TRENDS & INNOVATION IN THE DAIRY INDUSTRY

Veronique Lagrange, Director CDIC

CalPoly August 19, 2025

WHAT IS THE CALIFORNIA DAIRY INNOVATION CENTER?

A **collaboration** of processors, universities and check-off organizations

Focused on **stimulating innovation in the California dairy sector**

STEERING COMMITTEE

Hilmar

Leprino Foods

California Dairies inc.

Fresno State

Real California Milk

California Dairy Research Foundation
Science for a Sustainable Future

Learn by Doing
Cal Poly

UC Davis
University of California

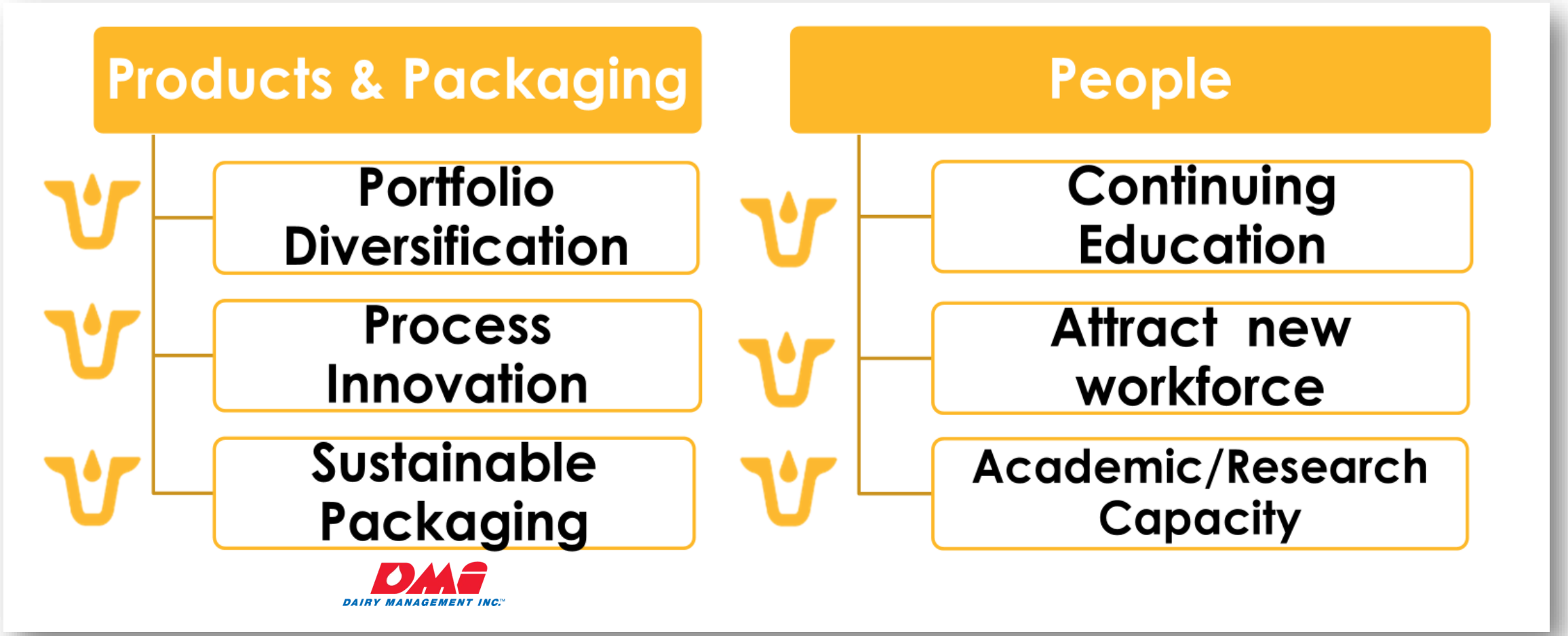
DMI
Dairy Management Inc.

