



James Mulhern, *President & Chief Executive Officer* | Randy Mooney, *Chairman*

May 8, 2015

Agri-Mark, Inc.
Associated Milk Producers Inc.
Bongards' Creameries
Cooperative Milk Producers Association
Cortland Bulk Milk Producers Cooperative
Dairy Farmers of America, Inc.
Dairymen's Marketing Cooperative, Inc.
Ellsworth Cooperative Creamery
Farmers Cooperative Creamery
FarmFirst Dairy Cooperative
First District Association
Foremost Farms USA
Land O'Lakes, Inc.
Lone Star Milk Producers
Maryland & Virginia Milk Producers Cooperative Association
Michigan Milk Producers Association
Mid-West Dairymen's Company
Mount Joy Farmers Cooperative Association
Northwest Dairy Association
Oneida-Madison Milk Producers Cooperative Association
Prairie Farms Dairy, Inc.
Premier Milk Inc.
Scioto County Cooperative Milk Producers' Association
Select Milk Producers, Inc.
Southeast Milk, Inc.
St. Albans Cooperative Creamery, Inc.
Swiss Valley Farms Company
Tillamook County Creamery Association
United Dairymen of Arizona
Upstate Niagara Cooperative, Inc.
Zia Milk Producers, Inc.

The Honorable Sylvia Mathews Burwell
Secretary of Health and Human Services
200 Independence Avenue, SW
Washington DC, 20201

The Honorable Thomas J. Vilsack
Secretary of Agriculture
1400 Independence Avenue, SW
Washington DC, 20250

Re: Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2015

Dear Secretaries Burwell and Vilsack:

The National Milk Producers Federation appreciates the opportunity to comment on the Scientific Report of the 2015 Dietary Guidelines Advisory Committee (DGAC). The National Milk Producers Federation (NMPF), based in Arlington, VA, develops and carries out policies that advance the well-being of dairy producers and the cooperatives they own. The members of NMPF's cooperatives produce the majority of the U.S. milk supply, making NMPF the voice of more than 32,000 dairy producers on Capitol Hill and with government agencies. Visit www.nmpf.org for more information.

NMPF supports the ongoing efforts of the United States Departments of Agriculture (USDA) and Health and Human Services (HHS) to translate the DGAC report into actionable, achievable, scientifically sound advice to the American public in the ultimate *2015 Dietary Guidelines for Americans* (DGA). We respectfully offer the following comments related to dairy foods and potential consumer messaging for the 2015 DGA.

Dairy's Crucial Role in the Diet

With two-thirds of American adults currently overweight or obese and about half of all American adults having one or more preventable, chronic diseases, strategies to address both of these conditions are the central focus of the 2015 DGAC Report. NMPF recognizes the significant challenges faced by the DGAC and the HHS and USDA in

formulating guidelines that address a population with health-related lifestyle behaviors that simultaneously represent excessive energy intake as well as under-nourishment from inadequate consumption of essential nutrients.

The DGAC report makes an excellent case for the crucial role of dairy foods in the diet. The report states: “Consumption of dairy foods provides numerous health benefits including lower risk of diabetes, metabolic syndrome, cardiovascular disease and obesity.” (DGAC Report D.1, p 31) The report also notes that “dairy foods contribute about 67 percent of calcium, 64 percent of vitamin D, and 17 percent of magnesium,” three nutrients all identified as shortfall nutrients. Dairy foods are also excellent sources of nutrients of public health concern, including calcium, potassium and vitamin D.

Unfortunately, as the report also notes, after age 3 intake of dairy foods tends to fall below recommended levels for both males and females, but especially for girls and young women. An “age-related decline in dairy intake appears to begin in adolescence and intakes persist at very low levels among adult females across the age distribution.” (DGAC Report D.1, p 31) This further cements the need to promote consumption of nutrient-dense dairy foods in the diet, as a serving of low-fat milk is an excellent source of calcium, phosphorus, riboflavin, and vitamin D, and a good source of protein, potassium, vitamin A, vitamin B12, and niacin (niacin equivalents).

Summary:

- Consumption of milk and dairy foods should be encouraged by the 2015 Dietary Guidelines, foods which are nutrient-dense and are an excellent or good source of nine essential nutrients, including three nutrients of public health concern (vitamin D, calcium, potassium).
-

Three Servings of Dairy Foods are Critical

It appears that food patterns in the DGAC scientific report carry forward the three servings of dairy foods for Americans age 9 and older that have been reflected in the previous two DGA policy documents from 2005 and 2010. NMPF strongly supports continued recommendations for three servings (and age-appropriate amounts for children below age 9).

However, NMPF recommends that HHS and USDA address the potential conflict between the embedded three-serving assumption and the smaller amount of dairy in the Mediterranean diet pattern.

