Jacqi Coleman
Dairy Management, Inc.

Dairy Management Inc. and the Innovation Center for U.S. Dairy

November 2023

DAIRY MANAGEMENT INC.™

DMI was created and is directed
by FARMERS for FARMERS

to build SALES and TRUST in dairy.

What we do:

- Food Safety
- Animal Welfare
- Research
- Dairy Exports
- Promotion

How we do it:
PARTNERSHIPS and COLLABORATION

Dairy Industry Organizations

Working together for the betterment of the Industry

DMI

U.S. dairy check-off to build trust and promote dairy.

NMPF NATIONAL MILK PRODUCERS FEDERATION

Lead domestic policy and regulatory related efforts, evolve and manage the FARM program

IDFA International Dairy Foods Association

Support the dairy processor working group, processor engagement & communications

USA U.S. Dairy Export Council Ingredients | Products | Global Markets

Represent the global trade interests of U.S. dairy producers, coop, processors and exporters.

GLOBAL DAIRY PLATFORM

Lead collective efforts to show dairy's contributions to global food systems, healthy diets and sustainable livelihoods.

NEWTRIENT

Reduce the environmental footprint of dairy and make it economically viable to do so. Provide on-farm assessments and technical assistance.

INNOVATION CENTER FOR U.S. DAIRY HEALTHY PEOPLE • HEALTHY PRODUCTS • HEALTHY PLANET

Unite the dairy value chain to build a healthy and sustainable future for the dairy community

Innovation Center for U.S. Dairy

27 BOARD COMPANIES

520+ ENGAGED MEMBERS

INNOVATION CENTER FOR U.S. DAIRY
HEALTHY PEOPLE • HEALTHY PRODUCTS • HEALTHY PLANET

A future where U.S. dairy unlocks transformative good for people and planet

Advance Well-being

Deliver dairy nutrition that meets emerging and personalized health needs

- Enhance nutrition security
- Benefit the body

Regenerate the Environment

Optimize dairy solutions that enhance natural resources and ecosystems

- Achieve GHG neutrality
- Improve ecosystem health
- Accelerate the circular economy

Care for Our Animals and Communities

Ensure healthy animals, a vibrant workforce and safe, high-quality dairy foods

- Provide exceptional care for our cows
- Empower our people and communities
- Ensure excellence in food safety and traceability

U.S. Dairy's Environmental Sustainability Commitment

U.S. Dairy's Environmental Goals

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

- Achieve **greenhouse gas (GHG) neutrality**
- **Optimize water use** while maximizing recycling
- **Improve water quality** by optimizing utilization of manure and nutrients

Strategies to Reach our **2050 Goals**

FOR FIELD AND FARM

U.S. Dairy Net Zero Initiative (NZI)

A collaboration of dairy organizations to advance research, on-farm pilots and new market development to make sustainability practices more accessible and affordable to farms of all sizes.

FEED | ENTERIC METHANE | MANURE | ENERGY

FOR PROCESSORS

Processor Working Group (PWG)

A working group of more than 60 participants representing over 30 processing organizations convenes regularly and engages in facility-focused workstreams.

GHG | CIRCULARITY | WATER

NZI Collaborating Partners

NZI is comprehensive and collaborative. Partners bring expertise, leadership and financial support to strengthen the plan and accelerate action leading to results.

More than $40 million in external support from corporate partners and granting agencie

