



Beyond the Garden:

Empowering Patients to Embrace Plant-Forward Eating

March 20, 2024 | 12:30 PM CT

Funding from non-CPE revenue for CPE planning, development, review, and/or presentation has been provided by **Midwest Dairy**.

Housekeeping

Moderator



Lela Fausze, MS, RDN, LDN
*Vice President, Dairy Experience-
Sustainable Nutrition*
Midwest Dairy

- 60-minute presentation, recorded
- Q&A discussion at the end of webinar
- Submit questions through the Q&A box at any time
- Use Q&A box for any tech difficulties
- Post-event e-mail sent within one week containing:
 - Instructions for claiming continuing education
 - Presentation slides
 - Recording access
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Learning Objectives

To be addressed in this webinar

1. Discuss consumers' desires to consume more plant foods and address common challenges they may face.
2. Highlight how dairy can be a source of nutrients that complements and facilitates plant-based eating.
3. Showcase real-world examples of Midwest dairy farmers addressing concerns of animal welfare and environmental responsibility.

Speakers



Cara Harbstreet, MS, RD, LD

Owner
Street Smart Nutrition



Joan Maxwell

Co-Owner
Cinnamon Ridge Farms

Disclosures

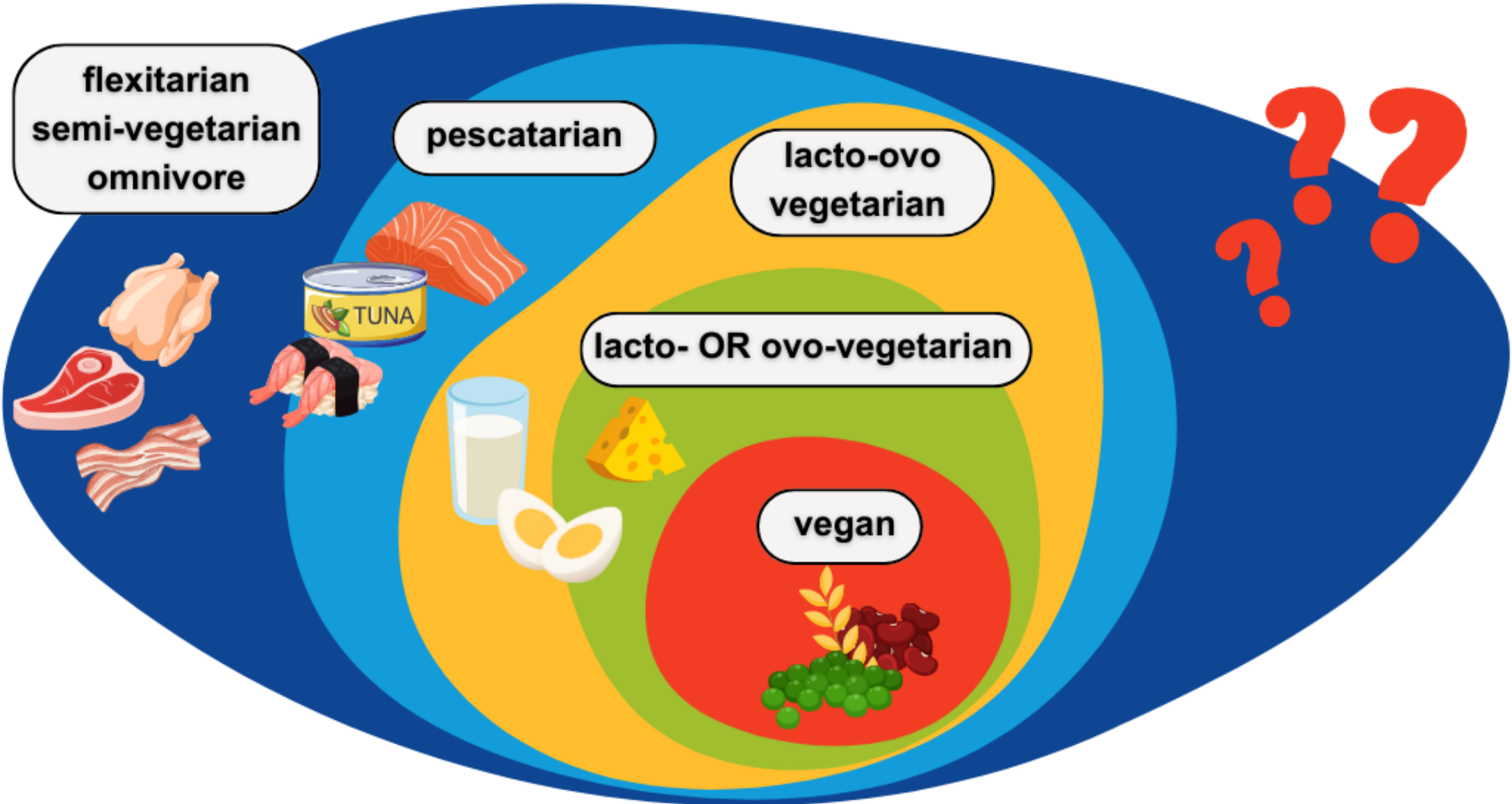
- Funding from non-CPE revenue for CPE planning, development, review, and/or presentation has been provided by Midwest Dairy.
- Cara Harbstreet, speaker for this educational event, received an honorarium for speaking at this event, and has been a paid partner of fairlife, Oatly, Dairy Farmers of America, and the MilkPEP Board.
- Joan Maxwell, speaker for this educational event, is a dairy farmer.



