will not be adopted and therefore will not improve public health outcomes. The American public would be well served with dietary guidance that provides strategies that help consumers achieve their healthy diet within their lifestyle constraints.

Meat References in Dietary Patterns Should be Clarified.

Dietary patterns are defined as the quantities, proportions, variety, or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are habitually consumed.[34] "The Committee found consistent evidence that certain dietary pattern components are associated with beneficial outcomes for all-cause mortality, cardiovascular disease (CVD), overweight and obesity, type 2

[34] Appendix F-1. Glossary of Terms. p. 3.

diabetes, bone health, cancer (breast, colorectal, and lung), and neurocognitive health. Common characteristics of dietary patterns associated with positive health outcomes include higher intake of vegetables, fruits, legumes, whole grains, low- or non-fat dairy, lean meat and poultry, seafood, nuts, and unsaturated vegetable oils and low consumption of red and processed meats, sugar-sweetened foods and drinks, and refined grains."[35] "In addition, the Committee found that negative (detrimental) health outcomes were associated with dietary patterns characterized by higher intake of red and processed meats, sugar-sweetened foods and beverages, and refined grains."[36]

There were constraints in identifying the dietary components in the Report, which caused the Committee to use terminology in the papers evaluated. That approach was limiting because terms such as "lean meat," "red meat," and "processed meat" were not always defined clearly or differentiated from each other. Improved specification is important for future work on dietary patterns.[37] The Meat Institute concurs with the Committee's concerns and stated so in its comments to the Committee.

The inconsistent language about the meat and poultry products in healthy dietary patterns could be misunderstood to support removing lean red meat and processed meat from diets. Including the reference to "lower" intake is confusing because there is no reference point for lowering consumption. Advising people to consume lower and less of something without providing a tangible measure is confusing and misleading within the context of nutrient dense food choices. Unfortunately, an understanding of appropriate portion size of these energy and nutrient dense foods by much of the population is lacking.

Further, "lower" recommendations appear to conflict with the food group intake analytical results on protein foods. Recognizing that red and processed meats are just two components in the protein foods group, this category is among the only food groups generally consumed at the recommended levels. Conflicting information will only further consumers' confusion about how to improve their diet and may result in replacing a nutrient and/or energy dense food with an alternative of lesser nutritive value.

Red and processed meats are often grouped together as foods to reduce or limit, and lean meats and poultry as foods to encourage. Rarely is it recognized that red meat and processed meats can be different foods or the same, and that they can be lean. The overall discussion about the role of meat and poultry, including processed meat, in the diet should have greater context about the nutrient contribution of these products and how they can fit in healthy dietary patterns that meet lifestyle and dietary constraints. It would be confusing, if not misleading, to make dietary recommendations based on unclear or inconsistently defined terms.

Given that 95% of Americans[38] consume meat and poultry, it is imperative the Departments provide context and clarity around how meats are defined, referenced, and fit in dietary patterns. A recommendation to reduce, limit or avoid nutrient dense products like meat and poultry could have significant unintended nutritional consequences across all life stages.

[35] Part B. Chapter 2. Integrating the Evidence. p. 7.
[36] Ibid. p. 8.
[37] Part D. Chapter 8. Dietary Patterns. p. 36.
[38] 2018 Gallup Poll https://news.gallup.com/poll/267074/percentage-americans-vegetarian.aspx.

The Guidelines Must Be Clear About the Role of Meat and Poultry in Healthy Dietary Patterns.

The Report's overall conclusions regarding meat and poultry intake are inconsistent and could lead to unintended consequences if the findings are not translated effectively. USDA and HHS must provide a clear, consistent message about the role of meat and poultry in healthy dietary patterns through all life stages.