California Dairy Innovation Center

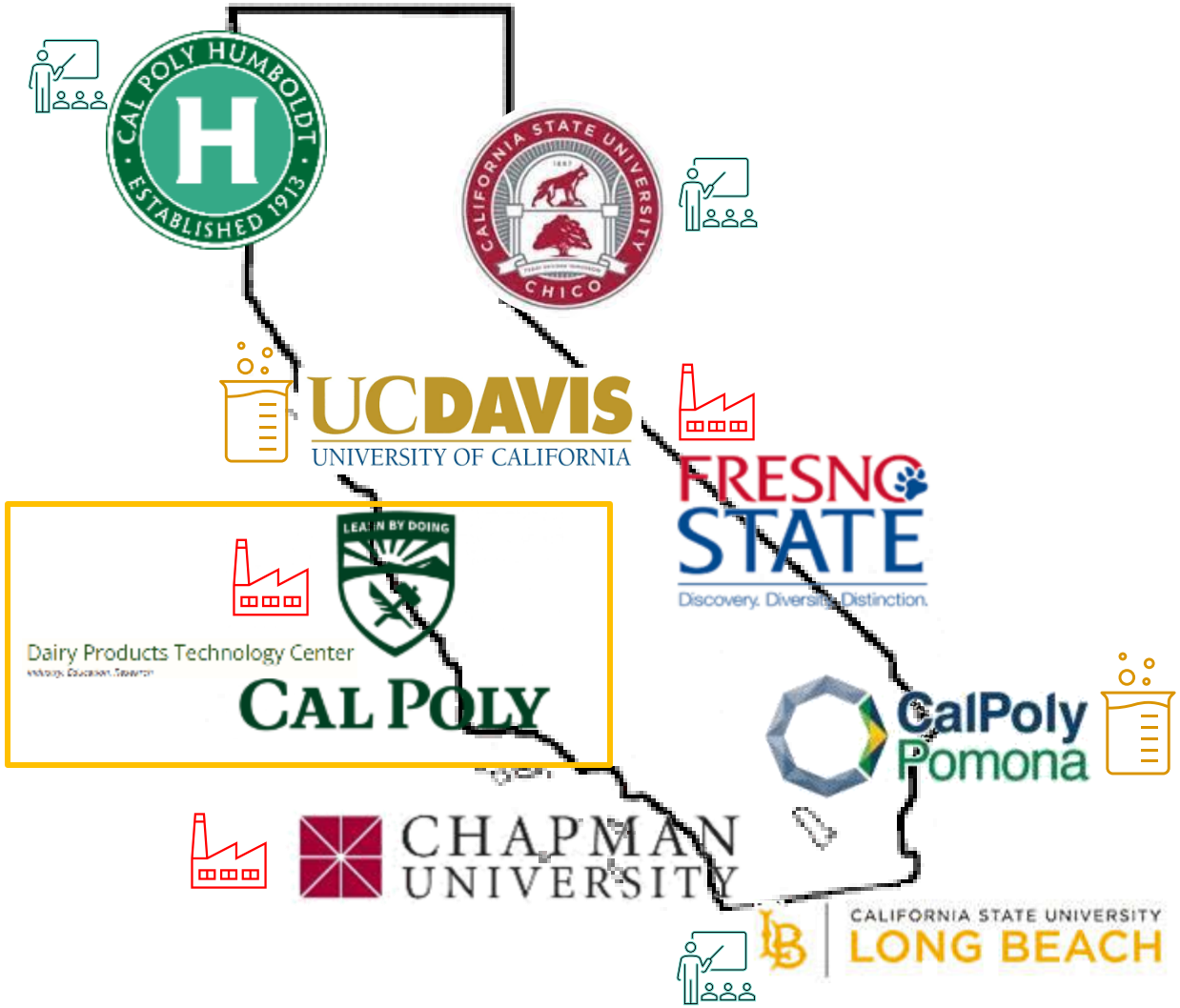
Real California Milk

CDIC'S MISSION & STRATEGIC PILLARS

- Accelerate product, process and packaging innovation
- Strengthen the California dairy ecosystem



TO STRENGTHEN THE CA DAIRY ECOSYSTEM, WE OPERATE ACROSS MULTIPLE LOCATIONS



CALIFORNIA DAIRY INNOVATION CENTER

REAL CALIFORNIA MILK

Pilot plant capacity/ creamery

Research/applications focused

Program in development/ student engagement

CDIC has research and training partnerships with

Oregon State University

CDIC'S ECOSYSTEM

- ✓ **One of 6 dairy Centers in the US**
  Research and training collaborations with other universities
- ✓ Technical experts, product-specific applications
- ✓ Network of consultants- labeling and claims, regulations

We also work with equipment and systems suppliers, engineering companies, flavor, enzyme suppliers, co-packers, etc.

DAIRY MANAGEMENT INC.™

CALIFORNIA DAIRY
INNOVATION
CENTER
REAL
CALIFORNIA
MILK
PROGRAMS FOR YOU
Enter the
GOLDEN STATE
WITH REAL CALIFORNIA DAIRY

SERVICES FOR CALIFORNIA PROCESSORS, ENTREPRENEURS, STUDENTS

From product idea/concept to prototype: delivering turn-key formulations entrepreneurs, processors can customize

Proof of concepts, and testing of new ingredients, processes

Providing technical know-how to shorten processors' product development cycle + access to innovation ecosystem

CALIFORNIA DAIRY INNOVATION CENTER

REAL CALIFORNIA MILK

TRENDS IN THE DAIRY INDUSTRY

PRIORITIES DRIVEN by PROCESSORS NEEDS, MARKETS SIZE

GROW & PERFORM

The right foods & beverages fuel my workouts and allow me to recover faster, so I can realize the muscle growth & development that I'm putting in the work to achieve.

SEGMENT SIZE (TOTAL*)

$59B

HEALTHY HEART & WEIGHT

I am concerned with my weight and the associated health effects, like heart disease. I seek out foods and beverages that help me reach my weight goals so I can live a long and happy life.

SEGMENT SIZE (TOTAL*)

$55B

SYSTEMS SUPERCHARGE

With all the challenges my body encounters, I need to be prepared. Foods and beverages that manage my gut health help save me from future ailments.

SEGMENT SIZE (TOTAL*)

$26B

MENTAL & EMOTIONAL H&W

When I need to be focused and productive, I turn to certain foods and beverages because I don't want brain fog or feeling "hangry" to prevent me from being my best self.

SEGMENT SIZE (TOTAL*)

$15B

HEALTH & WELLNESS

TECHNOLOGY/ INNOVATION

TASTE

BENEFITS

Value-added Dairy Products

(fruity milks and hydration beverages, protein drinks)

Benefits-added Dairy Products

(fiber claim + no sugar added, probiotics)

Lactose-free Everything

(coffee beverages, cheeses)

Dairy Products for Boomers

Mind health, calming/sleep

Source: DMI DAIRY MANAGEMENT INC.

208 million

THE ROLE OF DAIRY IN a GLP-1 WORLD

208 million Americans are classified as overweight or obese, meaning three-quarters of adults in the U.S. fall into this category (CDC 2020)

30.7% of adults are overweight

42.4% are obese

How many people use injectable weight loss drugs?