Defining “Plant-Based”

...and why does it matter?

what is plant-based?



Does the clinical match the practical?

- Maybe...maybe not
- 2022 review in the European Journal of Clinical Nutrition (Storz, 2022)
 - Of the 44 intervention trials, published 1998-2020:
 - Five used “plant-based” interchangeably with “vegan diet”
 - 50% completely excluded animal products
 - ~38% ($n=17/44$) included animal products as part of a plant-based diet
 - ~33% ($n=15/44$) included dairy products
 - Highlights an urgent need for consensus in defining “plant-based”
- Other publications include multiple eating patterns within “vegetarian” (Miki, 2020)
 - At least 5 instances of using the term “vegetarian” without defining it

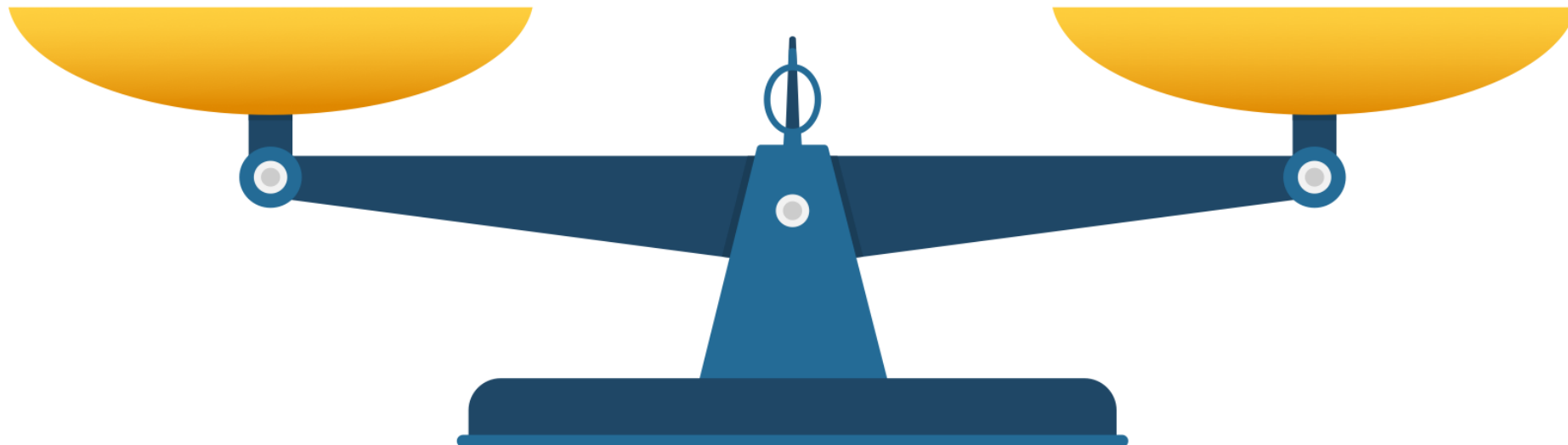
clinicians & researchers

- reproducing results
- determining how “plant-based” one must be to reap the benefits
- contradicting results with same/similar dietary patterns

general public & the media

- binary categories
- creation of moral hierarchies or rigidity within self-described eating patterns
- confusion or assumptions

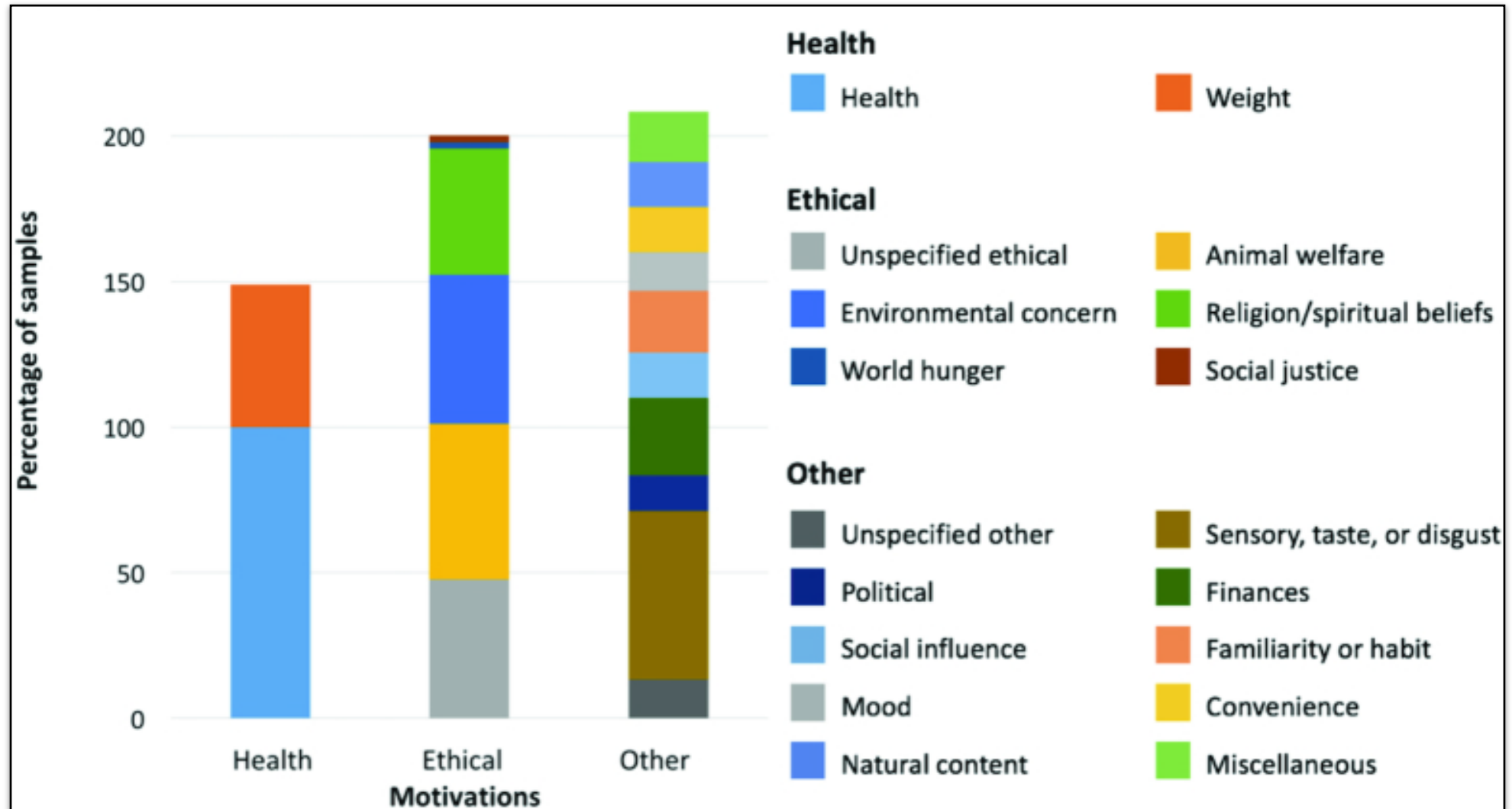
**lack of consistency
and potential for bias**