DAIRY NATIONAL LEADERSHIP
and member constituents

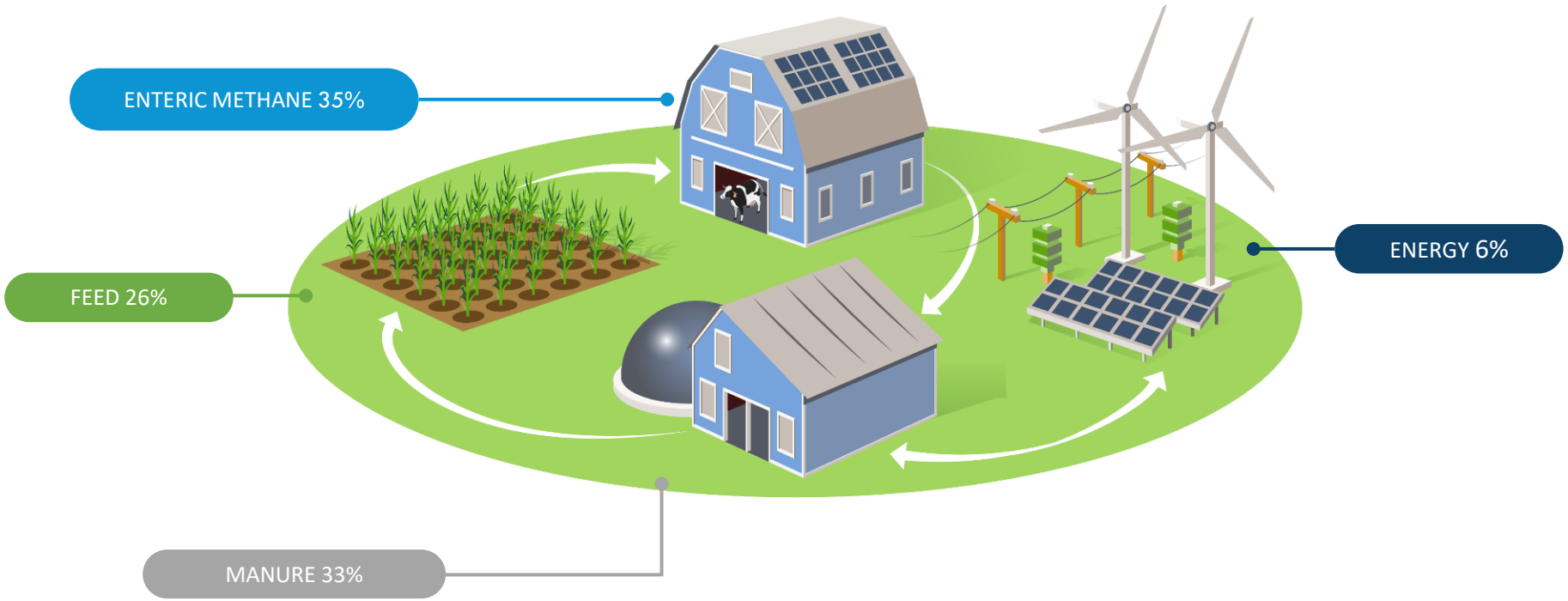
CORPORATE AND FUNDING PARTNERS

NGO PARTNERS

RESEARCH PARTNERS

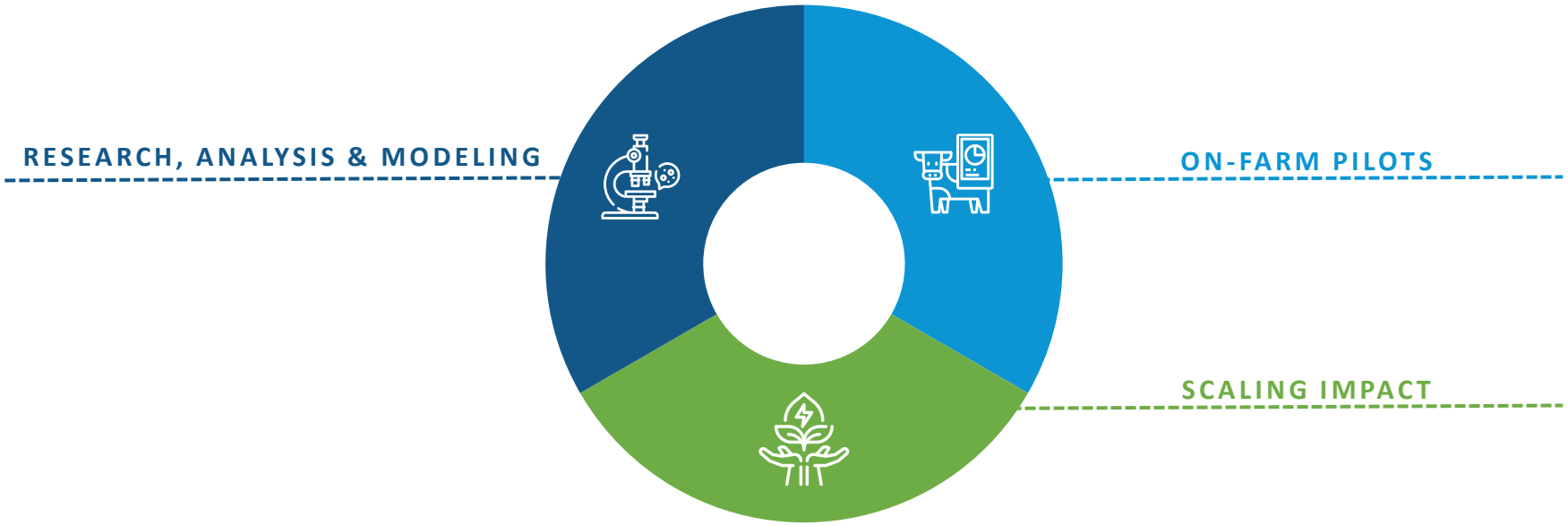
PROJECT PARTNERS

Dairy's Environmental Footprint (GHG)



* Adapted from Thoma 2013, Regional Analysis of greenhouse gas emissions from USA dairy farms.

NZI Core Tracks




NET ZERO
The Greener Cattle Initiative
10 Partners, 5-year program
Grants totaling $7.25 million to date
FOUNDATION FOR FOOD & AGRICULTURE RESEARCH
Genus
INNOVATION CENTER FOR U.S. DAIRY
HEALTHY PEOPLE • HEALTHY PRODUCTS • HEALTHY PLANET
Nestlé
ADM
CDCB
COUNCIL ON DAIRY CATTLE BREEDING
NATIONAL DHIA
Global Methane Hub
JBS
Elanco
NEW ZEALAND AGRICULTURAL GREENHOUSE GAS Research Centre

Greener Cattle Initiative **2023 Awardees**

Distinguished Professor of Dairy Nutrition Dr. Alexander N. Hristov

The project aims to develop feed additive options, from proven inhibitors, that will deliver the greatest mitigation potential that is practical for producers.