15 million

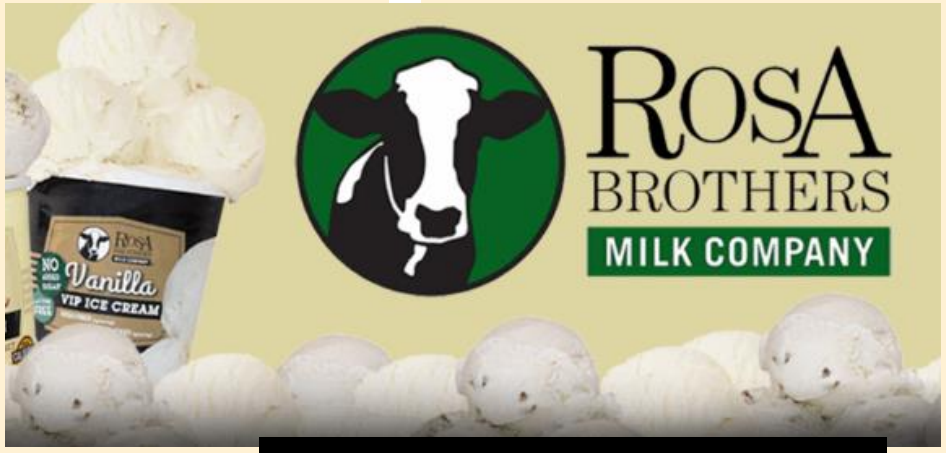
According to various projections, between 25 and 50 million Americans could be taking GLP-1 drugs by 2030.

NO SUGAR ADDED, MORE PROTEINS - TESTING NEW INGREDIENTS

Functionality of alternative sweeteners in lactose free, high protein, **no sugar** added ice cream

UF MILK, NEW SWEETENER

ZÙSTO®



ROSA's VIP ICE CREAM

NO SUGAR ADDED, MORE PROTEINS– WORKING WITH STUDENT TEAMS

Utilization of UF Milk as an ingredient:

++ Proteins, cultures for high protein, no sugar added, drinking yogurts (+ fiber/GOS)

HIGH P, NO SUGAR ADDED DRINKING YOGURTS

YOGURT FOR ATHLETES, SUGAR FREE

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Dairy Products for Boomers

Mind health, calming/sleep

Source: DMI DAIRY MANAGEMENT INC.

MARKET TREND: FIBER – THE NEW PROTEIN?

Fiber use is growing in subcategories that traditionally do not contain fiber, with a **+138%** CAGR over two years.

(Innova Market Insights, Report April 2024)

Fiber is the **second most chosen** functional ingredient of interest for consumers, slightly behind protein

(International Food Information Council's (IFIC) 2023 Food and Health Survey)

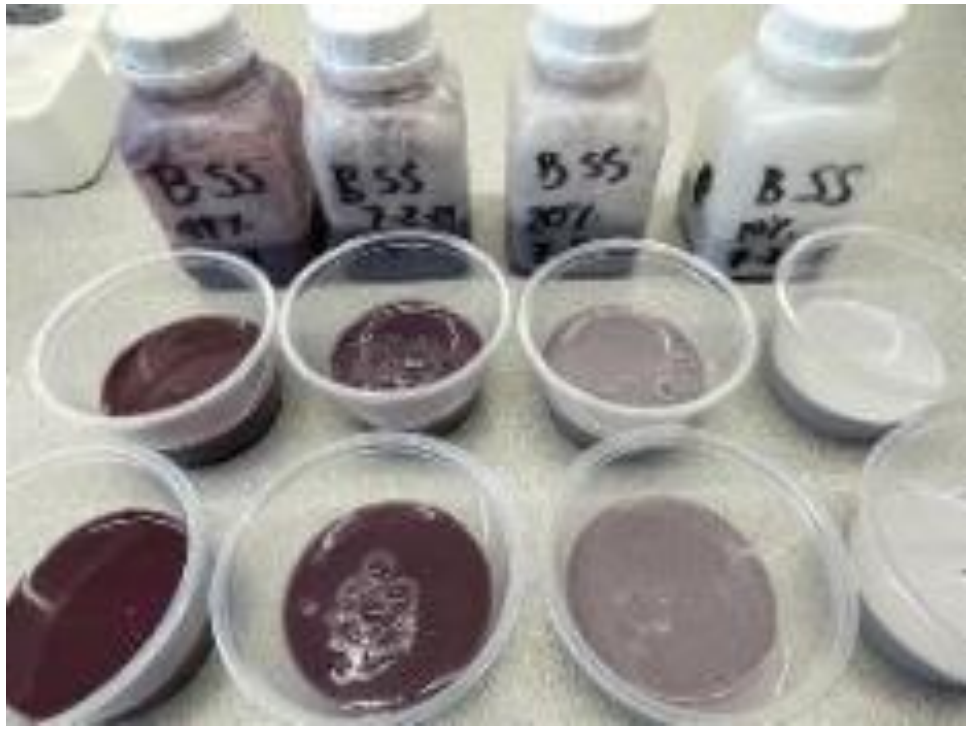
ADDED SOLUBLE **FIBER**

MEETING CONSUMERS'S NEEDS FOR FIBER (AND NO SUGAR)

Fiber, fruit ingredients for aseptic dairy beverages

Which fibers can be used, at what level?

>20 FORMULATIONS of FRUITYMILKs (1:1), NO SUGAR ADDED, LACTOSE-FREE



INNOVATING WITH FIBER (STUDENT TEAMS)

Fiber, fruit ingredients for aseptic dairy beverages *(good source of fiber claim)*

Many positioning opportunities

BEAUTY – Beverage with collagen

IMMUNITY – Turmeric, zinc

GUT HEALTH DRINK prebiotics

“FRUITY MILKS” ++

- TASTE!
- Meet consumer demand for healthier, no sugar added beverages
- Creating new usage occasions (ESL/UHT)
- Real fruit/real milk (>50%)
- Contain/can be supplemented with soluble fibers
- Lactose free options

