

Dairy's Role in Today's Nutrition & Health Trends

Meeting
Date

NDC
NATIONAL DAIRY COUNCIL

Today's Presenter



Janice Giddens, MS, RDN
Director, Health and Wellness Partnerships
National Dairy Council
Janice.Giddens@dairy.org
@JaniceGiddens

#DairyNourishesLife

NDC



NDC
NATIONAL DAIRY COUNCIL

Bringing to life the dairy community's shared vision of a healthy, happy, sustainable world, with science as our foundation

The U.S. Dairy Outreach Partnership - <http://commitment.usdairy.com/>

NDC

Global Spotlight on Nutrition and Sustainability



GOAL 2
END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

SUSTAINABLE DEVELOPMENT GOALS

NDC

Sustainable Diets are on Consumers' Minds

GLOBAL FOOD AND DRINK TRENDS 2019

MINTEL

"The definition of **sustainability** is extending to encompass the **entire product lifecycle**."

NewNutrition Business

"...sales will be driven as much by consumers desire to try new things as by concerns about **health**, getting more plants or **environmental** worries."

"Consumers pay attention to **health** and **sustainability**... Brands increasingly commit in market actions and innovation... to answer **consumer expectation around sustainability**."

NDC

People are Asking...

Is this good for my body?

Is this good for the animals?

Is this good for the planet?

NDC

Dairy has an important place in sustainable nutrition

NDC

WORKING TOGETHER WE CAN
HONOR THE HARVEST
AND LIVE BETTER

Honoring the Harvest is about how we work together to use food with good purpose, so it's never wasted.

That means ensuring all people have access to nutrient-rich foods and also utilizing parts of food people can't or won't eat by moving nutrients through food systems – from people, to animals and back to the land to grow more food sustainably – rather than going to a landfill. We all have a role to support this cycle and build sustainable food systems that benefit people, communities and the planet.

Learn how the dairy community contributes to a natural nutrient cycle.

©2018 Innovation Center for U.S. Dairy and National Dairy Council

Learning Objectives

- Describe how RDN's can play a key role in supporting various facets of sustainable nutrition
- Discuss dairy foods' unique nutrient profile, their role in plant-based diets and emerging science on dairy consumption within a healthy dietary pattern
- Summarize data on dairy's environmental footprint and how dairy cows are part of the solution to sustainable food systems



Good for the Body

Cheese*: 6 essential nutrients

- Protein
- Calcium
- Phosphorus
- Vitamin B12
- Niacin
- Vitamin A

Milk: 9 essential nutrients

- Protein
- Calcium
- Vitamin D
- Phosphorus
- Vitamin A
- Riboflavin
- Pantothenic acid
- Niacin
- Vitamin B12

This Photo by Unknown Author is licensed under CC BY-SA 4.0

Yogurt: 7 essential nutrients

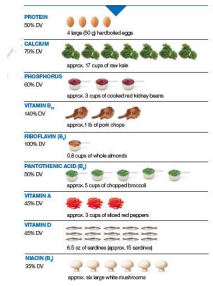
- Protein
- Calcium
- Phosphorus
- Vitamin B12
- Pantothenic Acid
- Riboflavin
- Zinc

*Nutrients based on USDA Database for Cheddar 80/1009

3 Servings of Milk Deliver a Unique Nutrient Package



Three servings of milk provide the same level of nutrients found in these foods



"... the amount of many potential alternatives to provide sufficient calcium would provide **too many calories** and/or **be a large amount to consume daily**."

"... **bioavailability** of the calcium in vegetable products has not been addressed and **could pose a concern**."

2015 Dietary Guidelines Advisory Committee Report, Appendix E3.6

https://www.nationaldairyCouncil.org/content/2018three-servings-of-milk-deliver-a-unique-nutrient-package

Visit nationaldairyCouncil.org for flashcards on cow's milk and dairy alternative beverages