In NMPF’s view, the need for three dairy servings should take priority over the recommendation for a Mediterranean diet pattern because of (1) the demonstrated role of dairy in meeting nutrient requirements, including nutrients of concern such as

calcium, potassium and vitamin D; (2) the extreme difficulty of attaining nutrient adequacy in the absence of consumption of three servings of dairy each day; (3) the ambiguity of the relationship between presumed dietary patterns and health outcomes and the amounts of specific foods; and (4) the lack of clear and consistent definitions for the Mediterranean diet pattern in much of the scientific literature.

Summary:

- The 2015 Dietary Guidelines should continue to encourage consumption of 3 servings of milk and dairy products per day for those 9 and older (with age-appropriate amounts for children below age 9).
-

Dairy Should Continue to be a Distinct Food Group

NMPF believes that in communicating appropriate dietary patterns to the public, HHS and USDA should continue to utilize the concept of food groups, including a separate and distinct dairy food group. The DGAC report discusses dairy as a discrete group, and makes statements about the benefits of dairy foods (including meeting intake requirements for nutrients of concern and protecting against the risk of chronic disease) in terms of dairy foods as a whole, rather than separately – with fluid milk as a beverage, and cheese and yogurt as protein foods.

Failure to maintain a separate dairy group would essentially amount to permission to skip dairy consumption – making dairy only one among several choices for beverages and for protein foods, for example. Such an outcome would be contrary to the clear message from the DGAC report that dairy consumption – involving, as the report says, “milk, cheese, yogurt, ice cream, milk-based replacement meals and milk products, including fortified soymilk ...” – is something to be encouraged in itself, not as one among many options for obtaining protein or liquid nutrition.

Summary:

- The nutrient profile of dairy foods is unique and, therefore, should be represented as a separate food group, rather than folded in with other foods that are unable to provide the same nutrient package.
-

Lactose Intolerance and Non-Dairy Substitutes

NMPF recognizes that some people have difficulty consuming dairy because of lactose intolerance (LI). Fortunately, there are simple work-arounds available to individuals and populations affected by LI, and they involve continued, but modified, consumption of dairy. The best example – recognized both in dietary guidance and in nutrition program regulations, as well as in authoritative statements from medical professional groups,

including those representing African-American physicians – is lactose-free milk. In addition, many people may find certain types of cheeses (for example, hard cheeses that are naturally low in lactose) and yogurt (which includes lactase-producing bacterial cultures) more easily digestible than fluid milk where LI is a concern.

The DGAC report provides valuable reaffirmation that avoiding dairy is not a nutritionally optimal strategy. The report states:

If no dairy is consumed ... levels of calcium, magnesium, iron, vitamin A and riboflavin, drop below 100 percent of goals, and intake levels of potassium, vitamin D and choline also drop substantially. When no dairy is consumed, calcium intake levels drop by 68 to 88 percent in all age and sex groups, while vitamin D intake is lowered by 20 to 30 percent ...

(DGAC Report D.1, p 32)

The DGAC also notes that while non-dairy substitute beverages may be fortified with equivalent amounts of calcium, “absorption of calcium is less efficient from plant beverages,” so that individuals may not actually attain similar intakes. In addition, the report states that these non-dairy beverages tend to have higher calorie levels for the same level of calcium intake, so that “to obtain a comparable amount of calcium as one cup eq[uivalent] for non-fat fluid milk, the portion size required to meet the calcium intake need *results in higher energy intake ...*” (Emphasis added.)

Summary:

- The 2015 Dietary Guidelines should encourage Americans who are lactose intolerant to make choices of milk and other dairy products, providing specific strategies and examples of how to incorporate these products into dietary patterns.

The Unique Nutrient Package Provided by Milk and Nutrient Deficiencies of Milk Alternatives

The 2015 DGAC Report discusses alternative beverages for those who choose not to consume dairy products. NMPF is compelled to clarify a few points around this concept.

1. The names of non-dairy alternatives referenced in the 2015 Dietary Guidelines should reflect current regulations and standards of identity.

The 2015 DGAC Report inappropriately states the names of some non-dairy alternatives by using the names of standardized dairy products (i.e., “soymilk”). Standards of identity exist in FDA regulations for most dairy products, including milk and yogurt (see 21 CFR Part 131). Milk is defined at 21 CFR 131.110(a) as the “*lacteal secretion, practically free of colostrum, obtained by the complete milking of one or more healthy cows.*” The regulatory standard of identity further defines milk in terms of its percentage content of

milk solids and milk fat, and identifies certain permissible ingredients, such as flavorings, that may be included as added ingredients.

A product is misbranded within the meaning of the Food, Drug & Cosmetic Act if it purports to be a food for which a definition or standard of identity has been prescribed by regulation, but fails to conform to such definition or standard [21 U.S.C. § 343(g)]. For example, a product is misbranded if the product name includes a standardized food name, e.g., “milk”, as part of a name for that product, e.g., “soymilk.” The FDA has so ruled on a number of occasions, issuing warning letters to several manufacturers who have misbranded foods by misusing names of standardized dairy products.

