SESSION FIVE:
Sustainable Innovation and New Market Opportunities

Round Table Meeting January 2024

Please remember to follow Chatham House Rule.

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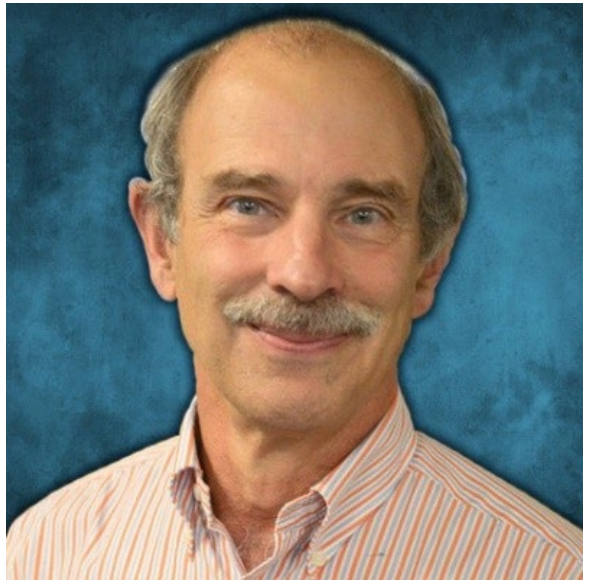

Moderator
Urban Lehner

Vice President Editorial Emeritus
DTN/Progressive Farmer

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Alexia Akbay
Chief Executive Officer
Symbrosia

Ray Gaesser
Owner
Gaesser Farms

Dr. Michelle Starke
Director, Stewardship & Regulatory Affairs
CoverCress, Inc.

Tamara Muruetagoiena
Vice President, Sustainability
International Fresh Produce Association (IFPA)

Alexia Akbay

Chief Executive Officer
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Farm Foundation | January 2024

Alexia Akbay
alexia@symbrosia.co

Agenda

- Symbrosia Intro
- Aquaculture Market + Innovation
- Carbon Crediting Process + Data
- Regulatory Landscape

34% of companies have made a public commitment to become carbon neutral

Accenture, 2022.

Enteric methane is not the problem. It’s the farmer’s golden opportunity.

21% of diet-deprived energy is **lost to methane production.**

Enteric methane is not the problem. It's the farmer's golden opportunity.

21% of diet-deprived energy is **lost to methane production.**

The solution is here and we call it...

THE OPPORTUNITY IS HERE

SeaGraze™ reduces methane by 85%

While optimizing dietary energy use

Early adopters leading the way . . .

Largest Organic Co-op in US

First Carbon Neutral Dairy

20% of Global Yogurt Market

70% of Brazil Cattle Market

Top 10 Cow-Calf Operation in US

Consumer Insights

- Willingness to pay (WTP) for low emission products similar to that of organic products
- Knowledge of product increases WTP
- There is a preferred market for low emission products: 43.6% (primed) and 28.5% (unprimed)

Symbrosia WTP Survey 2023, 500 participants.

In target markets, SeaGraze™ will at least pay for itself

Annual economics of feeding SeaGraze™ (per cow) on a California organic dairy

SeaGraze™
Assumes 0.1% inclusion at 25 kg dry matter intake

Feed cost savings
From 10% feed conversion ratio improvements

Carbon credit payment
From 80% methane reductions, assumes a price of $50 per ton

Premium from low emissions milk
Assumes a 10% premium for SeaGraze™-fed milk

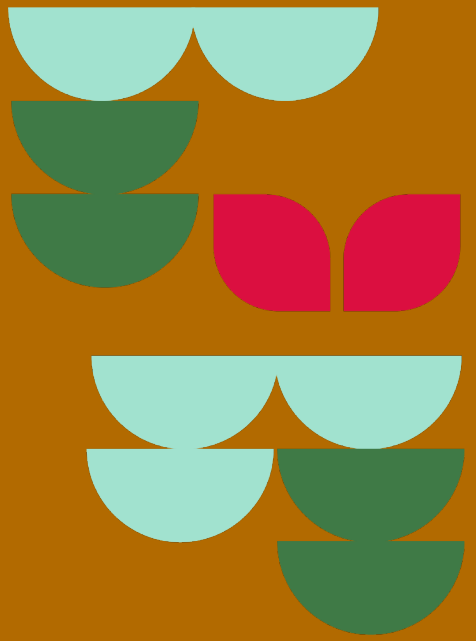
Symbrosia's Mission

1 million cows on SeaGraze™

by 2030

Develop world-leading seaweed tech in the process

Aquaculture is the breeding, rearing, and harvesting of fish, shellfish, algae and other aquatic organisms.