Nutritional Profile of Milk Compared to Unsweetened Almond Beverage

Category	Unsweetened Almond	1% Milk
Calories	40	100
Ingredients	1% Milk: 3 ingredients (Liquid Milk, Vitamin B, Phosphate, Vitamin D3)	Unsweetened Almond: 14 ingredients (Almonds, 1% Natural Sugar, Almonds, Natural Flavor, Oleo Ole, Coconut Water Gum, Sunflower Lecithin, Gelatin Gum, Calcium Carbonate, Vitamin E, Ascorbic Acid, Chlorophyll, Vitamin B12, Vitamin D3, Vitamin D2)
Macronutrients***		
Total Fat (g)	2.9	2.4
Saturated Fat (g)	0	1.5
Carbohydrate (g)	2	12
Sugars (g)	0	12
Added Sugar** (g)	0	0
Protein (g)	2	8

Source: USDA Food and Drug Administration. *Percent Daily Values are based on a diet of other people's nutritional choices. **Percent Daily Values are based on a diet of other people's nutritional choices. ***Percent Daily Values are based on a diet of other people's nutritional choices.

<https://www.nationaldairyCouncil.org/content/2018/how-milk-compares-to-various-plant-based-alternative-beverages>

2005, 2010, 2015* Dietary Guidelines Recommend 3 Daily Servings of Dairy Foods for Those ≥9 years

The 2015 DGA states that healthy eating patterns, including low-fat or fat-free dairy foods, are associated with reduced risk for several chronic diseases, including cardiovascular disease (strong evidence) and type 2 diabetes (moderate evidence). Research has also linked dairy intake to improved bone health, especially in children and adolescents.

*3 servings for Americans 9 years and older in the Healthy U.S.-Style and Healthy Vegetarian Eating Patterns.

Dietary Guidelines for Americans, 2015-2020

Nearly 9 in 10 Americans Fall Short on Dairy Recommendations

Americans* consume, on average, ≤ 2 cup equivalents of dairy foods/day. Adding just one more dairy serving a day could help close the gap.

National Dairy Council. www.nationaldairyCouncil.org. 2014.

Preponderance of Evidence: Dairy Food Consumption has a Neutral or Beneficial Association with Reduced Risk for Chronic Diseases

NDC Science Summary on Cardiovascular Disease, Blood Pressure and Type 2 Diabetes

SCIENCE SUMMARY: Cardiovascular Disease
SCIENCE SUMMARY: Blood Pressure
SCIENCE SUMMARY: Type 2 Diabetes

Healthy eating patterns can help reduce the risk of chronic diseases. Dairy foods are a key part of a healthy eating pattern. Research shows that consuming dairy foods is associated with a lower risk of heart disease, stroke, and type 2 diabetes. Dairy foods also provide essential nutrients like calcium, protein, and vitamins.

EATING DAIRY FOODS IS NOT LINKED TO HIGHER RISK FOR KEY CHRONIC DISEASES
and in some cases may be linked to lower risk, according to a review of 20+ studies.

CVD (includes heart attack and stroke)	HIGH BLOOD PRESSURE	TYPE 2 DIABETES
Total dairy* and cheese consumption is associated with lower risk for stroke (moderate quality evidence)	Total dairy is associated with lower risk for hypertension (high-quality evidence)	Total dairy, yogurt and cheese consumption is associated with lower risk for T2D (moderate- to high-quality evidence)
Total dairy, cheese and yogurt consumption is not associated with higher risk for CVD (moderate- to high-quality evidence)	Cheese and yogurt consumption is not associated with higher risk for hypertension (moderate- to high-quality evidence)	A meta-analysis found eating approximately 3 ounces of yogurt (80 g) per day, compared to none, is associated with lower risk for T2D
Total dairy, cheese and yogurt consumption is not associated with higher risk for coronary artery disease (moderate- to high-quality evidence)	Clinical trials continue to investigate how dairy products, including low-fat dairy products, might contribute to a healthy blood pressure in different populations	

*Dairy foods in these studies are whole, reduced fat, low-fat and fat-free milk, cheese and yogurt
Link to infographic: <https://www.nationaldairycouncil.org/content/2019/dairy-foods-key-for-supporting-health>

Chen et al. Systematic Review of the Association Between Dairy Product Consumption and Risk of Cardiovascular-Related Clinical Outcomes. Adv Nutr. 2018

NDC

Visit www.nationaldairycouncil.org for Science Summaries

DAIRY FOODS: KEY FOR SUPPORTING HEALTH

Over 200 studies have shown that dairy foods, such as milk, cheese and yogurt, are associated with a lower risk of heart disease, stroke, type 2 diabetes, hypertension, and obesity. Dairy foods are also a source of calcium, protein, and other nutrients that are important for overall health.