Poll Question

What are the top three reasons you/your clients report adopting a plant-based eating pattern?

Understanding plant-based motivations



(Miki, 2020)

Shifting Attitudes Towards Plant-Based Eating

Modern Approaches to Eating observes that as the term “plant-based” becomes increasingly common in the marketplace, many consumers who are highly engaged in health and wellness and/or meat-restricting approaches consider it to be “marketing speak” when it is used to describe products. As a result, the presence of the term “plant-based” on pack may actually raise questions among these consumers about the motives and actual ingredients or levels of processing. Ultimately, the decision about whether to use the term “plant-based” on pack should take into account category and brand orientation.

— Hartman Group, “Modern Approaches to Eating” report (2022)

A dynamic splash of white milk against a light background, with a thick stream of milk pouring from the top right corner. The splash creates various droplets and ripples, giving a sense of motion and freshness.

Spotlight on Nutrition

What **changes** when you eat more plants?

- **Increased** intake of key nutrients (Neufingerl, 2021)
 - Fiber
 - Disparity between recommended intake and actual intake
 - Improvements observed with transition to a more plant-based diet
 - Polyunsaturated fatty acids (PUFA)
 - ALA
 - Higher among vegans vs. vegetarians
- **Decreased** intake of key nutrients
 - Protein (although still within adequate range)
 - EPA + DHA
 - Vitamin B12
 - Vitamin D
 - Zinc, iodine, calcium and bone turnover markers
 - Iron
 - Higher intake among vegans, with attention given to bioavailability

Key Observations, summarized

Nutrition inadequacies noted across all dietary patterns (Neufingerl, 2021)