As evidenced in the Report, nearly 47 percent of pregnant women consume less than the recommended amount of protein.[39]

> Using the USDA Food Patterns, nutrient needs are expected to be met for pregnant women with the exception of iron, choline, vitamin D and vitamin E. The Committee recommends that women who are pregnant choose foods consistent with these dietary patterns. In addition, they should specifically incorporate foods that are rich in iron, folate, choline and vitamins D and E, such as red meat, seafood and egg, among others."[40]

However, the Strategies for Women of Reproductive Age include "Encourage women before and during pregnancy to choose dietary patterns that are higher in vegetables, fruits, whole grains, nuts, legumes, seafood, and vegetable oils, and lower in added sugars, refined grains, and red and processed meats." The Strategies then encourage women to consume foods and beverages that are good sources of iron, folate, protein, and other potential shortfall nutrients without providing examples of sources.[41] Taken together, the recommendation and the Strategies provide conflicting advice and could cause significant confusion around the nutrition benefits derived from animal proteins during this stage, which is critical to fetal development and growth.

Similar language applies to the dietary patterns for lactating women. While the data show 16 percent of lactating women do not meet protein recommendations, the conclusions around dietary patterns during this life stage do not include lean meat and poultry, only references to diets lower in meat products.[42,43] Yet the Strategies encourage the consumption of potentially under consumed nutrients or those that are lower than recommended, including protein.[44]

To continue, strong evidence showed that foods with substantial amounts of iron, such as meat, can help maintain adequate iron status or prevent iron deficiency in breastfed infants or infants with insufficient iron stores during complementary feeding.[45] The Report's Recommendations to Caregivers stress the importance of "providing a variety of animal-source foods (meat, poultry, seafood, eggs and dairy), fruits and vegetables, nuts and seeds, and whole grains beginning at ages 6-12 months and continuing thereafter, to provide key nutrients, foster acceptance of a variety of nutritious foods, and build healthy dietary habits."[46]

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[39] Ibid. Part D. Chapter 1. p. 49.
[40] Ibid. Part D. Chapter 2. Food, Beverage, and Nutrient Composition During Pregnancy. p. 62.
[41] Ibid. Part D. Chapter 2. p. 65-66.
[42] Part D. Chapter 1. p. 51.
[43] Part D. Chapter 3. Food, Beverage, and Nutrient Composition During Lactation. p. 40.
[44] Part D. Chapter 3. p. 43.
[45] Part. D. Chapter 5. Foods and Beverages Consumed During Infancy and Childhood. p. 9.
[46] Part. D. Chapter 7. USDA Food Patterns for Children Younger Than 24 Months. p. 44.

Continuing through the life stages and as noted, protein foods are generally consumed in the range of recommended amounts.[47] Yet, there are certain populations where specific nutrients and components pose special public health challenges, *e.g.* adolescent girls have low intakes from foods and beverages of protein, folate, vitamin B_6, and vitamin B_{12}; girls and boys have low intakes of phosphorus, magnesium, and choline; older adults may be at risk for low intakes and resulting poor nutritional status related to protein and vitamin B_{12}.[48] These findings, combined with the dietary patterns' conclusions that healthy patterns are "lower" in red, processed meat and meat or meat products, are confusing and provide mixed messages that will not improve the health of Americans. Failing to recognize the inconsistencies between actual intake, nutrient shortfalls, and the dietary patterns conclusions may cause unintended consequences across vulnerable populations and life stages.

The benefits of meat and poultry consumption as part of healthy, balanced dietary patterns cannot be overstated, especially in vulnerable population groups. Providing clear and consistent language supported by the weight of the scientific evidence and in context with actual food group intake is critical. The Departments have the opportunity and the responsibility to provide concise, uniform language about the role of meat and poultry in healthy dietary patterns throughout all life stages.

Food Pattern Modeling Affirms the Role of Meat and Poultry in the Diet.

Two of the three USDA Food Patterns, Healthy U.S.-Style and Healthy Mediterranean-Style, include meat and poultry. The Report concluded no major changes were needed to the three patterns published as part of the 2015-2020 *Dietary Guidelines for Americans*.[49] The Food Patterns were adapted to reflect the life stage approach. The subsequent modeling demonstrated the patterns provide less than 90 percent of the RDA for iron for females ages 4-8, 19-30, 31-50, and less than 75 percent for women who are pregnant.[50] The Report encourages women of reproductive age to carefully consider choices of foods high in iron, especially during pregnancy, to obtain a larger proportion of iron from dietary sources given the higher bioavailability.[51] The heme iron naturally present in meat is the most absorbable form of iron and aids absorption of non-heme iron.[52] It is clear meat and poultry play an integral role in ensuring adequate vitamin and mineral intake.