EATING DAIRY FOODS IS NOT LINKED TO HIGHER RISK FOR KEY CHRONIC DISEASES

There is growing evidence that eating dairy foods is not linked to higher risk for these chronic diseases. In fact, dairy foods may be linked to lower risk for these diseases, according to a review of 20+ studies.

CVD	HIGH BLOOD PRESSURE	T2D
Total dairy, cheese and yogurt consumption is not associated with higher risk for CVD (moderate- to high-quality evidence)	Cheese and yogurt consumption is not associated with higher risk for hypertension (moderate- to high-quality evidence)	A meta-analysis found eating approximately 3 ounces of yogurt (80 g) per day, compared to none, is associated with lower risk for T2D

AMONG AMERICAN ADULTS, APPROXIMATELY

- 37% consume 3 or more servings of dairy foods per day
- 34% consume 2 servings of dairy foods per day
- 8% consume 1 serving of dairy foods per day
- 21% consume no dairy foods

NDC

SCIENCE SUMMARY: Type 2 Diabetes NDC
SCIENCE SUMMARY: Hypertension NDC
SCIENCE SUMMARY: Stroke NDC
SCIENCE SUMMARY: Dairy in Healthy Dairy Patterns NDC
SCIENCE SUMMARY: Iron & Magnesium NDC
SCIENCE SUMMARY: Type 2 Diabetes NDC
SCIENCE SUMMARY: Cardiovascular Disease NDC
SCIENCE SUMMARY: Cheese & Yogurt NDC

NDC

Plant-based in Perspective

2015-2020 Dietary Guidelines For Americans Dietary Patterns are Plant-Based and Incorporate Animal Foods

Healthy US-style Pattern	Healthy Vegetarian Pattern	Healthy Mediterranean-style Pattern
3 servings LF/FF dairy foods per day	3 servings LF/FF dairy foods per day	2 servings LF/FF dairy foods per day
		Dairy 3 → 2 cup eq/day Seafood 8 → 16 oz eq/wk

https://health.gov/dietaryguidelines/2015/resources/0915-2020_Dietary_Guidelines.pdf

NDC

Plant + Animal Foods = Improved Nutrient Intakes

nutrients
an open access journal by Wiley

NHANES Modeling Study
N=17,387, ≥ 2 years

"Specific recommendations to increase low fat and nonfat dairy foods in conjunction to increasing healthy plant-based foods will help to close some of the nutrient gaps currently present among Americans of all ages."

Modeling Scenario	Improved Intakes	Insufficient Intakes
Double usually consumed plant-based foods	Magnesium Iron Folate Vitamin C Vitamin E	Calcium* Vitamin D* Vitamin A Protein
Double milk, cheese, yogurt	Calcium* Vitamin D* Vitamin A Protein Magnesium	

Chilli et al. Nutrients 2016
NDC sponsored study

* is Nutrient of Public Health Concern

NDC



FARM Animal Care Program

Farmers
Assuring
Responsible
Management

~98% of U.S. milk comes from farms participating in the FARM Animal Care Program

ISO

ANIMAL CARE

ANTIBIOTIC STEWARDSHIP

ENVIRONMENTAL STEWARDSHIP

Will it stay safe long before it reaches you?

NDC


THERE ARE A LOT OF MYTHS ABOUT ANTIBIOTICS ON DAIRY FARMS.

NDC

Ensuring Milk, Cheese and Yogurt are Free of Antibiotics

- FDA prohibits antibiotics in milk
- Numerous checkpoints in place as milk moves from farm to dairy case
- Any milk that tests positive is rejected and does not enter the food supply

NDC



Recombinant Bovine Somatotropin (rbST): A Safety Assessment

Initially presented at the Joint Annual Meeting of the American Dairy Science Association*, Canadian Society of Animal Science, and American Society of Animal Science

Montreal, Canada
July 14, 2009

Updated on March 22, 2010

“...food products from cows treated with rbGH are safe for consumption by human.”