Since 1916
CLOVER
SONOMA

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Dairy Products for Boomers

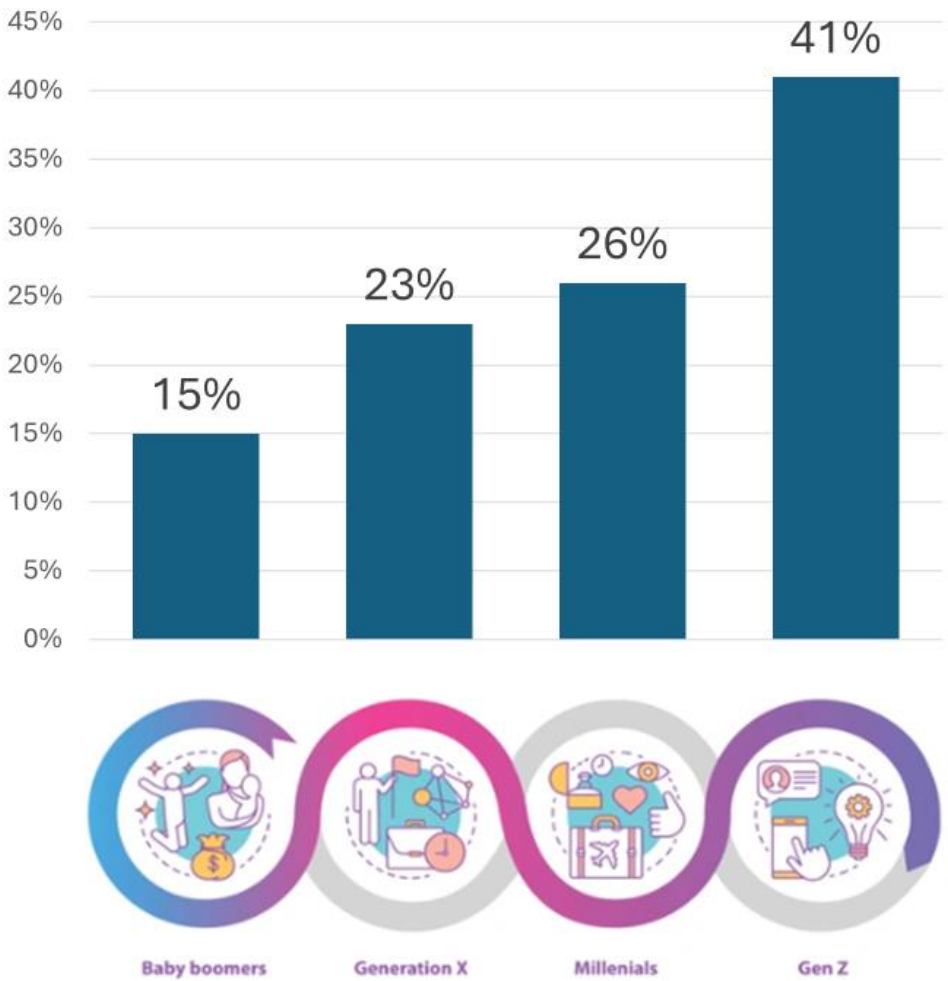
Mind health, calming/sleep

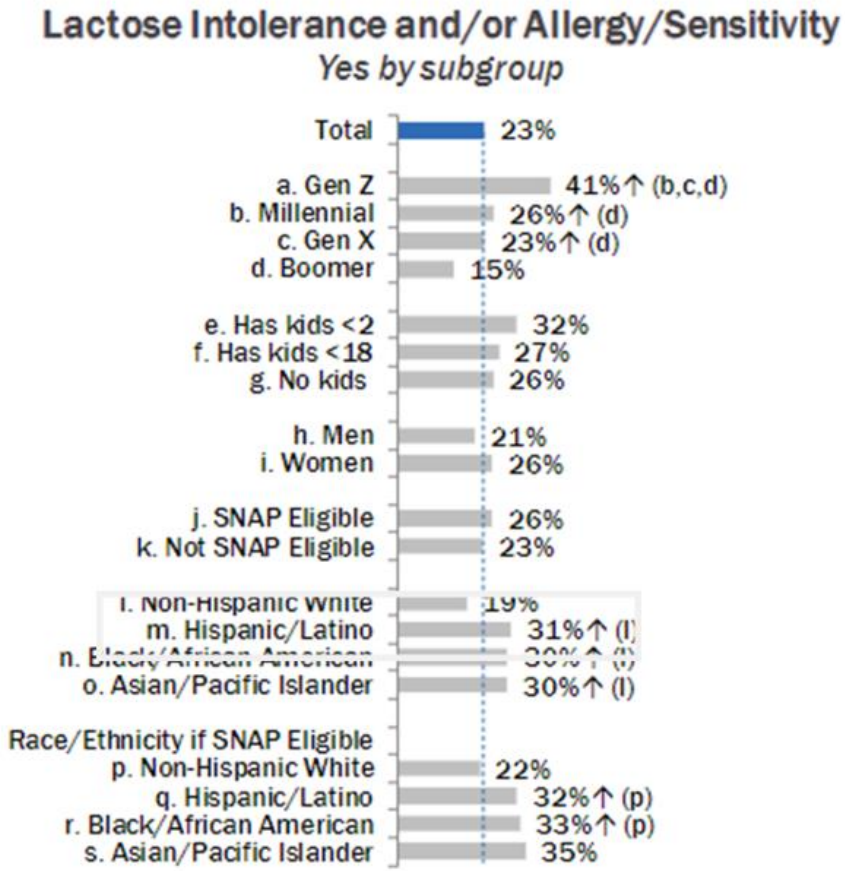
Source: DMI DAIRY MANAGEMENT INC.