Dr. Roderick Mackie, professor in the Department of Animal Sciences

Study how diets and different additives affect hydrogen production in the rumen and how these changes in hydrogen dynamics affect the amount of enteric methane produced.

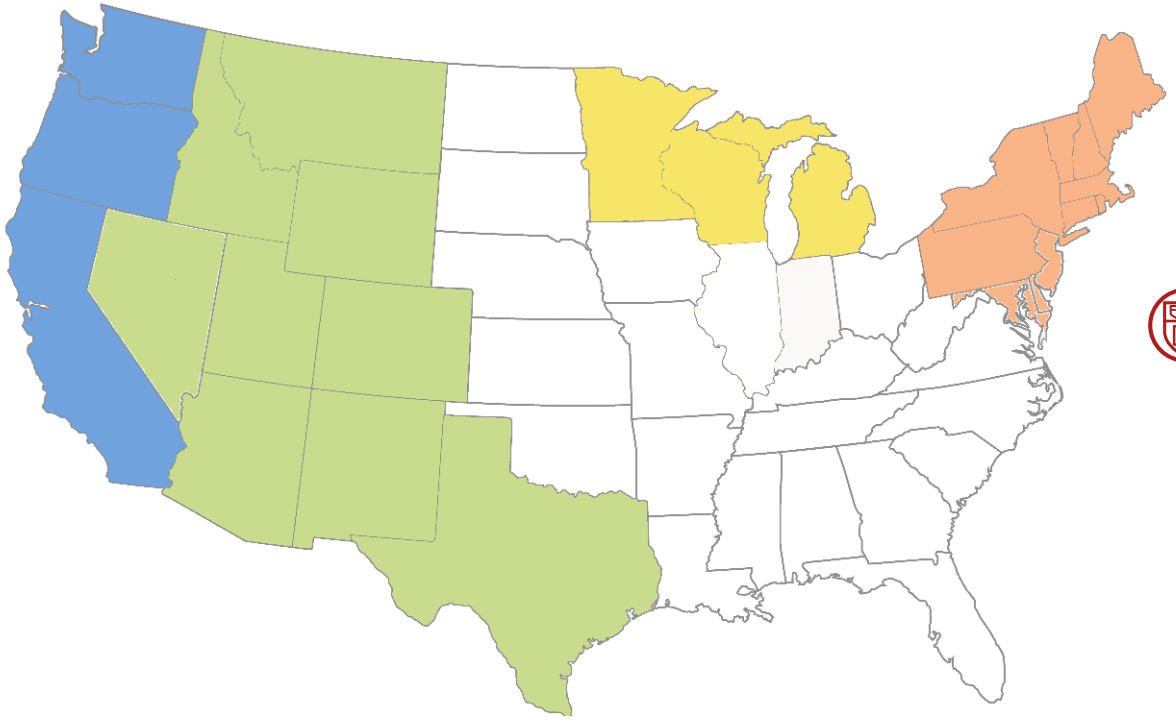
Dr. Francisco Peñagaricano, assistant professor in the Animal and Dairy Sciences Department

Research focuses on evaluating cattle genome for methane traits, including those for methane production and residual methane production.

Dairy Soil & Water Regeneration

$23+ million, 3 Funding Partners (FFAR, Nestle, Starbucks)
8 Research Partners | 12 sites | 6-year program

Building soil health to reduce greenhouse gases, improve water quality and enable new economic benefits