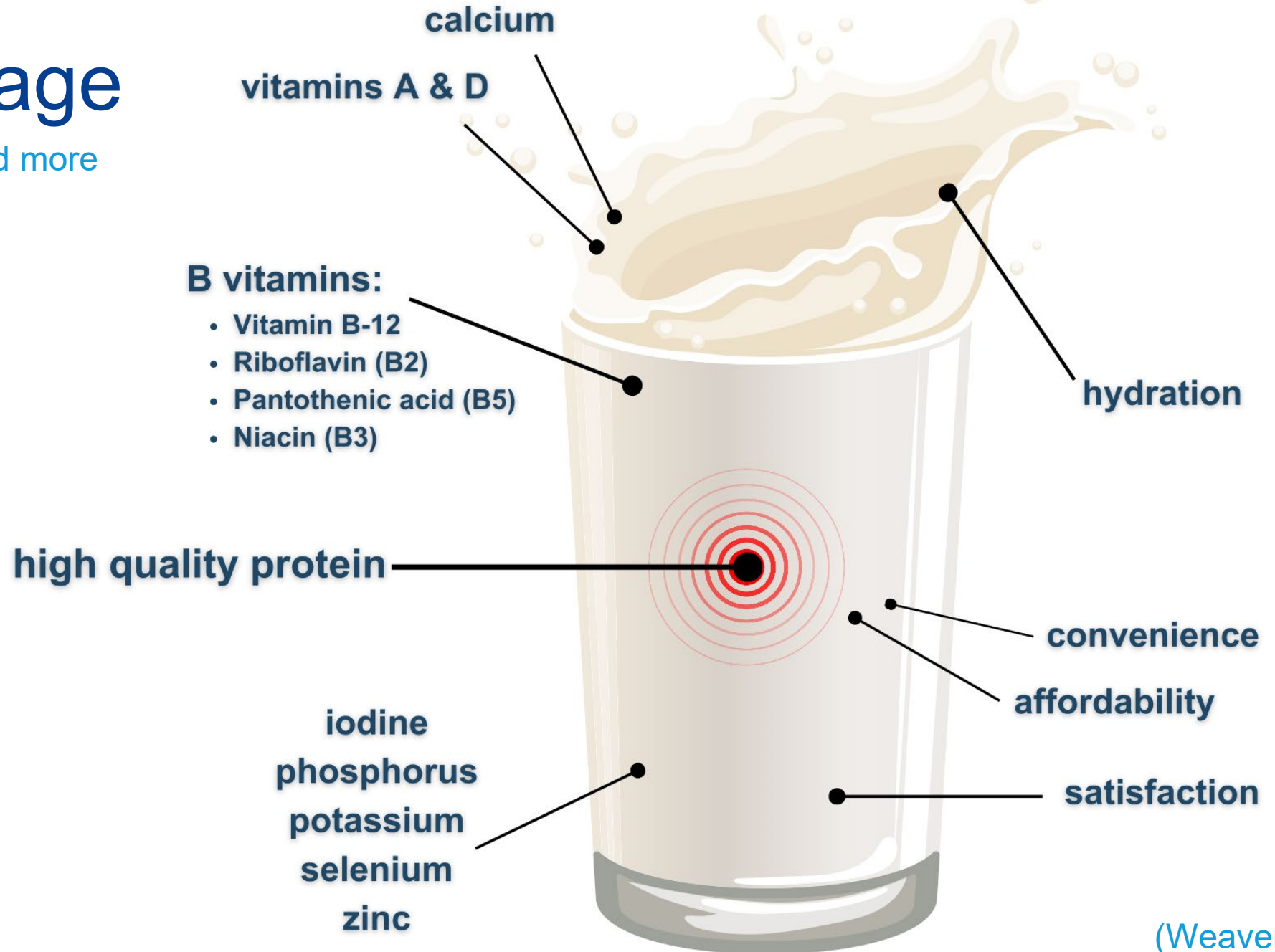
Dietary Pattern	Nutrients at Risk of Inadequacy	Nutrients of Favorably High Intake
Vegans	EPA, DHA, vitamins B12, D, calcium, iodine, iron (in women), zinc	fiber, PUFA, ALA, vitamins B1, B6, C, E, folate, magnesium
Vegetarians	fiber, EPA, DHA, vitamins B12, D, E, calcium, iodine, iron (in women), zinc	PUFA, ALA, vitamin C, folate, magnesium
Meat-eaters	fiber, PUFA, ALA (in men), vitamins D, E, folate, calcium, magnesium	protein, niacin, vitamin B12, zinc

Unintended consequences?



Total Package

13 essential nutrients and more



At-a-glance comparison:

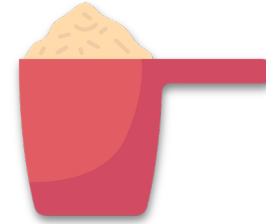
Dairy and non-dairy plant-based milk alternatives



*Source: Circana Group, L.P. Multi-outlets and convenience stores. 52 week-period ending July 16, 2023. (Dairy milk, unflavored (1%); Dairy Milk, Lactose-Free, unflavored (1%), unflavored almond, soy and oat beverages.)
 1. IRI Total US - Multi Outlet + Conv 2022 YTD ending 5-22, based on U.S. average price of unflavored, private label milk, 1 gallon.
 2. USDA, Agricultural Research Service. FoodData Central, 2019. <http://fdc.nal.usda.gov/>. Foundation Foods. FDC IDs: 746772, 2340766, 1999630, 1999631, 2257046. Accessed July 2023.
 3. USDA, Agricultural Research Service. USDA, FDA and ODS-NIH Database for the Iodine Content of Common Foods Release 3.0 (2023).
 4. Naturally occurring nutrients based on publicly available product ingredient lists. Accessed July 2023.
 5. FDA's Daily Value (DV) for potassium of 4700 mg is based on a 2005 DRI recommendation. In 2019, NASEM updated the DRI to 3400 mg. These values are based on the 2019 DRI of 3400 mg.

At-a-glance comparison:

Cottage cheese vs.
protein powders



Serving size	4 oz (1/2 cup)	70g	2 scoops (46g)
Protein (g)	11g	32g	25g
Calcium (%DV)	8%	45%	4%
Added sweetener	no	yes	yes
Cost (total)	\$4.32	\$23.18	\$26.99
Cost (per serving)	\$0.72	\$1.93	\$2.69
WIC/SNAP-approved	yes	?	?



Powerful Pairings in Practice

cheese

+

toast

canned beans

vegetables

leafy greens



yogurt
+
fruit
walnuts
mint
chia seeds



milk

+

oats

bananas

peanuts, peanut butter

dark chocolate





**Savory, cheesy,
melty, creamy,
gooey...**

...adding dairy can
evoke a sense of
satisfaction and
crave-ability as we
add to familiar
favorites or elevate
new dishes

Citations & Resources

- Miki, A. J., Livingston, K. A., Karlsen, M. C., Foltz, S. C., & McKeown, N. M. (2020). Using Evidence Mapping to Examine Motivations for Following Plant-Based Diets. *Current developments in nutrition*, 4(3), nzaa013. <https://doi.org/10.1093/cdn/nzaa013>
- Neufingerl N, Eilander A. Nutrient Intake and Status in Adults Consuming Plant-Based Diets Compared to Meat-Eaters: A Systematic Review. *Nutrients*. 2021 Dec 23;14(1):29. doi: 10.3390/nu14010029. PMID: 35010904; PMCID: PMC8746448.
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- Weaver, C. M. (2021, December 8). *Dairy matrix: Is the whole greater than the sum of the parts?*. OUP Academic. https://academic.oup.com/nutritionreviews/article/79/Supplement_2/4/6457118#:~:text=The%20dairy%20matrix%20is%20not,they%20are%20packaged%20and%20compartmentalized.
- World Health Organization. (2021, November 4). *Plant-based diets and their impact on health, sustainability and the environment: A review of the evidence*. World Health Organization. <https://www.who.int/europe/publications/i/item/WHO-EURO-2021-4007-43766-61591>

Top Questions from Patients and Clients

On animal welfare and sustainability

Do the cows like being milked?