CONSUMER TREND: LACTOSE FREE MILK PRODUCTS

41% of younger consumers, 31% Hispanic consumers avoid lactose

% of consumers reporting lactose intolerance or sensitivity

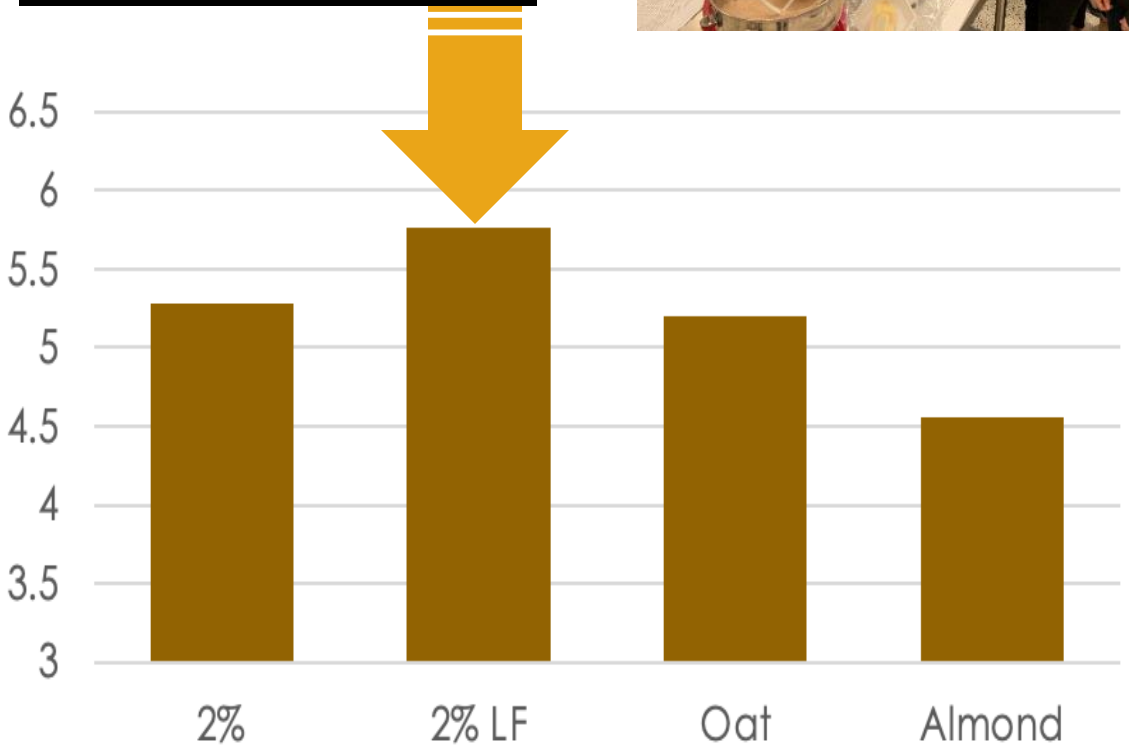




Source: International Food Information Council (IFIC). Understanding Fluid Milk & Dairy Food Consumption Patterns to Enhance Diet Quality & Nutrition Equity. May 2024.

LACTOSE FREE MILK IN COFFEE & TEAS

CONSUMERS PREFER LF MILK OVER OTHER MILKS IN COFFEE



LACTOSE FREE MILK IN COFFEE

CONSUMERS PREFER LF MILK OVER OTHER MILKS IN COFFEE, LATTES

LF MILK PERFORMS JUST AS WELL AS "BARISTA MILKS", is more cost effective (Cal Poly Study)

An opportunity for packaging innovation too!

LACTOSE FREE MILK/ CREAMERS TOO!

NEW USES FOR LF CREAMERS: DIRTY SODAS, COCKTAILS (EXPRESSO MARTINIS, etc.)

The U.S. coffee creamer market is growing robustly, typically at **5–6% CAGR**, depending on source and scope. Estimates in value of category range ($1-5 billion)

CRAFTING THE PERFECT CREAMER

CHAPMAN UNIVERSITY

August 6-7, 2025

From formula to foam

A practical short course for formulators, processors, entrepreneurs and marketers focused on dairy creamers innovation. The course takes place at Chapman University, Orange County, California.
Registration: $XXX, includes all meals, reception, parking and class materials.
REGISTER HERE: **insert link**

WHO SHOULD ATTEND?

Product development, QA, applications, operations and technical staff, culinary/food service operators.
Entrepreneurs and brand marketers. No pre-requisites.

LEARNING OBJECTIVES

- Gain insights into market trends and opportunities for product differentiation (retail and food service)
- Discover the different types of creamers and their processing
- What makes it a creamer? Standards and beyond
- Ingredients critical to the manufacture and successful formulation of creamers
- Minimal processing for extended shelf-life, stability
- Quality assurance and food safety fundamentals
- Strategies to incorporate functional benefits to enhance nutritional and market value
- Optimizing appeal through label design, use of claims
- Sourcing and pricing of dairy components
- Explore novel innovative applications for dairy creamers.

This event is co-organized with the

CALIFORNIA DAIRY INNOVATION CENTER

AGENDA (as of March 17, subject to change)

Wednesday, August 6, 2025

9:00 am **Welcome and introductions**
Anuradha Prakash, Professor, Chapman University; CA Dairy Innovation Center
9:15 am **Trends and market dynamics**
CMAB/CDIC (Retail and foodservice)
9:45 am **An overview of creamers, standards, processing, shelf-life and formulation**
Dr. Pulari Nair, Rich Products
10:45 am *Break and product tasting*
11:15 am **Stabilizing with phosphates**
ICL Group Representative
12:15 pm *Lunch*
1:00 pm **Roles of hydrocolloids and emulsifiers**
Tate & Lyle Representative
2:30 pm **Preventing formulation-related defects**
Tate & Lyle Representative
3:15 pm *Break*
3:30 pm **Sweeteners- more than sweetness**
Tate & Lyle Representative
4:30 pm **Optimizing visual appeal with colors**
Sensient Representative (invited)
5:15-6:45 pm *Networking Reception*

Thursday, August 7, 2025

9:00 am **Creamer processing and processing related defects**
TetraPak
Quality assurance and food safety
TetraPak
11:00 am *Break and product tasting*
11:30 am **Flavor selection, functionality, and preservation**
Invited industry representative
12:15 pm *Lunch*
1:00 pm **Labels and nutritional claims**
Debra Topham, Knowledge Bank
1:45 pm **Market dynamics and costing (sourcing, pricing)**
Mike McCully, McCully Group (invited)
2:30 am **More than creamers- Other applications**
Saputo Representative (invited)
3:00 pm *Adjourn*
CA Dairy Innovation Center, Anuradha Prakash, Professor, Chapman University