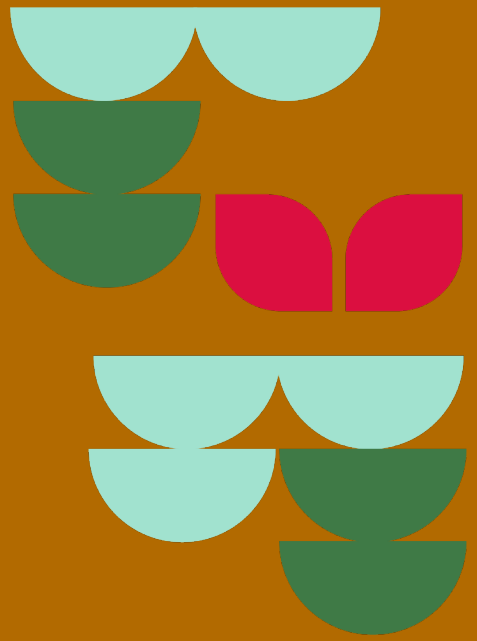
Seaweed

8% CAGR through 2030

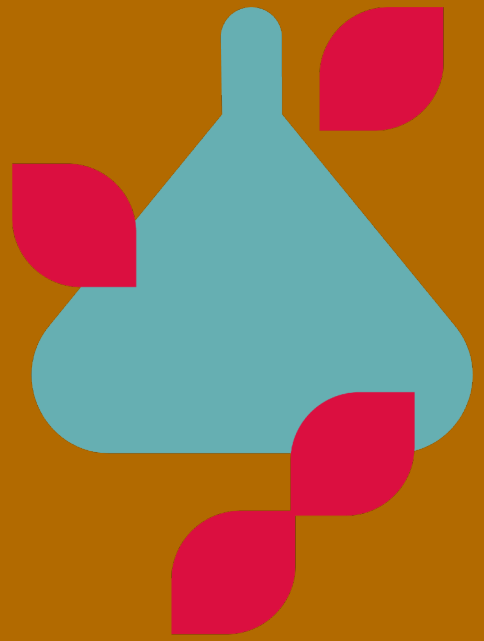
Largest Market: Asia

Fastest Growing Market: North America

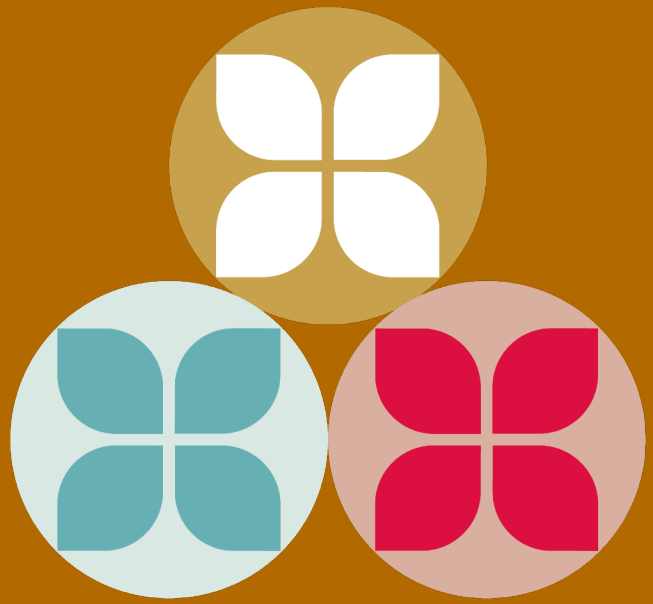
Lessons from terrestrial crops



500+ Strain Bank
Patented strain used for contract manufacturing
Granted: 17/300,781



Microbial fertilizer for seaweed
Boost yield and resilience
Provisional: 63/516,149



Biological sensor for seaweed estimation
Enables farm automation
Provisional in preparation

Agricultural carbon markets are developing rapidly, and companies are lining up to purchase carbon credits. This gives producers new avenues for profitability.

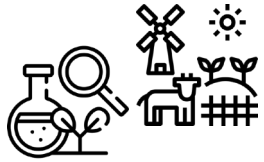
What is a Carbon Credit?