What about water conservation? I hear there is a lot of water runoff on dairy farms.

Do cows like being indoors vs. outdoors?

Isn't it better to use the land used by cows to grow more vegetables?

Do you do anything to enrich the environment the cows live in?

A scenic view of a farm with a long gravel road leading to a barn and silo. The road is flanked by green grass and fields. In the background, there is a large white barn, a tall silo, and a line of trees under a clear blue sky.

Welcome to CINNAMON RIDGE Farms

John & Joan Maxwell
Donahue, IA

Poll Question

What are some methods dairy farmers use to promote animal welfare?

Cow Comfort – Its all about the cows

- Sand bedding
- Never run out of feed
 - Juno feed pushers
- Waters cleaned daily
- Back scratchers
- Pens groomed 2 times per day
- Free stall barn
 - Climate controlled
 - Free to choose to be milked





Quality Calf Care

- The first 50 days of a calf's life sets her up for the quality of her life.
- Colostrum - 3 feedings within 12 - 18 hrs. of birth
- Cleanliness of stalls – Fresh bedding daily – disinfected between calves

Greenhouse Gases or GHG

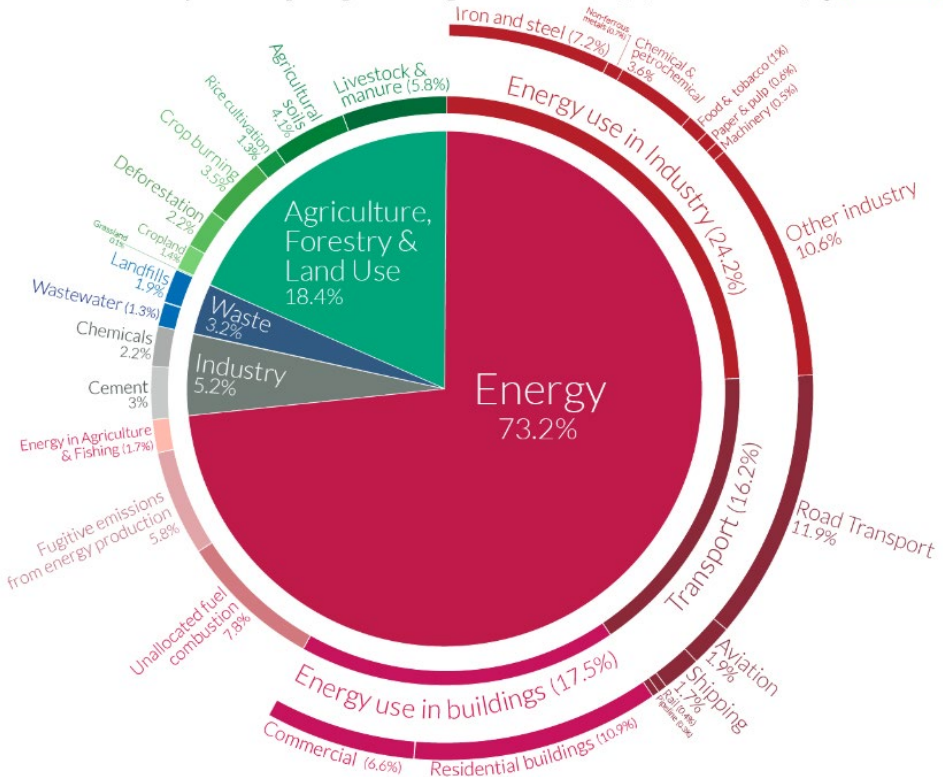
- **Methane and CO₂**
 - Methane
 - Landfills, Oil & Gas systems, Agriculture, Coal Mining, decaying of Plants
 - <https://www.britannica.com/science/methane>
 - CO₂ (natural and human activities)
 - Natural sources of carbon dioxide include most animals, which exhale carbon dioxide as a waste product.
 - Human activities that lead to carbon dioxide emissions come primarily from energy production, including burning coal, oil, or natural gas.
 - CO₂ is needed for photosynthesis

Comparison of World vs. U.S. agriculture

Global greenhouse gas emissions by sector

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.