The common or usual name of a food must not be confusingly similar to the name of another food and it must describe the basic nature of the food [21 CFR 102.5(a)]. The basic nature of “milk” is that it is the lacteal secretion from a mammal, not the liquid separated from a slurried plant mixture, and NMPF maintains the names of these misbranded products are confusing and misleading to the consumer. NMPF supports the re-naming of these products as “drinks” or “beverages” (e.g., “soy beverage”, “rice drink”, etc.) or another descriptive terms (e.g., “cultured soy” rather than “soy yogurt”), which is consistent with previous enforcement efforts of the FDA. Adding the name of a plant material in front of the word “milk” does not result in an appropriate name for non-dairy products, as these products do not contain milk or milk ingredients, the plant-based liquids are not permitted ingredients in milk, nor do they represent the common or usual names of these beverages.

Although marketers of these alternative products have brazenly co-opted the names of federally standardized milk and dairy products without regard to existing regulations, the Departments should use the correct and legal terminology to refer to specific products or product categories in the 2015 Dietary Guidelines.

2. The names of foods referenced in the 2015 Dietary Guidelines should not mislead consumers as to the true nutrient content of the product.

Although many of these non-dairy products indicate they are fortified with calcium and other nutrients associated with dairy products, these products are, in general, nutritionally inferior to the dairy product they are trying to imitate. Often only certain nutrients are fortified and/or the level to which they are fortified is below that of dairy milk. The category of non-dairy alternative beverages varies widely across and within brands in terms of their formulations or compositions and, hence, their nutrient profiles.

Plant-based beverages contain very little calcium naturally (for example, non-fortified soy beverages contain less than one-fifth the calcium of milk). In addition to being non-standardized across the product category in terms of their nutrient content, these beverages also vary in terms of the bioavailability of the calcium present which, as the

DGAC Report noted, is lower than the bioavailability of the calcium in milk. Further, calcium-fortified plant-based beverages suffer from the additional technological challenge of keeping the calcium in suspension – an issue addressed in both the scientific literature as well as in the technical communications of fortificant suppliers to the food industry^{1,2,3,4,5}. As a result, the fortificant has a tendency to settle out to the bottom of the container. Therefore, it is irrelevant if calcium bioavailability for two products is equivalent, if the fortificant is not actually being consumed. Even with vigorous shaking, significant amounts (as much as 80%) of the calcium in a fortified soy or rice beverage may remain as sediment in the bottom of the container⁶.

NMPF recognizes the many health benefits of including calcium in the diet. NMPF also recognizes that many people may opt not to consume dairy products for any of a number of reasons. However, it is essential that consumers clearly understand that non-dairy alternatives are not nutritionally equivalent to the unique nutrient package represented by dairy foods – a concept that is not understood by most consumers. The term used to describe the food is one significant way to communicate that information to the consumer, which is why standardized dairy terminology should not be used with these products. By referring to these alternatives with dairy terminology (i.e., “milk”, “yogurt”), the Dietary Guidelines would be furthering the misconception that these non-dairy foods have identical nutrient profiles to their dairy counterparts.

Summary:

- The names of non-dairy alternatives referenced in the 2015 Dietary Guidelines should reflect current FDA regulations and federal standards of identity. Suitable names for these non-dairy products may include “soy beverage”, “rice beverage”, “cultured soy”, etc., but should not include the names of standardized dairy products (i.e., milk, yogurt).

Acknowledging the Nutrient Density of Dairy Foods

The DGAC report appropriately and accurately emphasizes the nutritional and health consequences of excessive intake of added sugars. Sadly, beverage intakes over several

¹ Heaney, R. P., K. Rafferty, and J. Bierman. 2005. Not all calcium-fortified beverages are equal. *Nutrition Today* 40:39-44.

² 2002. The challenge of calcium fortification in beverages *in* *Innovations in Food Technology*. Jungbunzlauer, Issue 14, p 26-28.

³ Munchbach, M. and G. Gerstner. 2010. Calcium fortification in dairy products. *Food Marketing & Technology*. February issue, p 4-8.

⁴ Gerstner, G. 2004. Feasibility of calcium fortification in dairy and soy drinks. *Wellness Foods Europe*. October/November issue, p 24-29.

⁵ Wade, M. A. 2004. Calcium: The chosen form. *Prepared Foods*. May issue.

⁶ Heaney, R. P., and K. Rafferty. 2006. The settling problem in calcium-fortified soybean drinks. *Journal of the American Dietetic Association* 106:1753.

decades have seen Americans – especially younger Americans – consuming less milk and more beverages with minimal nutritive content (i.e., less nutrient-dense options).