USDA Agricultural Research Service

Soil Health Institute
Enriching Soil, Enhancing Life

Cornell University

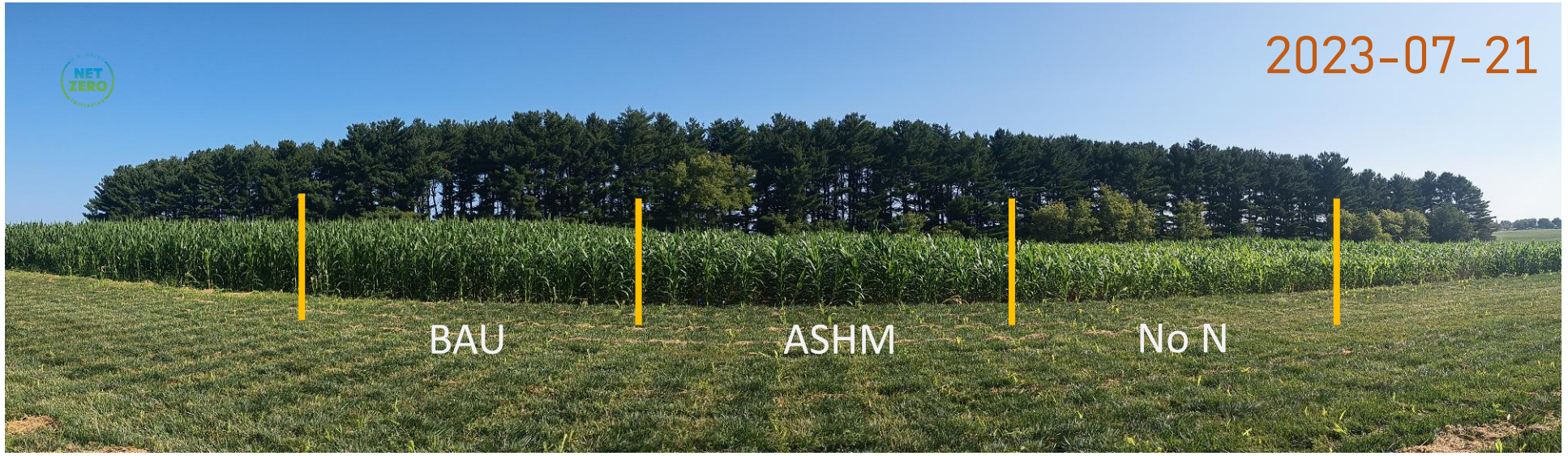
Texas A&M AgriLife Research

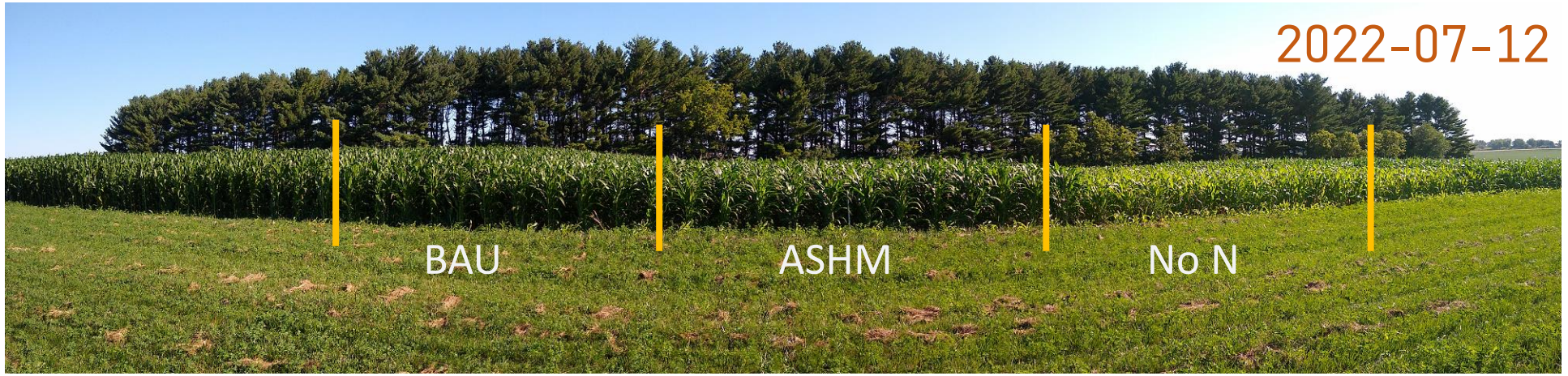
The University of Vermont

UC Davis
University of California

Wisconsin
University of Wisconsin-Madison

University of Wisconsin Platteville


2023-07-21
BAU
ASHM
No N


2022-07-12
BAU
ASHM
No N

FARM Environmental Stewardship (ES) Upgrade

Available summer 2024: Focuses on estimating a dairy farm's GHG + energy use footprints leveraging RuFas, a process-based model.

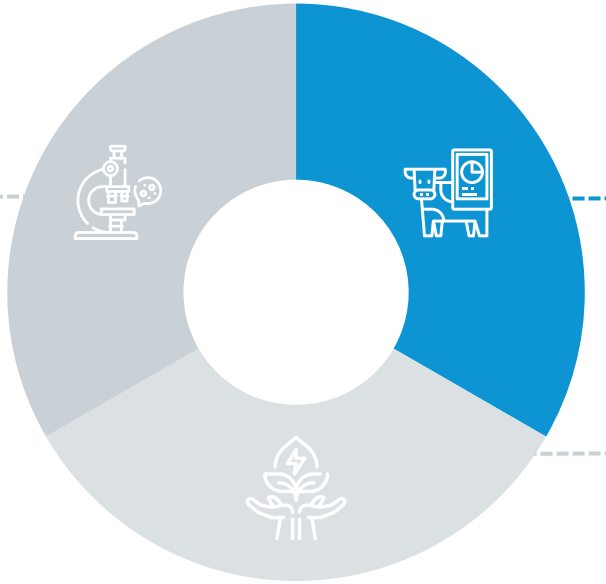
Account for physical, chemical, and biologic cycles

Provide ability to extrapolate beyond known conditions ("what-if" scenario analysis)