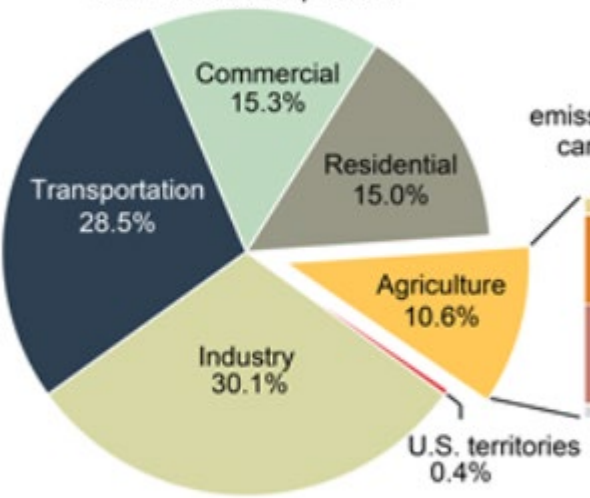
Our World
in Data



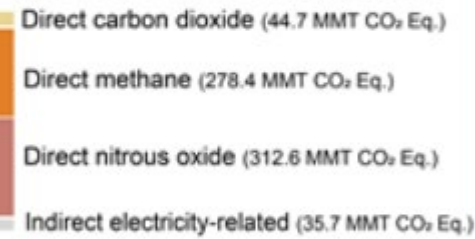
OurWorldinData.org – Research and data to make progress against the world's largest problems.
Source: Climate Watch, the World Resources Institute (2020).
Licensed under CC-BY by the author Hannah Ritchie. (2020).

Estimated U.S. greenhouse gas emissions by economic sector, with electricity-related emissions distributed, 2021

Total estimated U.S. emissions, 2021 = 6,340 million metric tons of carbon-dioxide equivalent



Total estimated U.S. agriculture emissions, 2021 = 671.5 million metric tons of carbon-dioxide equivalent (MMT CO₂ Eq.)



Note: Emissions from electric power are allocated based on aggregate electricity use in each end-use sector. Components may not sum to totals because of independent rounding.
Source: USDA, Economic Research Service using data from U.S. Environmental Protection Agency, April 2023: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021*, table 2-12.

GHG – What are dairy farmers doing about it?

- Enteric Methane
 - Lost energy
 - Nutrition - Constantly improving cow's diets
- Clean Water
 - Manure Management Plans
 - No Till / Reduced tillage
 - Cover Crops
 - Filter Strips, waterways
- Soil Health
 - Organic Matter, microbial activity



GHG – What are dairy farmers doing about it?

- Genetics
 - Dairy cow
 - Selection/Sexed Semen
- Genetics – Plants
 - Hybridization
 - Drought Tolerant
 - Insect resistant
- Building Design
 - Better Air Flow
 - Cow Comfort/Cow Health



Why is this important?

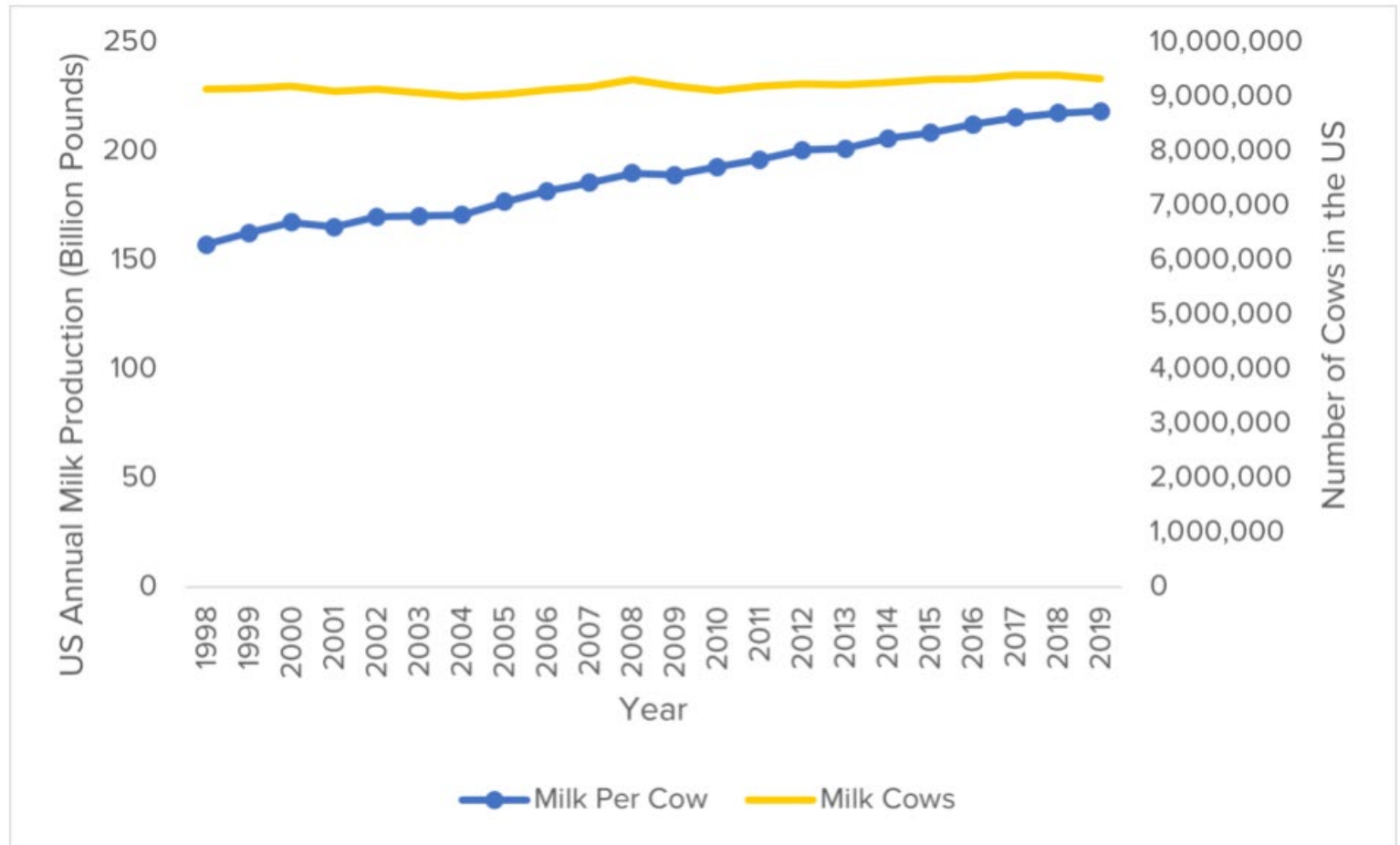


Figure 2. U.S. annual milk production per year and number of dairy cows in the U.S. (1998-2019; Source: USDA ERS).