This does not mean, however, that added sugars should be demonized, nor should they be viewed in the absence of the total nutrient content of the food. In fact, sugars can sometimes encourage consumption of healthy, nutrient-dense foods like dairy when used in moderate amounts. This is the case for both flavored milk and yogurt. For example, school lunches provide balanced meals to some 30 million students every school day. The nutritional content of school lunches has consistently improved because of new standards for the content of the meals. Milk has always been an integral component of school lunches (as well as breakfasts and other school meals and snacks). Nearly two-thirds of the milk served in schools is flavored, usually chocolate. Peer-reviewed studies have shown that removing chocolate milk from schools predictably leads to lower milk consumption, both because fewer students take milk and because they throw away more of what they do take. Consumption declines of 24-35% have been reported⁷. Added sugars, therefore, undoubtedly contribute to substantially higher in-school fluid milk consumption than would be the case in their absence.

The recognition of added sugars' potentially beneficial role gains additional credence when one considers the change in sugar content in school milk during recent years. Processors, at the behest of school food service departments, have significantly reduced sugar content in school milk – a reduction of 44 calories on average from 2007 to 2013, according to a survey by the Milk Processors Education Program (MilkPEP)⁸. In many cases, schools are now offering flavored milk with 22 or fewer grams of total sugars (12 grams of naturally-occurring lactose and 10 grams of added sugar) – meeting recommendations of the Institute of Medicine.

Therefore, to have practical impact, the final DGA policy document ought to adopt a balanced approach to added sugars. Recognizing the need to reduce added sugar intake, but also acknowledging that modest amounts of sugar can actually benefit nutrient intake, would be a clear message encouraging consumption of nutrient-dense foods like low-fat and fat-free sweetened flavored milks and yogurts – especially as the DGAC recognized that dairy foods, including sweetened flavored milks and yogurts, contribute only 4% of total added sugars intake (DGAC Report D.1, p 44). An additional benefit of

⁷ Cohen JFW, Richardson S, Parker E, Catalano PJ, Rimm EB. Impact of the New U.S. Department of Agriculture School Meal Standards on Food Selection, Consumption, and Waste. *Am J Prev Med* 2014; 46(4):388-394.

Hanks AS, Just DR, Wansink B. Chocolate milk consequences: a pilot study evaluating the consequences of banning chocolate milk in school cafeterias. *PLoS One* 2014; 9:e91022.

Quann E, Adams D. Impact on Milk Consumption and Nutrient Intakes From Eliminating Flavored Milk in Elementary Schools. *Nutr Today* 2013; 48(3):127-134.

⁸ Prime Consulting Group. MilkPEP Annual School Survey 2012-2013 Report. June 2013. <http://milkdelivers.org/sites/default/files/2012-13-annual-school-survey-report-final-2.pdf>

encouraging consumption of these foods by children is the establishment of a strong foundation for a lifetime of healthy eating habits.

Similarly, with respect to cheese, NMPF would suggest USDA and HHS also consider the issue of availability and palatability in developing recommendations. Both fat and sodium play important roles in the texture, flavor development, functional properties (shreddability, meltability, etc.) and food safety properties (shelf-life and control of microbial populations) of cheese⁹. While the dairy industry is making strides in developing varieties of cheeses lower in fat and sodium, there are technological challenges that must be overcome before these cheeses will be acceptable and widely available to consumers. The 2015 DGA should balance concerns related to fat and sodium levels with the overall nutrient package of cheese and the role of this food in the diet – cheese is the number two food source of calcium in the diet of children age 2 to 18 years.

The presence of nominal amounts of added sugars or sodium should not discredit the overall nutrient density of dairy foods. The significant nutrient contributions of milk, yogurt and cheese to a dietary pattern – providing essential nutrients and three of the four nutrients of concern – relative to their caloric intake must also be considered.

Summary:

- The messaging of the 2015 DGA should not be so restrictive around the issue of any single nutrient (as examples, added sugars in flavored milk or sodium in cheese) that, because of acceptability or availability, consumers abstain from moderate consumption of nutrient-rich dairy foods in a variety of forms, including milk, yogurt and cheese.
- Without some allowances, narrow recommendations may have the unintended consequence of Americans reducing their consumption of nutrient-dense dairy products (and the essential nutrients they provide).

Emerging Science on Whole-Fat Dairy Foods, Including Cheese

NMPF urges HHS and USDA to take a fresh, objective and unbiased look at emerging science on whole-fat dairy foods. The former vice chair of the DGAC, speaking to a recent workshop sponsored by the Institute of Medicine, acknowledged the intriguing nature of some recent reports on potentially beneficial impacts of dairy fat and, while stating the committee's view that this science had not yet advanced to the point of requiring changes in fat-related dietary guidance, nevertheless evinced an encouraging openness to considering future results.