Generate environmental and economic analysis of multiple management scenarios

Core Tracka

NZI Core Tracks



RESEARCH, ANALYSIS & MODELING

ON-FARM PILOTS

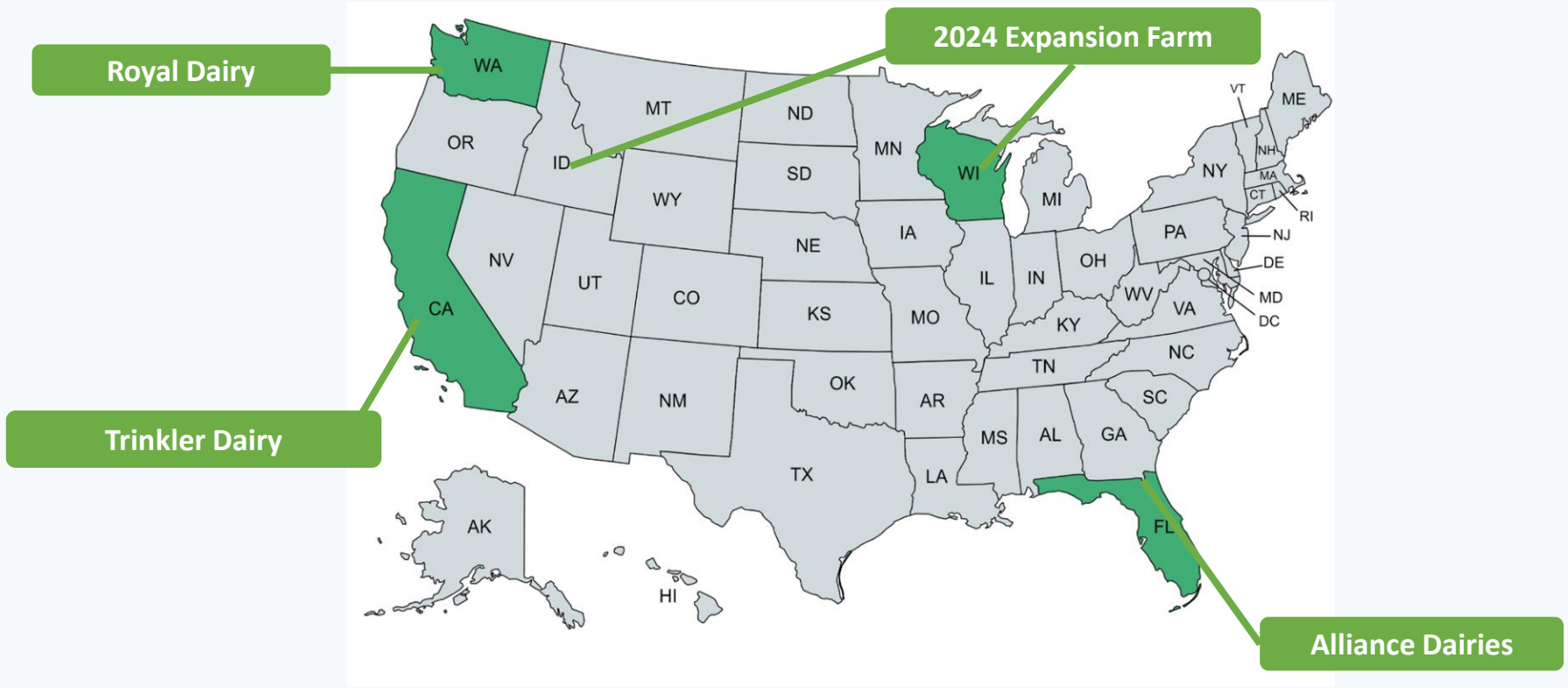
SCALING IMPACT

Dairy Scale for Good Pilot Farms

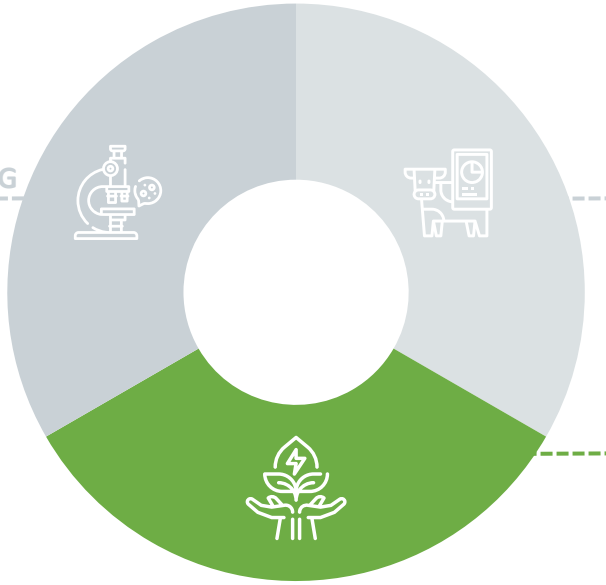
Partnering with commercially operating dairies to unlock unique opportunities tailored to each farms personalized business plan.