Dietary Guidance Should Be Practical, Affordable, and Attainable.

The *Dietary Guidelines* should be practical, affordable, and achievable. This common-sense approach incorporates a broad range of foods to meet nutrition needs over time and allows dietary choices based on taste and cultural preferences, health and economic status, and food availability.

Providing guidance to consumers on how they can make positive changes, even small ones, to their diet without abandoning foods they love can move the needle and lead to a measurable health impact. Small changes made over time are likely to be retained and improve health versus rejection of drastic changes by overly prescriptive guidance.

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[47] Part D. Chapter 1. p. 45.
[48] Part D. Chapter 1. p. 63.
[49] Part D. Chapter 14. USDA Food Patterns for Individuals Ages 2 Years and Older. p. 9.
[50] Ibid. p. 10.
[51] Ibid. p. 26.
[52] National Academy of Sciences. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. National Academy Press. Washington, DC. 2001.

For guidance to be adopted, information must be communicated so it is understandable and easily translatable. Guidance should focus on improving dietary habits within the foods Americans already consume; not the idealistic recommendations that will likely never be implemented because they may not be achievable or may be too confusing or too expensive. As the Report notes:

> Second, given the differential patterns within food groups by age, race-ethnicity, and income, messages could be tailored to "meet people where they are" to help them make small, positive shifts. Inherent in this is there is no one diet, or food group, or individual food to consume or avoid, but rather that it is possible to make any number of changes to move toward a similar healthy end.[53]

Guiding Americans on which nutrient rich food choices to make versus not to make, and focusing on portion guidance to provide "how to" practical advice, can help them make wise food choices within the context of the total diet. The *Guidelines* can help Americans achieve a healthful lifestyle by teaching them to focus on balance, variety and moderation while providing tools to make healthy food choices that work with their lifestyle.

Updates to the Existing Guidelines Must Be Clear and Consistent.

The Report provides considerations and suggested updates to the five guidelines from the 2015-2020 *Dietary Guidelines*. Generally, the suggested updates are appropriate; however, the messaging must be clear and consistent. For example, the guidelines focus on healthy patterns and nutrient density. Lean meat and poultry are recognized as nutrient-dense foods.[54] Yet, the guidelines reference limiting saturated fat and sodium, which can be a part of these nutrient-dense foods. The Departments must provide consistent language that nutrient-dense foods should not be reduced or eliminated from the diet because there may be inherent nutrients to limit. The 2020-2025 *Dietary Guidelines* should communicate to Americans that all foods can fit in healthy dietary patterns and that balance, variety and moderation are key.

Food Scientists Should be on the 2025 Advisory Committee.

The Meat Institute recognizes the tremendous time, energy, and dedication of the Committee and the USDA and HHS staff involved in delving through the nutritional data to translate research into recommendations based in sound science, a process the Meat Institute supports. The 2020 DGAC selection process was much improved owing to identified questions and topics which allowed for Committee member selection based on area of expertise. However, the Meat Institute encourages USDA and HHS, when considering the make-up of the 2025 Committee, to include food scientists on the Committee. This discipline plays an important role in contextualizing the availability of food in the American diet and is critical in making nutritional policy recommendations.

Food scientists can assist in translating the biological significance of nutritional research in the perspective of food production, food processing, food preparation, and food biochemistry. Food scientists could assist in interpreting many epidemiological findings because associations do not translate to causation. These studies also should not be considered in isolation, as they have not been

[53] Part D. Chapter 1. p. 91.
[54] Appendix F-1. Glossary. p. 9.

as successful in identifying specific nutrients as causes of chronic diseases.[55] Although many experts agree that causative relationships between various foods and diseases may exist, the evidence for many relationships is weak.[56] As a result, food scientists are needed to provide biological context around the nutritional epidemiological findings often based upon weak associations yet presented with certainty, and that may reflect researchers' beliefs. Dr. Eric Decker's presentation during the first meeting provided insight why this discipline is needed on future Committees.