Improvement in corn yields

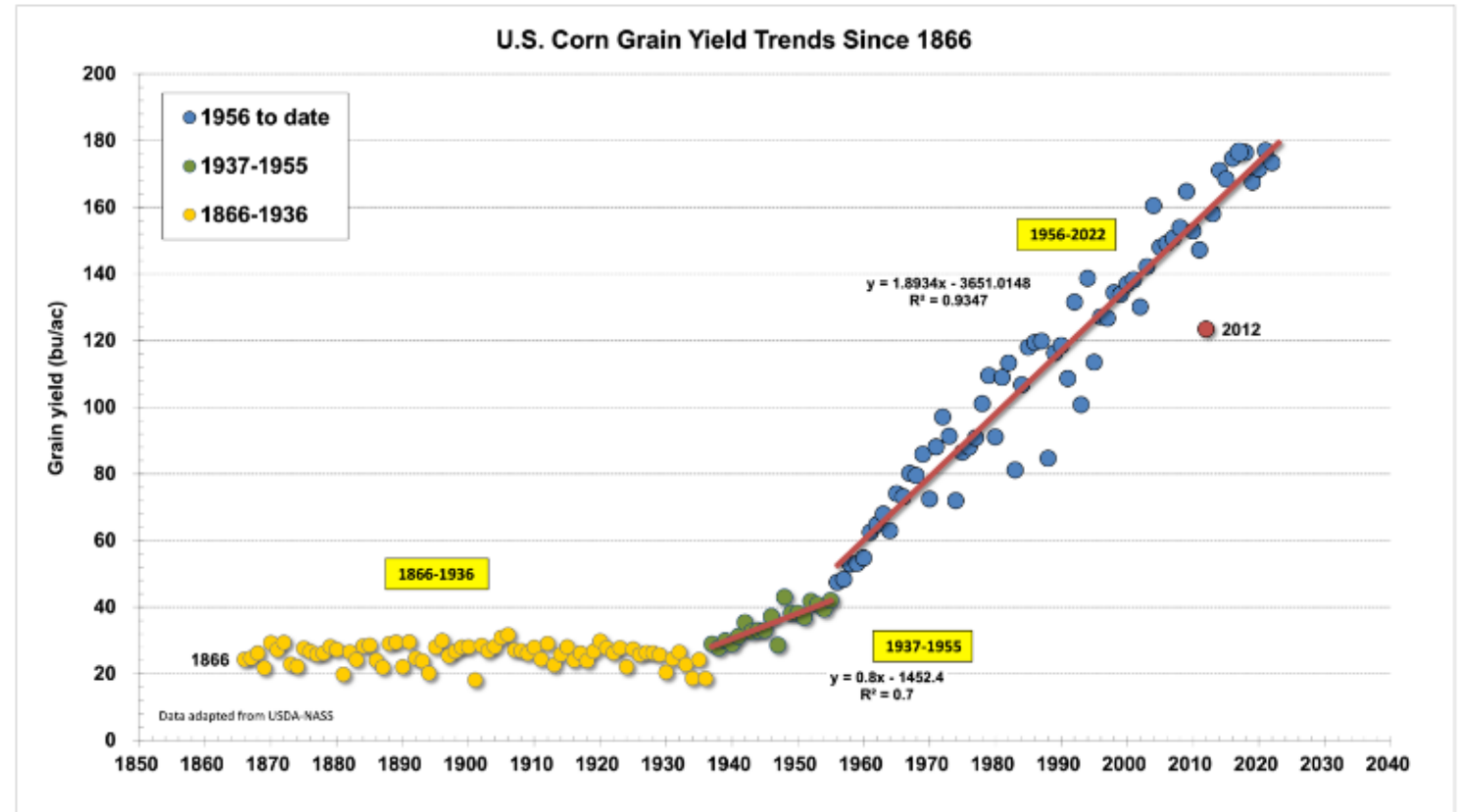
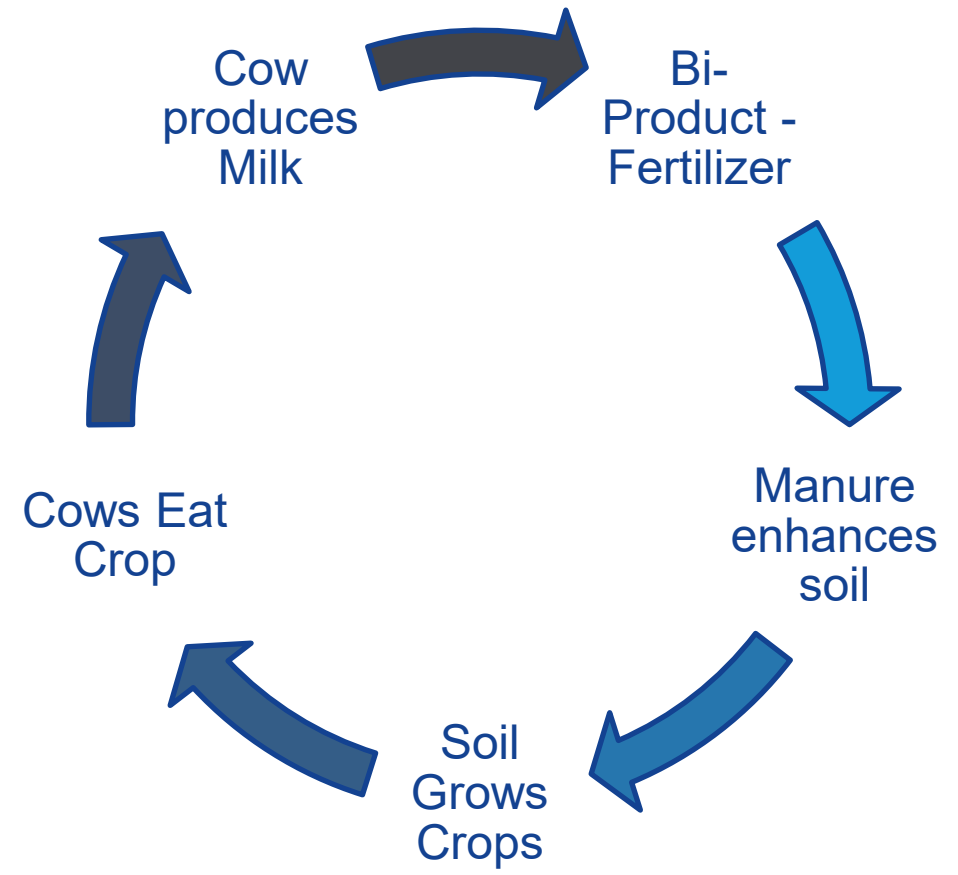