- Identifying, demonstrating and de-risking new sustainable practices and technologies
- Increasing on-farm profitability while reducing GHG emissions, water use and improving water quality
- Creating a financial framework that will reduce barriers to entry
- Informing the development and adoption of new opportunities in ecosystem services markets

Dairy Scale for Good Farms



NZI Core Tracks



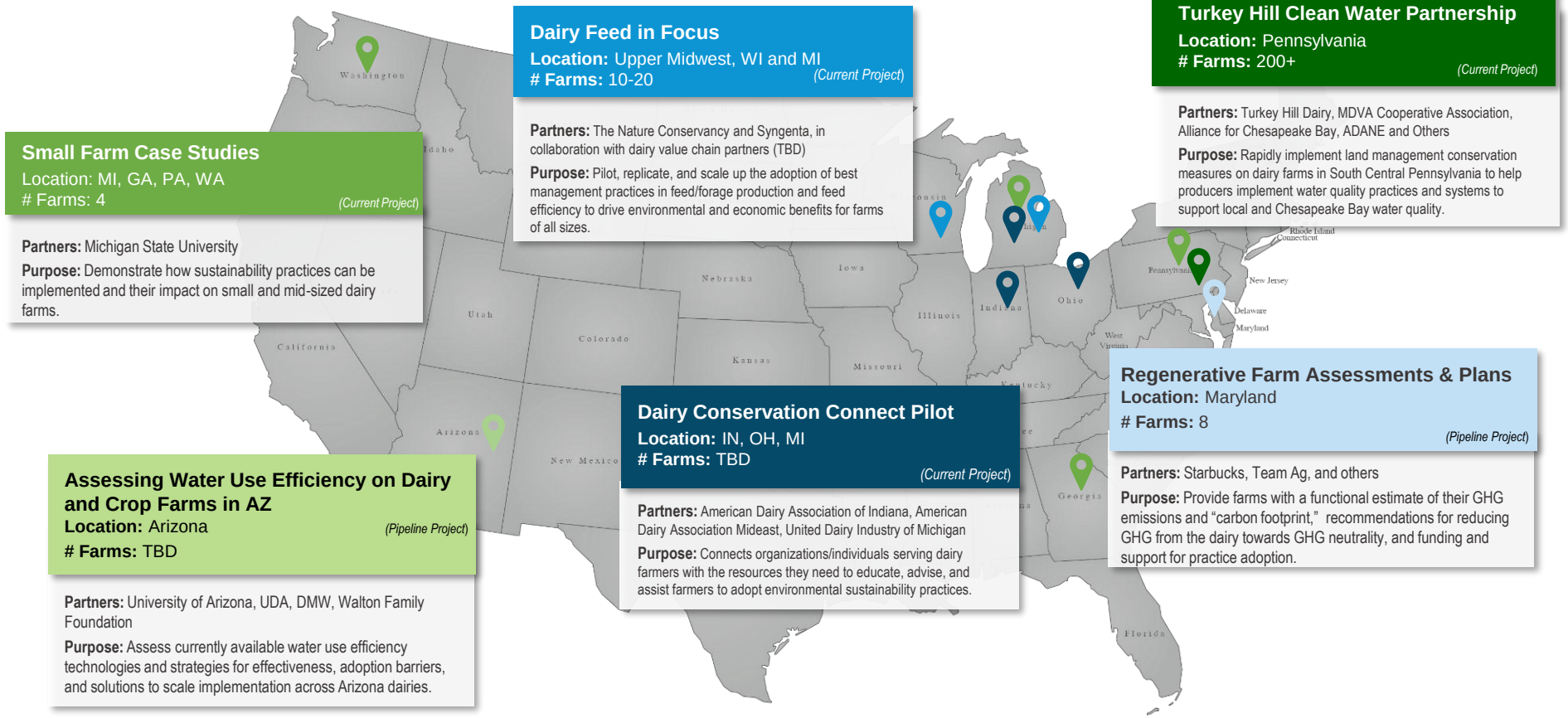
RESEARCH, ANALYSIS & MODELING

ON-FARM PILOTS

SCALING IMPACT

SCALING IMPACT

Driving Adoption Through Socialization and Shared-Learning



Small Farm Case Studies
Location: MI, GA, PA, WA
Farms: 4
(Current Project)

Partners: Michigan State University

Purpose: Demonstrate how sustainability practices can be implemented and their impact on small and mid-sized dairy farms.

Dairy Feed in Focus
Location: Upper Midwest, WI and MI
 # Farms: 10-20
(Current Project)

Partners: The Nature Conservancy and Syngenta, in collaboration with dairy value chain partners (TBD)

Purpose: Pilot, replicate, and scale up the adoption of best management practices in feed/forage production and feed efficiency to drive environmental and economic benefits for farms of all sizes.

Turkey Hill Clean Water Partnership
Location: Pennsylvania
 # Farms: 200+
(Current Project)

Partners: Turkey Hill Dairy, MDVA Cooperative Association, Alliance for Chesapeake Bay, ADANE and Others

Purpose: Rapidly implement land management conservation measures on dairy farms in South Central Pennsylvania to help producers implement water quality practices and systems to support local and Chesapeake Bay water quality.

Dairy Conservation Connect Pilot
Location: IN, OH, MI
 # Farms: TBD
(Current Project)

Partners: American Dairy Association of Indiana, American Dairy Association Mideast, United Dairy Industry of Michigan

Purpose: Connects organizations/individuals serving dairy farmers with the resources they need to educate, advise, and assist farmers to adopt environmental sustainability practices.

Regenerative Farm Assessments & Plans
Location: Maryland
 # Farms: 8
(Pipeline Project)

Partners: Starbucks, Team Ag, and others

Purpose: Provide farms with a functional estimate of their GHG emissions and "carbon footprint," recommendations for reducing GHG from the dairy towards GHG neutrality, and funding and support for practice adoption.