⁹ Walstra, P., J. T. M. Wouters, and T. J. Geurts. 2006. Chapter 24 "Cheese Manufacture" pages 583-639, *in Dairy Science and Technology*, 2nd edition. Taylor & Francis, New York.

Recent dietary guidance has emphasized messages that stress low-fat and fat-free dairy. These are nutrient-dense products whose consumption should continue to be encouraged. At the same time, NMPF respectfully urges HHS and USDA to avoid a strict ideological opposition to reduced-fat or full-fat dairy, since the science on these foods and our knowledge of the potential benefits of specific dairy nutrient components is still evolving. Further, some consumers may be limited with respect to the availability of low- or no-fat dairy products that are acceptable and should not forego dairy foods altogether if they can be included in their diet while staying within calorie needs.

NMPF respectfully reminds HHS and USDA that whereas nutrition guidance today tends to demonize saturated fat, it was only a few years ago that equally authoritative guidance demonized *total* fat intake, setting limits (e.g.,30%) on the proportion of caloric intake that should be made up by fats, whatever their degree of saturation. A corollary was advice to adopt a low-fat diet which, in practical terms, often meant dramatic increases in intake of refined carbohydrates.

Today, few if any members of the 2015 DGAC would recommend a diet that merely emphasizes a low amount of *total* fat. There is no recommendation in the DGAC report for a limit on total fat. The guidance has now shifted to a stern warning against saturated fat, and encouragement to shift intake of fat toward polyunsaturated and monounsaturated varieties – but definitely not to shift calories from fat to carbohydrates.

A similar change in expert guidance can be observed, in this DGAC report, with respect to dietary cholesterol, which is no longer viewed as linked to serum cholesterol levels. These changes, though unsurprising to many in the nutrition science community, are not accompanied by an extensive discussion of why they were made, or by historical perspective.

NMPF encourages HHS and USDA to consider the evidence on dairy fat in this context. What Americans were told for many years about cholesterol and total fat was incorrect. It is entirely possible that current advice may no longer seem correct after 20 years, or 10, or even five years of additional nutrition research. Even if there are not grounds to change current guidance, it would seem prudent for HHS and USDA to maintain a degree of humility commensurate with the apparent malleability of fundamental nutrition advice in the light of advancing science.

The National Dairy Council (NDC) has submitted well-documented comments to the DGAC, with abundant citations from the scientific literature, discussing the beneficial impact of dairy foods on the risk for several chronic diseases. NDC states that “recent findings ... indicate that milkfat consumption may not be linked to increased risk, and in

some cases may even be associated with reductions in the risk, for CVD, CHD and type 2 diabetes¹⁰.”

The promising state of research on potentially beneficial effects of dairy foods, including full-fat versions, is well-represented by the following studies, all conducted since publication of the 2010 DGA. These studies not only raise questions about the conventional wisdom that recommends only low-fat and fat-free varieties of dairy foods, but also suggest benefits of cheese specifically – calling into question the DGAC’s advice to reduce cheese consumption within the dairy group.

An observational study by de Oliveira Otto and colleagues, published in the *American Journal of Clinical Nutrition*, looked at a multi-ethnic group of more than 5,000 adults, with a focus on whether saturated fatty acids (SFAs or SF) from different foods have different impacts on the risk of cardiovascular disease (CVD). In particular, the study looked at saturated fats from dairy and meat, and found that “higher intakes of dairy SF were associated with lower CVD risk.” By contrast, “the consumption of meat SF is positively associated with risk.” The study does not provide a definitive explanation as to why saturated fats in dairy and meat would affect CVD risk differently, but the authors note that dairy and meat “contain different proportions of different SFAs.” They cite the tendency of medium-chain SFAs, which are more common in dairy than in meat, to raise high-density lipoprotein cholesterol (HDL-C) more than the corresponding effect of palmitic acid, which makes up the preponderance of SFAs in meat. (Higher HDL as a percentage of total cholesterol reduces CVD risk.)

The authors further note that the beneficial relationship between dairy fat and CVD risk “may be driven by associations for whole-fat cheese rather than for low- or whole-fat milk,” suggesting a beneficial effect of cheese, although these relationships “should be interpreted cautiously.” And they emphasize “the importance of evaluating foods rather than single nutrients,” observing that health benefits could be the result of the “complex mixture of dairy-food constituents as a whole” rather than SFAs or any other single component¹¹.

The same lead author and others produced a complementary paper that looked at individuals in the same study group, but rather than relying on self-reported dairy intake, measured biomarkers – levels of certain SFAs in the blood that would be associated with dairy consumption, in particular pentadecanoic acid. The study found that this biomarker was “associated with lower blood pressure and lower plasma triglycerides and ... lower incidence of CVD and CHD events.” Interestingly, the biomarker “was most

¹⁰ National Dairy Council. Comments to Dietary Guidelines Advisory Committee in response to Federal Register notice (79 FR 8187). March 3, 2014.