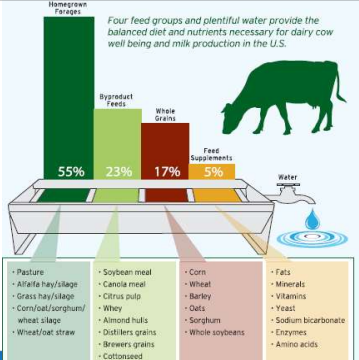
“The FDA’s review of rbGH has been scrutinized by both the Department of Health and Human Services’ Office of Inspector General (OIG) and by GAO, as well as by JECFA.”

NDC

Cows have diets, too!

Animal nutritionists carefully plan their diets

Think of it as MyPlate for cows!



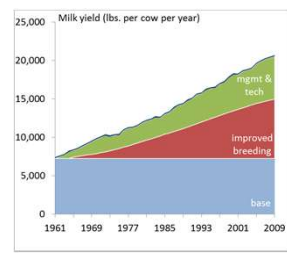
Four feed groups and plentiful water provide the balanced diet and nutrients necessary for dairy cow well being and milk production in the U.S.

<ul style="list-style-type: none"> - Pasture - Alfalfa hay/silage - Grass hay/silage - Corn/foxtail/sorghum/wheat silage - Wheat/oat straw 	<ul style="list-style-type: none"> - Soybean meal - Canola meal - Citrus pulp - Whey - Almond hulls - Distillers grains - Brewers grains - Cottonseed 	<ul style="list-style-type: none"> - Corn - Wheat - Barley - Oats - Sorghum - Whole soybeans 	<ul style="list-style-type: none"> - Fats - Minerals - Vitamins - Yeast - Sodium bicarbonate - Enzymes - Amino acids
---	---	--	---

NDC

Innovation is the Historical Driver of U.S. Productivity and Reduced Environmental Impact

U.S. yield increase: 1961-2009



- Milk production per cow in the U.S. has increased 280 lbs. per year since 1961
- The increase was driven by **innovation** (dairy cow breeding, housing, management, feeding)
- American dairy farmers improved milk production while using less natural resources thus protecting the environment

USDA-NASS, http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1/09data.asp, Last accessed 2/20/10
USDA-ARS APIS, <http://api.ars.usda.gov/datacenter/summary.html>, Last accessed 2/20/10

NDC


U.S. Dairy: Committed to Continuous Progress

- In 1950, there were 24 million dairy cows in the US, vs 9 million today
- With 15 million fewer cows (1950 vs 2018), milk production nationally has increased 86 percent while maintaining commitment to animal care
- The carbon footprint of a glass of milk is 2/3 smaller today than it was 70 years ago

Source:
USDA NASS QuickStats <https://www.quickstats.nass.usda.gov/>
Capper & Cook-Nisler © 2003. The environmental impact of dairy production: 1944 compared with 2007. *Journal of Animal Science* 97:2160-2167



NDC



Nourishing Cows = Nourishing People

- Multiple safe guards in place to ensure all dairy products are free of antibiotics
- Dairy cows' diets are primarily made up of foods people can't eat
- Dairy cows turn plants and by-products into high-quality protein, nutrient-rich milk to nourish people, because of their unique, 4-chambered stomach and digestive process

NDC



Good for the Planet

NDC



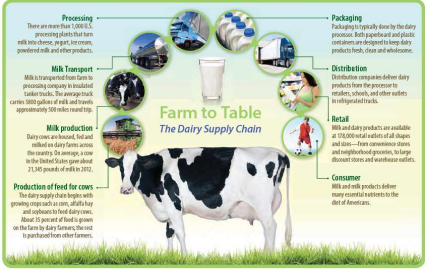
In Only 70 Years,
We've Reduced our Impact...

- 90% less land
- 65% less water
- 76% less manure
- 63% less GHG

The dairy community has a voluntary commitment to further reduce GHG 25% by 2020

US Dairy Stewardship Commitment
Casper, J. & Cady, A. & Bauman, D. 2009. The environmental impact of dairy production, 1944 compared with 2007. Journal of Animal Science, 87:2160-2167

Dairy Life Cycle Assessment (LCA): Understanding Dairy's Impact From Grass to Glass



Processing
There are more than 1,000 U.S. processing plants that turn milk into cheese, yogurt, ice cream, powdered milk and other products.

Milk Transport
Milk is transported from farms to processing plants by industrial tanker trucks. The average truck carries 5000 gallons of milk and travels approximately 500 miles round trip.