Represents the removal or avoidance of 1 ton of CO_2 or equivalent greenhouse gas from the atmosphere.

PROCESS FOR GENERATING
AGRICULTURAL CARBON CREDITS

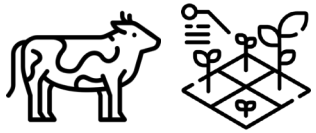
1. Producers enroll in carbon offset program

2. Baseline is established



3. Producer shifts to carbon farming practices

4. Management data is gathered



5. Model processes data to quantify GHG abatement

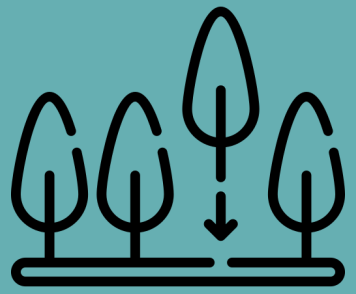
6. Offsets are verified and validated

7. Offsets are sold

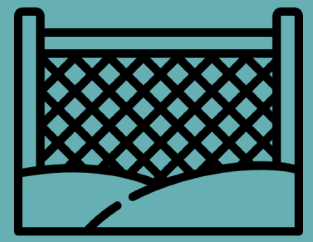
8. Producer receives payment

Practices that generate carbon credits

Feeding additives to reduce enteric methane



Afforestation of pasture and creation of conservation buffers



Grazing management e.g. rotational grazing

Planting of improved grass species

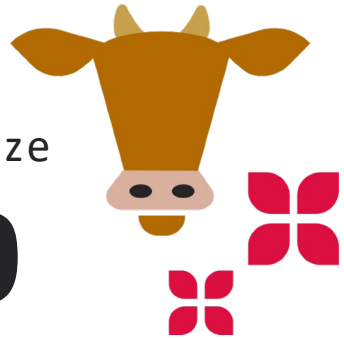
How much could I earn annually from selling carbon credits?

1,000 acres of rotational grazing

$24,000

1,000 cattle on SeaGraze

$57,000



Carbon Credit demand will only continue to increase, driven largely by consumer and investor pressure on companies.

KEY CONSIDERATIONS FOR PICKING A CARBON PROGRAM

1. Certified credits retain value over non-certified
2. Clear understanding of data management requirements
3. Form and timing of the payment

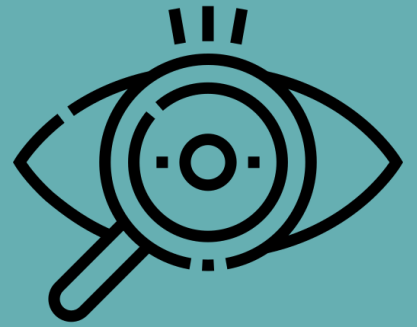
Carbon certifiers ensure that each project can claim

ADDITIONALITY
Prove that activities would not have occurred without carbon financing

PERMANENCE
Changes to the carbon stock represent a permanent change

CONSERVATIVE
Use of conservative assumptions, values, and procedures

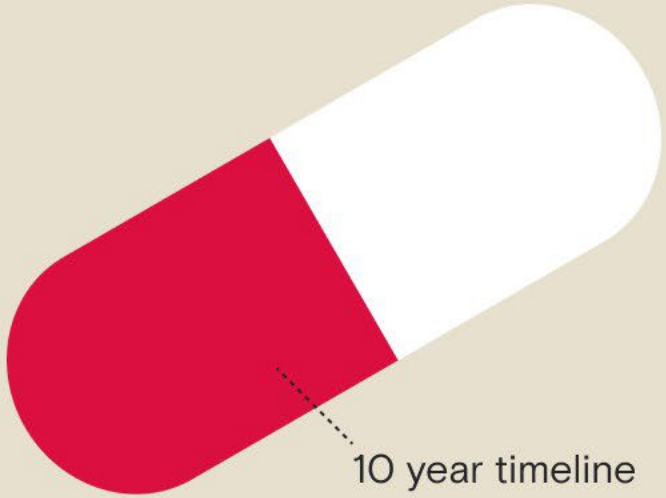
RELEVANCE
Data, methods, and criteria are appropriate for the project



TRANSPARENCY
Clear and consistent information for buyers

Symbrosia walks partners through the certification process and ensures payment goes directly to the producer.