Assessing Water Use Efficiency on Dairy and Crop Farms in AZ
Location: Arizona
 # Farms: TBD
(Pipeline Project)

Partners: University of Arizona, UDA, DMW, Walton Family Foundation

Purpose: Assess currently available water use efficiency technologies and strategies for effectiveness, adoption barriers, and solutions to scale implementation across Arizona dairies.

SCALING IMPACT

Dairy Conservation Connect

Objective: Increase access to information about sustainable practice impacts, financial assistance and technical assistance to support progress.

2023/2024 Pilot:

AMERICAN DAIRY ASSOCIATION INDIANA INC. WinnersDrinkMilk.com

MILK MEANS MORE United Dairy Industry of Michigan

American Dairy Association MIDEAST

Outcomes:

- Conservation Navigator: directory of resources & funding opportunities
- Forum: convene organizations/agencies/individuals to connect, discuss & share
- Resource library: slide decks, videos

SCALING IMPACT

Small Farm Case Studies

Objective: Demonstrate how sustainability practices can be implemented and their impact on small and mid-sized dairy farms

Research partner: MICHIGAN STATE UNIVERSITY

Outcomes:

- Producer facing case studies and videos illustrating individual farm environmental and economic impact of sustainability practices
- Economic extrapolation
- Peer reviewed publication

SCALING IMPACT

Dairy Feed in Focus

- Pilot, replicate and scale the adoption of practices in feed/forage production and feed efficiency
- Achieve reduced GHG emissions and improved soil health and water quality
- Provide financial incentives to ensure the value returned on investment for participating farmers
- Contribute educational resources, technical support and financial incentives (with value chain partners)

NZI Progress By the Numbers

$40 million

Leveraged more than **$40 million in support** from partners and grants

26 projects

Initiated and supported **26 projects spanning 338 farms across 19 states**

66 partnerships

Partnered with more than **66 institutions** including corporations, land grant and research institutions, governmental and non-governmental organizations and other dairy community stakeholders

Achieved recognition by national and international organizations including Agriculture Innovation Mission (AIM) for Climate and US Nature 4 Climate

94 presentations

Led 94 presentations for national and international webinars, panels and forums

238 articles

Appeared in 238 articles highlighting accomplishments through coverage in Forbes, USA Today, National Public Radio and more

Strategies to Reach our **2050 Goals**

FOR FIELD AND FARM

U.S. Dairy Net Zero Initiative (NZI)

A collaboration of dairy organizations to advance research, on-farm pilots and new market development to make sustainability practices more accessible and affordable to farms of all sizes.

FEED | ENTERIC METHANE | MANURE | ENERGY

FOR PROCESSORS

Processor Working Group (PWG)

A working group of more than 60 participants representing over 30 processing organizations convenes regularly and engages in facility-focused workstreams.

GHG | CIRCULARITY | WATER

Processor Working Group Sub-Teams

Circularity

Water

GHG

Processor Working Group 2022-2023 Highlights

Circularity

- Dairy Processor Waste Audit Guidance
- Defining circularity scope and context in dairy processing
- Baseline Packaging Metrics

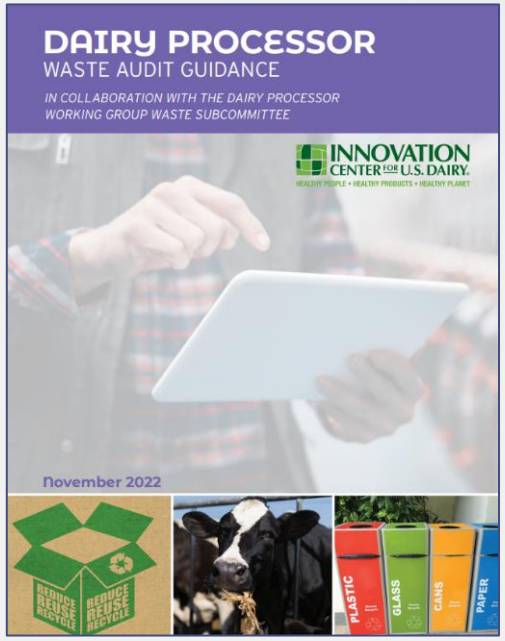
Water

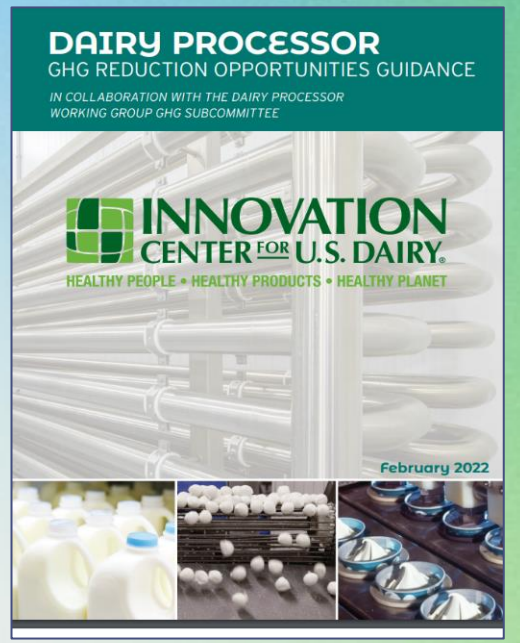
- Globally Aligned Water Metrics
- Developed Dairy Processing Water Definitions and Reuse Opportunities Guidance