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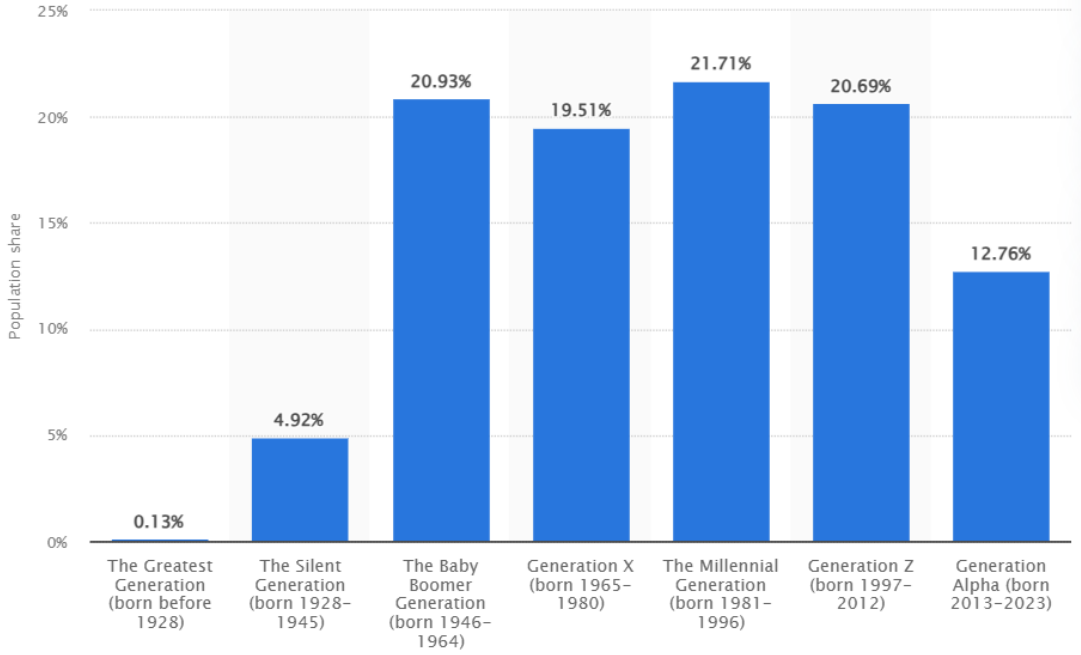
Dairy Products for Boomers

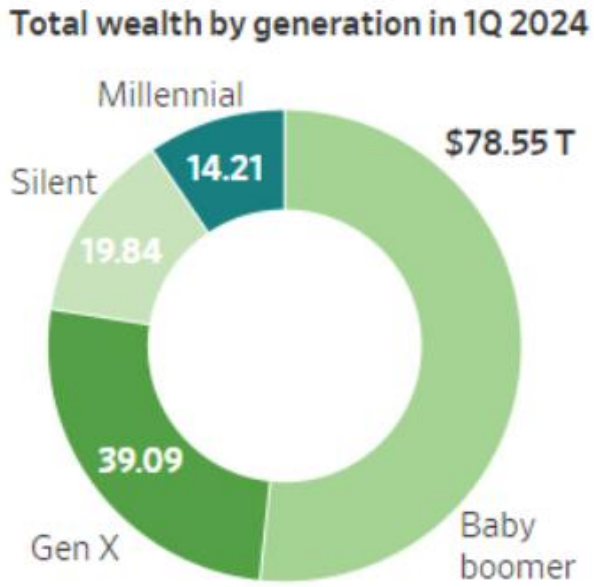
Mind health, calming/sleep

Source: DMI DAIRY MANAGEMENT INC.