Milk production
Dairy cows are housed, fed and milked in dairy farms across the country. On average, a cow in the United States produces about 21,540 pounds of milk in 2012.

Production of feed for cows
The dairy supply chain begins with growing crops such as corn, alfalfa hay and soybeans for dairy cows. About 33 percent of feed is grown on the farm by dairy farmers, the rest is purchased from other farmers.

Packaging
Packaging is typically done by the dairy processor. Both plastic and metal plastic containers are designed to keep dairy products fresh, clean and safe to consume.

Distribution
Distributors transport dairy products from the processor to markets, schools, and other outlets in all 50 states.

Retail
Retail dairy products are available at 576,000 retail outlets of all shapes and sizes - from convenience stores and neighborhood grocers, to large discount stores and warehouse outlets.

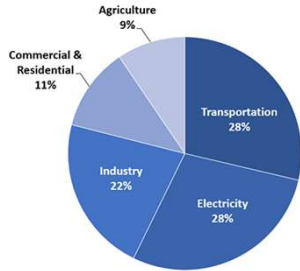
Consumer
Milk and milk products deliver more nutrients to the diet of Americans.

**Farm to Table
The Dairy Supply Chain**

Sources: Dairy's Environmental Footprint: A Summary of Findings, 2010-2012. Production of Food. USDA Economic Research Service, 2007. Milk Production. USDA, National Agricultural Statistics Service, 2012. Milk Transport. Greenhouse Gas Emissions of Fluid Milk in the U.S., University of Arkansas, 2010. Processing. USDA, National Agricultural Statistics Service, Agricultural Statistics Board, 2010. Retail. Progressive Grocer, 2008.

NDC

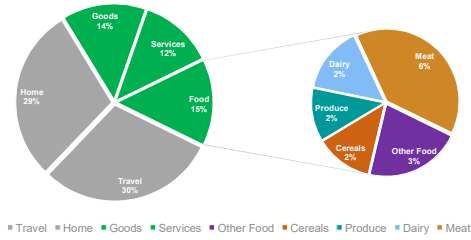
Total U.S. Greenhouse Gas Emissions by Economic Sector in 2016



US Environmental Protection Agency (2018). US Inventory of Greenhouse Gas Emissions. <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.



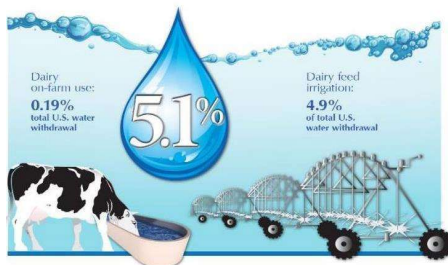
The Average U.S. Household Carbon Footprint



Christopher M. Jones and Daniel M. Kammen. Quantifying Carbon Footprint Reduction Opportunities for U.S. Households and Communities. *Environ. Sci. Technol.*, 2011, 45 (9), pp.4088-4095.



Dairy is ~5% of Total U.S. Water Withdrawal



Henderson, A., et al. U.S. Fluid Milk Comprehensive LCA. University of Michigan & University of Arkansas, 2012.



Cow Manure Can Be Recycled to Nourish The Land and Generate Electricity

WORKING TOGETHER WE CAN HONOR THE HARVEST AND LIVE BETTER



- Cow manure is a natural source of nitrogen and phosphorus - key nutrients for plant health.
- The use of cow manure can reduce the use of synthetic fertilizers derived from fossil fuels
- Methane from cow manure can be captured and used to produce heat, power electric generators and fuel trucks.



Host of Resources on www.nationaldairycouncil.org

U.S. Dairy Sustainability Report

Dairy as a Driver of SDGs Infographics

10+ Science Summaries

Beverage Flashcards

Other Resources

NDC

Dairy Nourishes
— NETWORK —

Dairy Nourishes Network members will receive:

- Quarterly updates
- Advance notice of webinars
- Recipe ideas/meal tips
- Engaging contests
- Opportunities to be highlighted on NDC's social
- In-person educational and networking events

www.NationalDairyCouncil.org/DairyNourishesNetwork

NDC

Questions?

Janice Giddens, MS, RDN
Director, Health and Wellness Partnerships
National Dairy Council
Janice.Giddens@dairy.org
@JaniceGiddens

#DairyNourishesLife

NDC