GHG

- GHG Reduction Opportunities Guidance Document
- GHG reduction success stories and best practices

Processor Resources



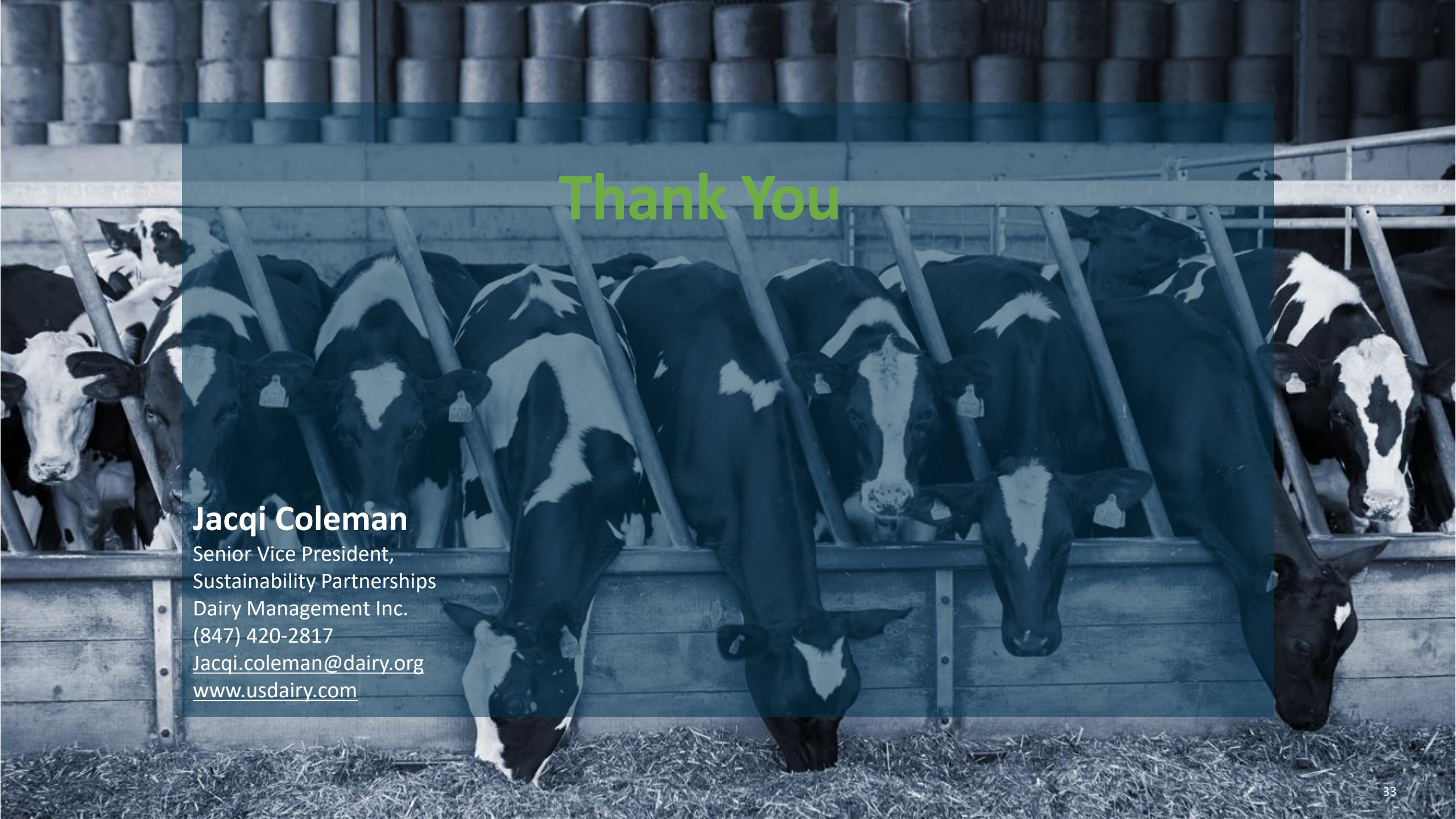


Available for free at: usdairy.com/research-resources

What Success Looks Like

Reimagine dairy's role in sustainable food systems and circular economies

- Progress across large and diverse U.S. dairy industry – including 28,000 farms
- Reach GHG neutrality and significant improvements in water use and quality
- Enable other industries and communities to be more sustainable through innovation in bio-based products, resource efficiency and regeneration
- Realization of untapped value on-farm to create new revenue sources for farmers
- Be a catalyst for broader change



Thank You

Jacqi Coleman
Senior Vice President,
Sustainability Partnerships
Dairy Management Inc.
(847) 420-2817
Jacqi.coleman@dairy.org
www.usdairy.com