The 2020-2025 Must Adhere to their Identified Intent.

Each edition of the *Guidelines* reflects the current body of nutrition science and provides advice on what to eat and drink to promote health and reduce risk of chronic disease.[57] The charter for the 2020 DGAC outlines, "The Committee will examine the evidence on the topics and questions identified by the Departments, including new scientific evidence and current resource documents, and then develop a report to be submitted to the Secretaries that outlines its science-based recommendations and rationale, which will be considered by the Secretaries in developing the 2020-2025 *Dietary Guidelines for Americans*." Further, "The Committee will limit its review and advice to dietary guidance for human nutrition on the topics and scientific questions specified by the Departments."[58] Yet, the Committee's Report encourages the Secretaries to consider the intersection of the food system, food environment, and sustainability while recognizing no evidence had been reviewed on these topics.[59] The Meat Institute urges the Departments to focus on the intent of the 2020-2025 *Guidelines*, which is human nutrition. It would be inappropriate for the Departments to go outside their own identified scope to address these topics.

Continuous Improvements to the *Dietary Guidelines* Process are Needed.

The Meat Institute commends the Departments for the increased transparency in developing the 2020-2025 *Dietary Guidelines for Americans*, in particular the adoption of several recommendations made by the National Academies report, *Redesigning the Process for Establishing the Dietary Guidelines for Americans,* including: USDA and HHS prioritizing topics to be reviewed in each *Dietary Guidelines* cycle; a clear separation between USDA's Nutrition Evidence Systematic Review, formerly Nutrition Evidence Library, staff and the Advisory Committee; and providing peer review for the NESR systematic reviews. Additionally, providing draft protocols for comment was an important step to ensuring appropriate research was considered for the NESR systematic review. However, as the Committee's work drew to a conclusion, the transparency noticeable in the beginning of the process was significantly reduced as the DGAC's Report was prepared. The Meat Institute urges future Committees to make the evidence grading criteria available early in the process to aid more informed stakeholder comments and increased transparency on the Committee's conclusions. The Meat Institute encourages the Departments to maintain transparency throughout the entire process and keep stakeholder engagement at the forefront.

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[55] Alpers, D. H., et al. (2014). History and Impact of Nutritional Epidemiology. Advances in Nutrition: An International Review Journal 5(5): 534-536.
[56] Bohan Brown, M. M., et al. (2013). Nutritional epidemiology in practice: learning from data or promulgating beliefs? Am J Clin Nutr 97(1): 5-6.
[57] https://www.dietaryguidelines.gov/about-dietary-guidelines/purpose-dietary-guidelines. Accessed August 5, 2020.
[58] https://www.dietaryguidelines.gov/sites/default/files/2019-03/DietaryGuidelinesAdvisoryCommitteeCharter-10-05-18.pdf. Accessed August 5, 2020.
[59] Part B. Integrating the Evidence. p. 12.

Summary.

Rigorous scientific evidence affirms the rightful place meat and poultry, including processed meats, have on our dinner plates, in our cafeterias, and as part of healthy dietary patterns in the 2020-2025 *Dietary Guidelines for Americans*. The Meat Institute supports dietary guidance that is practical, achievable, and affordable and helps Americans achieve a more healthful diet. Meaningful dietary guidance should provide strategies to help consumers attain a healthy diet within their lifestyle constraints, and recognize many rely on nutrition, convenience, and affordability to meet their daily dietary needs. Providing clear and consistent recommendations supported by the weight of the scientific evidence and in context with actual food group intake is critical. The benefits of meat and poultry consumption as part of healthy, balanced dietary patterns cannot be overstated, especially in vulnerable population groups.

Thank you for the opportunity to provide these comments. The North American Meat Institute appreciates the Committee's and Departments' efforts and looks forward to the release of the 2020-2025 *Dietary Guidelines for Americans.* If you have questions about these comments or would like to discuss them, please contact me at sbackus@meatinstitute.org.

Respectfully submitted,

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