73 million

Baby Boomers

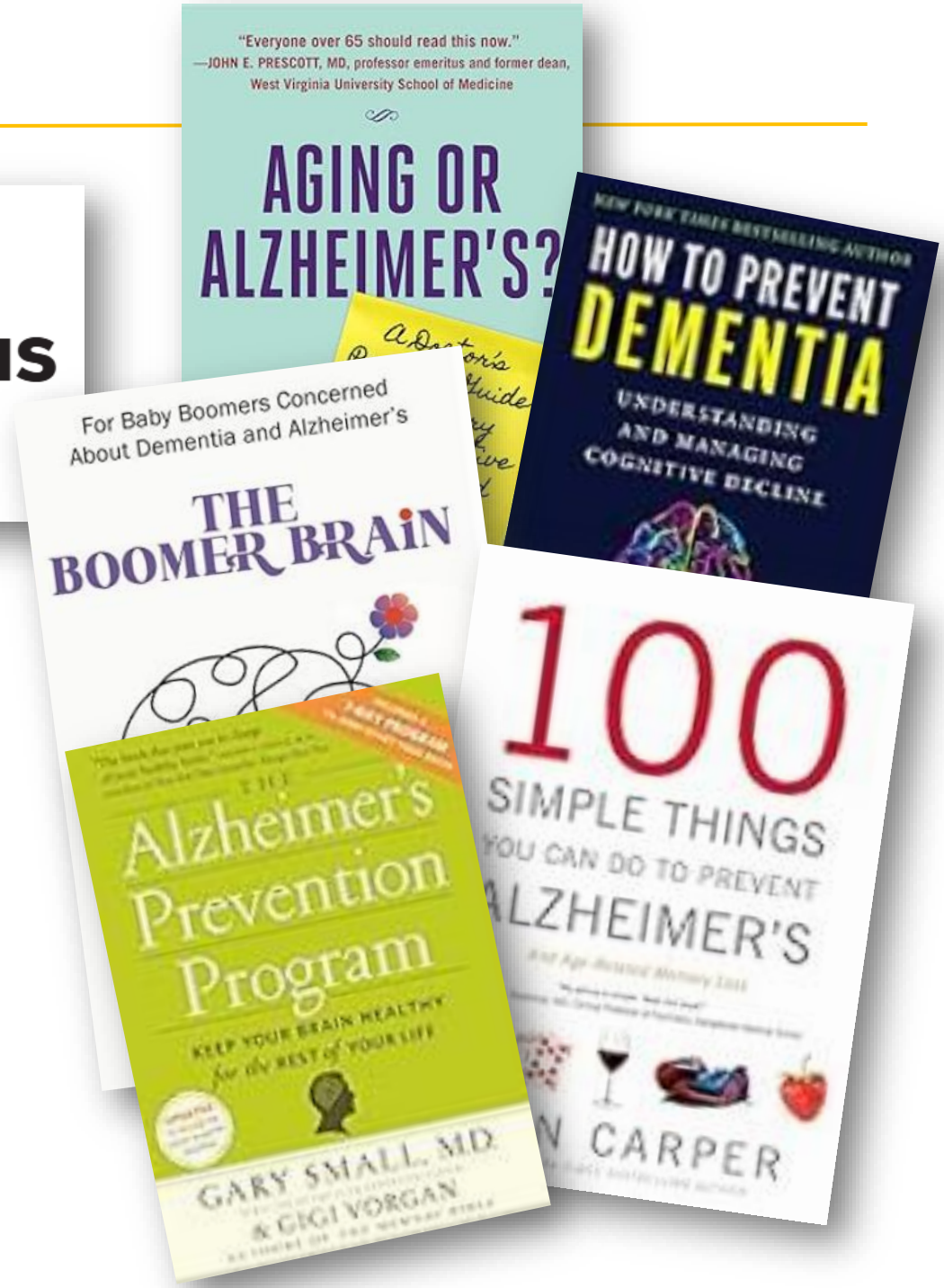




Charts sources: Statista, 2024. Federal Reserve, 2024.

BRAIN HEALTH: GROWING CONCERN

Baby boomers face greater cognitive decline than previous generations



The prevalence of Alzheimer's disease (AD) in baby boomers is expected to increase from 1.2% in 2020 to **50.1%** in 2050 (Journals of Gerontology, 2020)

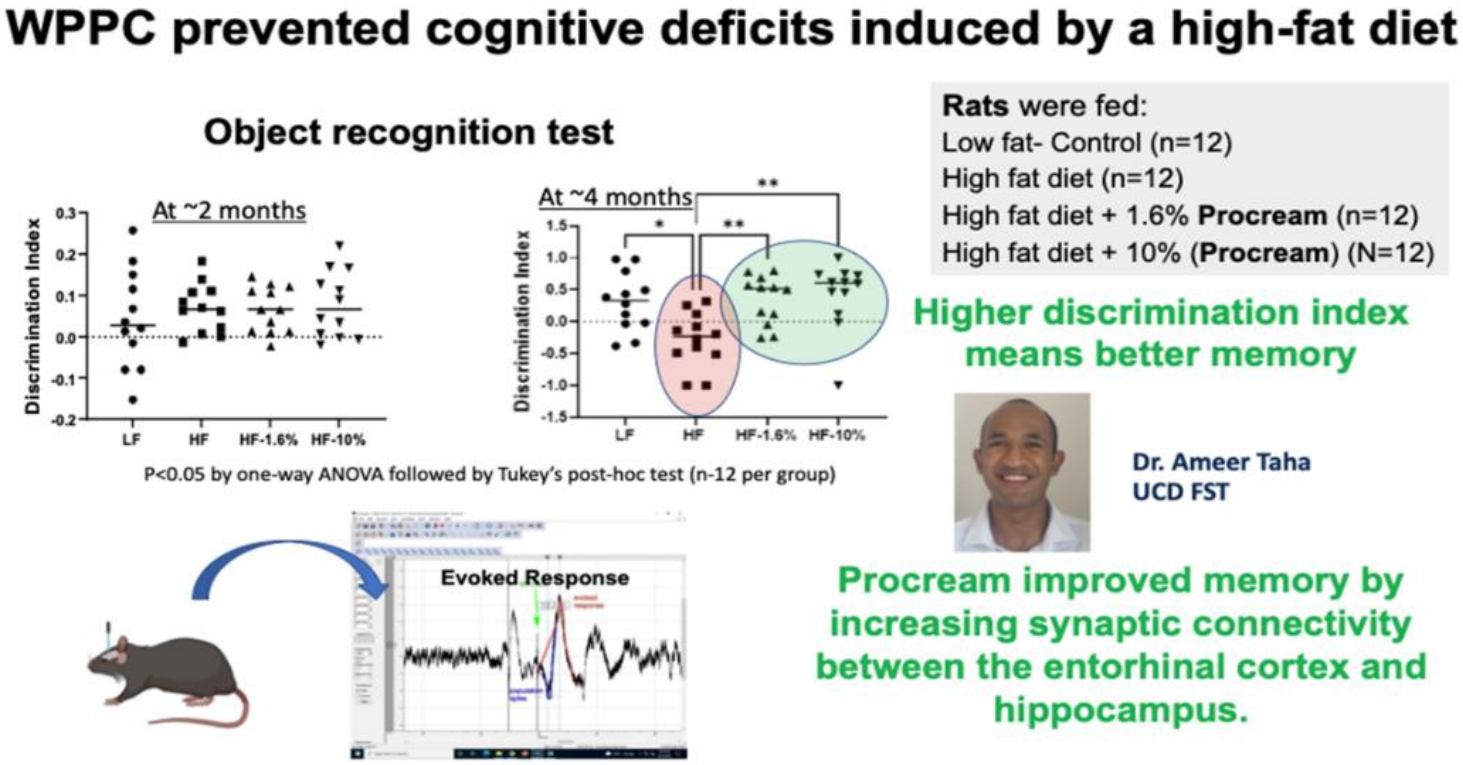
More than **28 million baby boomers** will develop Alzheimer's disease between now and midcentury. (Alzheimer's Association, 2024)

The potential for developing dementia like Alzheimer's disease is a major concern for many Boomers, driving their interest in preventative measures.
Focus on boomers, mental wellness ($24.1 billion market) (DMI, 2024)

MILK FAT FOR COGNITIVE DEVELOPMENT, MEMORY

Recent studies conducted at UC Davis indicate a component from milk fat helps **prevent cognitive loss**; improve memory storage and retrieval.