¹¹ De Oliveira Otto M, Mozaffarian D, et al. Am J Clin Nutr doi: 10.3945/ajcn.112.037770.

strongly associated with intakes of whole-fat dairy foods rather than with dairy foods in general¹².”

The possible benefits of cheese consumption suggested above may be further elucidated by the results of a randomized dietary intervention conducted by Hjerpsted, Leedo and Tholstrup¹³. They began with the background of earlier studies showing “no association between cheese intake and risk of ischemic heart disease” as well as either no relationship or a beneficial relationship between cheese consumption and death from CVD as well as myocardial infarction. In this study, the authors compared cheese and butter consumption, and found that “[c]heese intake resulted in LDL cholesterol concentrations that were 6.9% lower compared with intake of butter, *with the same fat content.*” (Emphasis added.) That is, the study attempted to measure any unique effects of cheese, with fat intake held equal. In this study, “cheese intake did not increase [low-density lipoprotein or] LDL-cholesterol concentrations compared with the run-in period,” i.e., the participants’ dietary baseline, even though fat intake went up. (The authors believe cheese’s high protein content could be an explanation, though it would not explain why LDL-C effects were more beneficial from cheese than from butter.) Finally, the authors conclude that “even a high intake of a full-fat cheese may not affect CVD risk markers compared with a habitual diet” with lower fat intake.

Although most public concern about saturated fat centers on CVD risk, type 2 diabetes (T2D) is another chronic disease of increasing concern, especially because it has been occurring among children, something virtually unheard-of in earlier times. Dairy foods may also have a protective effect in reducing T2D risk.

Two papers with Mozaffarian as the lead author looked at a dairy-fat biomarker called *trans*-Palmitoleic acid. One study found that while that this biomarker was associated with higher LDL, it also goes along with lower triglycerides, fasting insulin, blood pressure and T2D¹⁴. An earlier study associated the same biomarker with “slightly lower adiposity ... higher HDL cholesterol levels; lower triglyceride levels, total cholesterol-HDL cholesterol ratio, and insulin resistance; and substantially lower onset of diabetes ...” This earlier study measured the biomarker, not dairy foods per se (the acid is also found

¹² De Oliveira Otto M, Nettleton J, et al. Biomarkers of Dairy Fatty Acids and Risk of Cardiovascular Disease in the Multi-Ethnic Study of Atherosclerosis. *J Am Heart Assoc* 2013;2:e000092.

¹³ Hjerpsted J, Leedo E, Tholstrup T. Cheese intake in large amounts lowers LDL-cholesterol concentrations compared with butter intake of equal fat content. *Am J Clin Nutr* doi: 10.3945/ajcn.111.022426.

¹⁴ Mozaffarian D, de Oliveira Otto M, et al. *trans*-Palmitoleic acid, other dairy fat biomarkers, and incident diabetes: the Multi-Ethnic Study of Atherosclerosis (MESA). *Am J Clin Nutr* doi: 10.3945/ajcn.112.045468.

in ruminant meat). Nevertheless, the authors state that levels of the biomarker were “most strongly associated” with “whole-fat dairy consumption”¹⁵.

Supporting these and other studies, a 2013 meta-analysis found “a significant inverse association between intakes of dairy products, low-fat dairy products, and cheese and risk of type 2 diabetes.” The analysis did not find any significant association between intake of high-fat dairy products and T2D risk, but by definition this means that the study found no *adverse* effect of the high-fat varieties¹⁶. (And note, again, that cheese intake by itself was associated with a beneficial effect.)

The science on cheese consumption continues to progress. While these comments were being prepared (in late April 2015), a new meta-analysis¹⁷ was published that found a beneficial effect of hard cheese in “lower[ing] LDL-C and HDL-C when compared with consumption of butter.” This review looked at 12 randomized controlled trials that compared cheese consumption with “blood lipids and lipoproteins in healthy adults.”

Some nutrition advocates would discourage full-fat dairy consumption simply on caloric grounds. There is no doubt that, other things being equal, full-fat varieties have more calories per unit. However, a review by Kratz, Baars and Guyenet¹⁸ found that, in 11 of 16 studies examined, “high-fat dairy intake was inversely associated with measures of adiposity.” Thus, contrary to what one might expect, “the observational evidence does not support the hypothesis that dairy fat or high-fat dairy foods contribute to obesity or cardiometabolic risk, and suggests that high-fat dairy consumption within typical dietary patterns is inversely associated with obesity risk.” While not demonstrating specific mechanisms, the authors state that the “potential health benefits” of various fatty acids may be relevant. In fact, this review concludes that “it seems prudent to reconsider the common recommendation to consume milk and dairy products in their fat-reduced form.”