Fig. 1. Annual U.S. Corn Grain Yields and Historical Trends Since 1866.
Data derived from annual USDA-NASS Crop Production Reports.



Circularity



GHG-Upcycling

Cows eat by-products from other process (Food / Fiber / Fuel)

- Food Processes
 - Vegetable Oil/Renewable Diesel – Soybean Meal
 - Corn Gluten – corn starch and processing of food grade ingredients
- Food Waste – Remove from landfills – Coffee Creamer (Sugar/energy)
- Clothing – Cotton Seed – Bypass Protein & Cotton Seed Hulls
- Ethanol Production
 - Distillers Grain (DDG)

2050 Net Zero Initiative

By 2050, U.S. dairy collectively commits to:



**Achieve greenhouse
gas neutrality**



**Optimize water use while
maximizing recycling**



Improve water quality

Farmers Assuring Responsible Management

- Best Practices – Based on sound science - Veterinarians
- Animal Care
 - Newborn & Cow Care
- Antibiotic Stewardship
 - Proper use/withdrawal procedures
- Environmental Stewardship
 - How does our farm stack-up for Carbon Sequestering
- Workforce Development
 - Training & Constantly educating our family and employees



Other ways to reduce GHG Emissions

- Biodigesters
 - Converting manure to gas
 - Creating a nutrient dense fertilizer
- Conservation Practices
 - No Till/Reduced Till
 - Cover Crops
 - Buffer Strips
 - Composting
 - Bio-Reactors
 - Irrigation Improvements
 - Manure Application

What does conservation tillage look like?

Drainage ditch

Filter Strips

Minimum Till



Waterways –
Erosion control

No-Till

GPS Guided

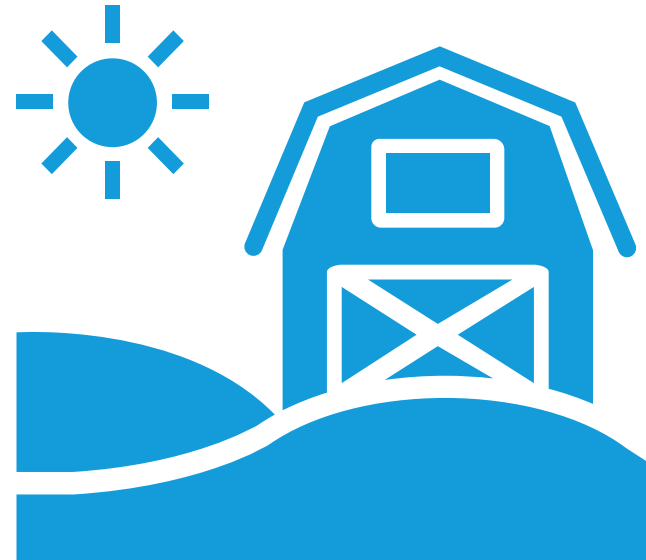


Manure Application



It isn't just one thing... It's Many Things

- Healthy Soils
- Better Genetics
 - Cows & Crops
- Nutrition
- Nutrient Reduction
 - Clean Water
 - Less Synthetic Fertilizer
- Capturing Methane
 - Technology in Digesters



CINNAMON RIDGE FARMS

www.TourMyFarm.com



Cinnamon_ridge_farm



CRFarmsIA



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The background of the slide features a dynamic splash of white liquid, likely milk, captured in mid-air. The splash is composed of various droplets and larger pools of liquid, creating a sense of movement. At the top of the slide, there is a horizontal bar divided into four colored segments: blue, green, red, and yellow.

Q&A

- Please submit your questions through the Q&A box.

Thank You

- Post event email sent within one week containing:
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