(Study funded by CDRF, National Dairy Council)



ALZHEIMER'S ASSOCIATION

DAIRY MANAGEMENT INC.™

Mental Health & Wellness

EMERGING SCIENCE SHOWS NEW BENEFITS FOR MFGM FROM MILK, BUTTERMILK (butter-co product)

Opportunities to further develop products for brain health, with MFGM (from butter and AMF production)

DMI DAIRY MANAGEMENT INC.™

What is the next hot trend?

WORKING WITH ACADEMIA, STUDENT TEAMS

FROM STUDENT TO ENTREPRENEUR…

COTTAGE CHEESE ICE CREAM

FRESNO STATE. DMI DAIRY MANAGEMENT INC.™

Cottage Core is a high-protein premium cottage cheese based frozen dessert for individuals looking to relax and reset after a long day. Made predominantly with dairy ingredients including heavy cream, Cottage cheese, whole milk, skim milk powder and an α-lactalbumin enriched whey protein concentrate (WPC), Cottage Core provides 10g of dairy protein per serving. With ingredients like the specialty WPC which has a higher level of tryptophan and natural tart cherry jam, Cottage Core is well positioned to provide the desired calming benefits to the consumer.

Gen Z-driven innovation, partnerships

FROZEN DESSERTS for BODY BUILDERS

FROZEN DESSERTS with MFGM for BRAIN HEALTH

HYDRATION ELECTROLYTE BEVERAGE
"MOO-VE"
Permeate-based beverage

WORKING WITH STUDENT TEAMS

Gen Z-driven innovation, partnerships

FROZEN DESSERTS with 10-25% ALCOHOL

MILK ELECTROLYTES FROZEN DESSERTS for SPORTS (& for HANGOVERS!)

FROM STUDENT TO ENTREPRENEUR

Gen Z-driven innovation, partnerships

LF FREE GELATOS with LOCAL INGREDIENTS

CONSIDER CMAB **INCUBATOR**, EXCELERATOR PROGRAMS

INCUBATOR: Funding for Feasibility studies, formulation development, prototyping, consumer studies
Also **PACKAGING** Innovation

Apply in 2026!

Events & Short Courses 2025

CALIFORNIA DAIRY INNOVATION CENTER

REAL CALIFORNIA MILK

NEW

DAIRY 201: TECHNOLOGY & REGULATIONS

MAY 1

Novato, CA

1 day, lectures and tastings covering dairy innovations, regulations, and quality control. Free to CA processors & suppliers. Program and registration at: **www.cdic.net**

NEW

R&D BEST PRACTICES

AUG 19-21

Cal Poly San Luis Obispo, Dairy Products Technology Center, CA.

2.5 days, lectures & hands-on activities highlighting best practices for innovation and new product development. Program and registration coming soon!

NEW

EXPLORING COOKING & ACID-SET CHEESES

OCT 7-8

Cal Poly San Luis Obispo, Dairy Products Technology Center, CA.

2 days, hands-on cheesemaking and culinary applications. Program and registration coming soon!

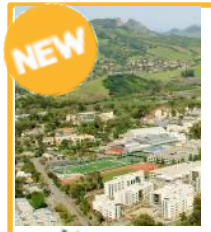
NEW

FROZEN DESSERTS: 100% HANDS-ON INNOVATION

MAY 20-21

Cal Poly San Luis Obispo, Dairy Products Technology Center, CA.

2 days, formulations, hands-on demos, and pilot plant prototyping of innovative products. Program and registration at **www.cdic.net**



NEW

MILK PRODUCTION, PROCESS & MARKETING

AUG 21-22

Cal Poly Pomona, CA.

2 days, intensive course covering essentials of milk production , processing, and marketing.
Program & registration coming soon!

THARP & YOUNG "ON ICE CREAM"

NOV 12-14

Chapman University, Orange, CA.

3-day technical workshop for all things ice cream and frozen novelties. In collaboration with Chapman University & CDIC. Program and registration coming soon!

ARTISANAL CHEESEMAKING

JUNE 17-18

Cal Poly San Luis Obispo, Dairy Products Technology Center, CA.

2 days, lectures & hands-on, culinary applications. Optional pasteurization license review with Q&A. Program coming soon!

NEW

DAIRY 301: ADVANCED UNIT OPERATIONS/FILTRATION

SEP 11

Fresno State University, Fresno, CA

1 day, Focus on systems, membrane filtration, unit operations. Program and registration coming soon!

NEW

CRAFTING THE PERFECT COFFEE CREAMER

AUG 6-7

Chapman University, Orange, CA.

1.5 days, lectures & tastings for understanding and formulating coffee creamers. Registration & program coming soon!

NEW

BUTTERMAKING & MILK FAT FUNDAMENTALS

SEP 24

Cal Poly San Luis Obispo, Dairy Products Technology Center, CA

1 day, lectures and hands-on in pilot plant. Program and registration coming soon!

Need another short course?
CDIC co-organizes trainings and workshops throughout the year to meet industry's needs. We welcome suggestions and recommendations for future topics. Contact CDIC for more info: vlagrange@cmab.net or twagoner@cmab.net

USDA

PACIFIC COAST COALITION

DMI DAIRY MANAGEMENT INC.

Questions and Suggestions?

Thank you!

Vlagrange@cmab.net

CALIFORNIA DAIRY INNOVATION CENTER

REAL CALIFORNIA MILK

See more at **www.cdic.net**