Summary:

- As noted earlier, it is not NMPF’s intent to impugn low-fat and fat-free dairy products in any way. They are nutrient-dense foods, and their consumption should be encouraged. However, the latest science suggests that HHS and USDA should

¹⁵ Mozaffarian D, Cao H, et al. Trans-Palmitoleic Acid, Metabolic Risk Factors, and New-Onset Diabetes in U.S. Adults. *Ann Intern Med* 2010;153:790-799.

¹⁶ Aune D, Norat T, Romundstad P, Vatten L. Dairy products and the risk of type 2 diabetes: a systematic review and dose-response meta-analysis of cohort studies. *Am J Clin Nutr* 2013;98:1066-83.

¹⁷ De Goede J, et al. Effect of cheese consumption on blood lipids: a systematic review and meta-analysis of randomized controlled trials. *Nutrition Reviews*. 2015;73(5):259-275.

¹⁸ Kratz M, Baars T, Guyenet S. The relationship between high-fat dairy consumption and obesity, cardiovascular, and metabolic disease. *Eur J Nutr* DOI 10.1007/s00394-012-0418-1.

approach the issue of dairy fat with prudence, caution and a consciousness that science may continue to evolve.

- At a minimum, the most recent science would suggest that it would be unwise to single out cheese consumption for criticism. It may, in fact, have beneficial effects that are only now being discovered, and will be much clearer in 2020 than they are in 2015.
-

Sustainability

In recent years, the dairy industry has been a leader among agricultural commodity groups in objectively measuring its greenhouse gas (GHG) emissions; comparing those to earlier decades to measure progress; and committing to further improvements in the industry's impact on the environment. For that reason, NMPF does not view the DGAC's interest in sustainability and nutrition with alarm. To the contrary, we believe that dairy farmers and others involved in the dairy value chain have a compelling story to tell about sustainability.

Likewise, we do not question the conceptual validity of taking sustainability issues into account when evaluating dietary consumption patterns and nutrition. Increasingly, both the food industry and individual consumers find these questions compelling. It would be short-sighted to deny their fundamental legitimacy.

At the same time, it would be equally inadvisable to rush to judgment on questions of sustainability when the science is lacking and even theoretical constructs are open to debate. NMPF's view is that the science of actually measuring and evaluating sustainable diets is insufficiently advanced to allow for responsible recommendations to consumers at this time. That may not be the case in a few years; however, today the science is too limited.

At this point, there is not complete agreement on how to objectively and quantitatively measure the broad concept of "sustainability," which is necessarily more inclusive than simple measurements of GHG emissions. No broad consensus exists on which specific factors make up "sustainability" at large, once the discussion becomes more specific than the concepts of environment, economics and social factors. Still less is there a scientific consensus on how to compare – again, quantitatively – the "sustainability" of one food against another. Such a comparison should take into account not only how food production affects the environment, but also the relative nutritional qualities of one food against another: Two foods with an equal impact on the physical environment might be regarded as having quite different total sustainability impacts, if one food were nutrient-dense and provided many essential nutrients, while the other food was nutrient-poor and energy-dense.

We lack adequate knowledge of metrics in such dimensions as animal welfare, long-term economic impacts, indirect impacts on deforestation and water utilization, or worker health, safety and justice. Nor is that all: Even if we had such metrics, we lack the science base that would enable us to weight one factor against others.

Summary:

- It is premature to provide prescriptive recommendations on sustainability and nutrition in this edition of the DGA. That may not be the case in 2020, but, if such recommendations are a priority for HHS and USDA, an intensive and focused research program will need to be developed and adequately funded in order to build a science base and supply an adequate paradigm for future work.
-

A Comment on Dairy Products and Food Safety

As in past editions of the Dietary Guidelines, NMPF would encourage USDA and HHS to continue to remind Americans of the risks of consuming raw or unpasteurized milk and dairy products. Consumption of raw milk is a demonstrated health risk, and has been opposed by every major health organization in the United States, including the American Medical Association and the American Academy of Pediatrics.

One critical aspect of this high-profile issue is the tremendous amount of misinformation that has been disseminated regarding the supposed health benefits of raw milk, which may be responsible for the recent trend of their increased consumption. It is important to emphasize that no claim related to the health benefits of consuming raw milk has been substantiated in any of the medical literature. The scientific consensus is that raw milk can cause serious illnesses and hospitalizations, as well as can result in life-long negative health complications and death.

NMPF would also encourage USDA and HHS to continue to include guidance for at-risk groups of the population, specifically for pregnant women, who have a specific set of nutrient needs and also would greatly benefit from targeted food safety advice. Specifically related to dairy foods, this would include calling attention to varieties of cheese by name (e.g., Feta, queso blanco, queso fresco, Brie, Camembert, blue-veined cheeses, Panela) rather than by using generic group descriptions (“soft” or “Mexican-style”) which may be vague and less clear.

Summary:

- The 2015 Dietary Guidelines should continue to include food safety advice encouraging consumption of pasteurized milk and dairy products, avoiding raw milk or unpasteurized dairy products, and listing specific varieties of cheeses for which consumption by at-risk groups of the population should be avoided.
-

Simple, Actionable Messages

Most people in America will not read the full scientific report from the DGAC, nor will they devote a large portion of their personal time to research on dietary guidance and recommendations using reputable, science-based resources. In writing the 2015 DGA, HHS and USDA should focus on a small number of clear, unambiguous messages that can prompt individual action by consumers.

For the case of dairy foods, an obvious message is to increase current consumption levels. According to the DGAC report, mean intakes for all Americans aged 1 and above were well below two servings per day. Basically, only 1-3-year-olds met or exceeded recommendations.

In a number of places, the DGAC report noted that dairy foods were among the key food groups that were important sources of shortfall nutrients. Therefore, an obvious actionable message in the 2015 DGA that would benefit most Americans would be: *Add one more serving of milk or dairy foods per day*. Adding one more serving of milk, cheese or yogurt to current consumption levels would dramatically increase the proportion of the population meeting dairy recommendations. Addition of just one more serving of nutrient-dense dairy foods would significantly enhance intakes of calcium, vitamin D, potassium and other essential nutrients.

NMPF strongly encourages HHS and USDA to make “*Add one more serving of milk or dairy foods per day*” an integral and central message in the 2015 DGA.

For comparison, according to the DGAC report, the percent of all Americans over one year of age consuming recommended amounts of dairy (or greater) is well below 20%, and the percentage consuming recommended vegetable servings or greater is likewise below 20%. Slightly more than 20% of Americans one year and over consume at or above recommended fruit serving levels (Figures D1.9 [fruit], D1.11 [vegetables], D1.19 [dairy]). Likewise, when evaluating the proportion of the mean intake of various food groups relative to their recommended levels, the percentage for dairy is comparable to that for fruits and vegetables (~50-60%) (Figures D1.25 [fruit], D1.26 [vegetables], D1.29 [dairy]).

Thus, under-consumption of dairy is quite similar to under-consumption of vegetables, and perhaps more pronounced for dairy than for fruit. Nevertheless, it is striking that DGA-derived messages following the 2010 Dietary Guidelines tended to stress the need to consume *more* fruits and vegetables, but to *shift or switch* dairy consumption to low-fat and fat-free varieties. This is not to criticize low-fat or fat-free dairy. It is to suggest that – whether intentionally or not – consumer messages derived from previous dietary guidance have emphasized a change in the type of dairy to be consumed, and not the more obvious need to increase the total *amount* of dairy intake.

Summary:

- NMPF encourages the 2015 Dietary Guidelines to include simple, consumer-friendly messaging emphasizing the need for most Americans to consume more dairy, for example:
“Include three servings of milk and dairy products each day” and
“Add one more serving of milk or dairy foods each day”.
-

An Improved Process

Five years ago, NMPF commented on the unfortunate lack of transparency around the Dietary Guidelines process, specifically a lack of access to key documents in a timely manner through the Nutrition Evidence Library (NEL). We now wish to compliment the DGAC (as well as HHS and USDA) for making improvements in transparency compared to the last DGA process. While the process must still evolve to better incorporate specific types of data (i.e., authoritative reports, such as an Institute of Medicine report), the DGAC’s use of the NEL and its conduct of modeling and other exercises have been marked by greater transparency and by providing enhanced information to the public. We greatly appreciate the improvements the DGAC and the agencies have made and look forward to continuing to discuss ways to evaluate nutrition science and data while maintaining a spirit of openness and transparency.

Conclusion

NMPF requests that, as the Departments develop the 2015 Dietary Guidelines, recognition is given to the unique nutrient package that dairy products provide and to the importance of providing nutrients in a form that is acceptable and available to Americans. Nutrient-dense dairy foods (milk, yogurt and cheese), when consumed in appropriate amounts, play important roles in a healthful diet, serving as important sources of essential nutrients and can fit into healthy dietary patterns of both adults and children.

NMPF supports the DGA process – one marked by deliberations among expert scientists, followed by reflection and decision by both career civil servants and Senate-confirmed Presidential appointees. The process of providing dietary advice to all citizens is a weighty responsibility that should not be lightly considered or undertaken. HHS and USDA are to be commended for their thoughtful and methodical approach to this charge. NMPF appreciates the Departments’ consideration of its views.

Sincerely,

A handwritten signature in cursive script that reads "James Mulhern".

James Mulhern
President and CEO

A handwritten signature in cursive script that reads "Beth Panko Briczinski".

Beth Briczinski, Ph.D.
Vice President, Dairy Foods & Nutrition