Under the Innovative FEED Act, the FDA will stop treating SeaGraze™ like a pill...



...and start treating it as a plant

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CoverCress®: A New Renewable Fuel Feedstock

Farm Foundation Round Table
January 19, 2024

Why are Renewable Fuel Feedstocks Needed?

Global Climate Policy is About Driving Down Greenhouse Gas Emissions

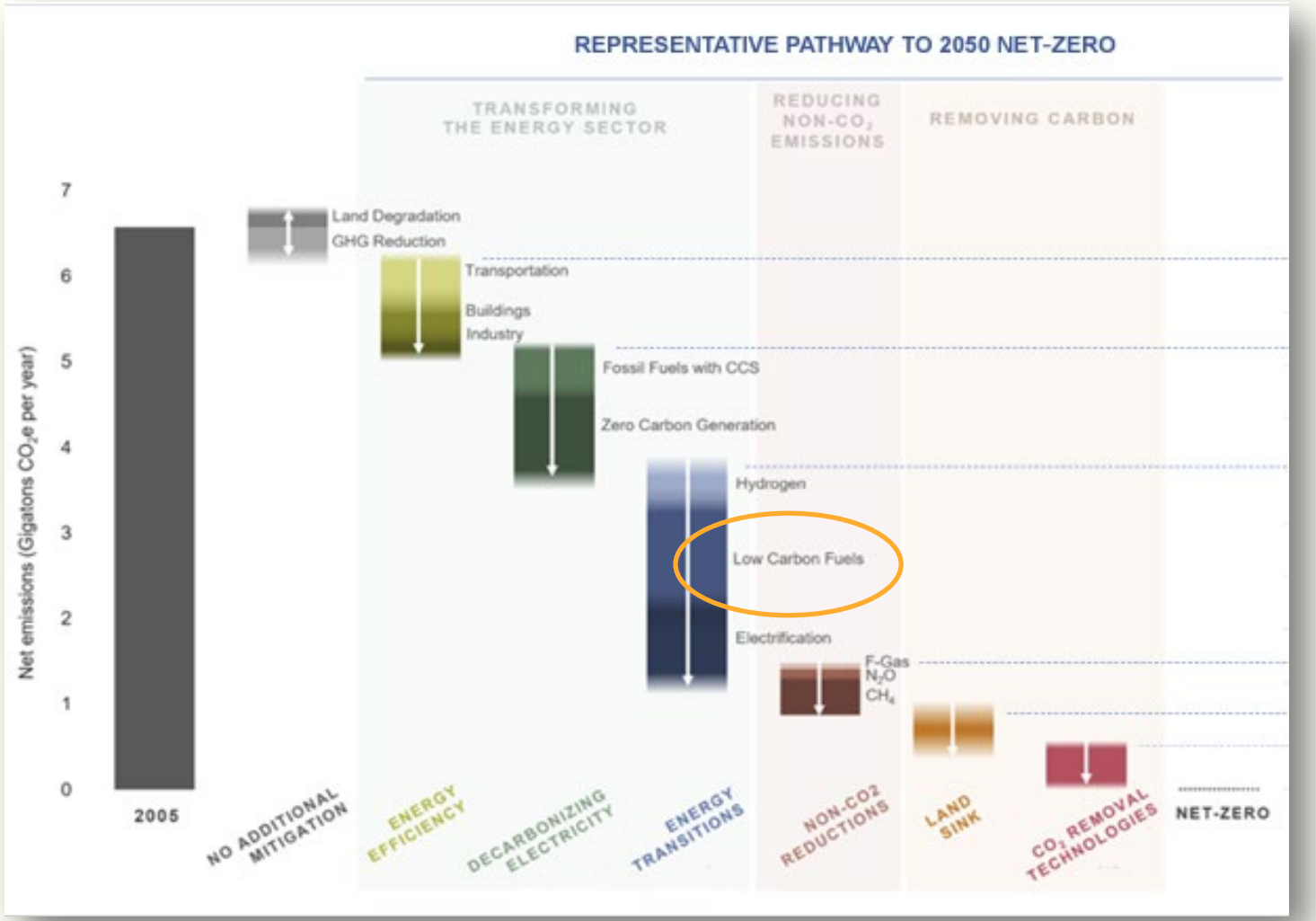

Figure ES-2: Emissions Reductions Pathways to Achieve 2050 Net-Zero Emissions in the United States.

https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf

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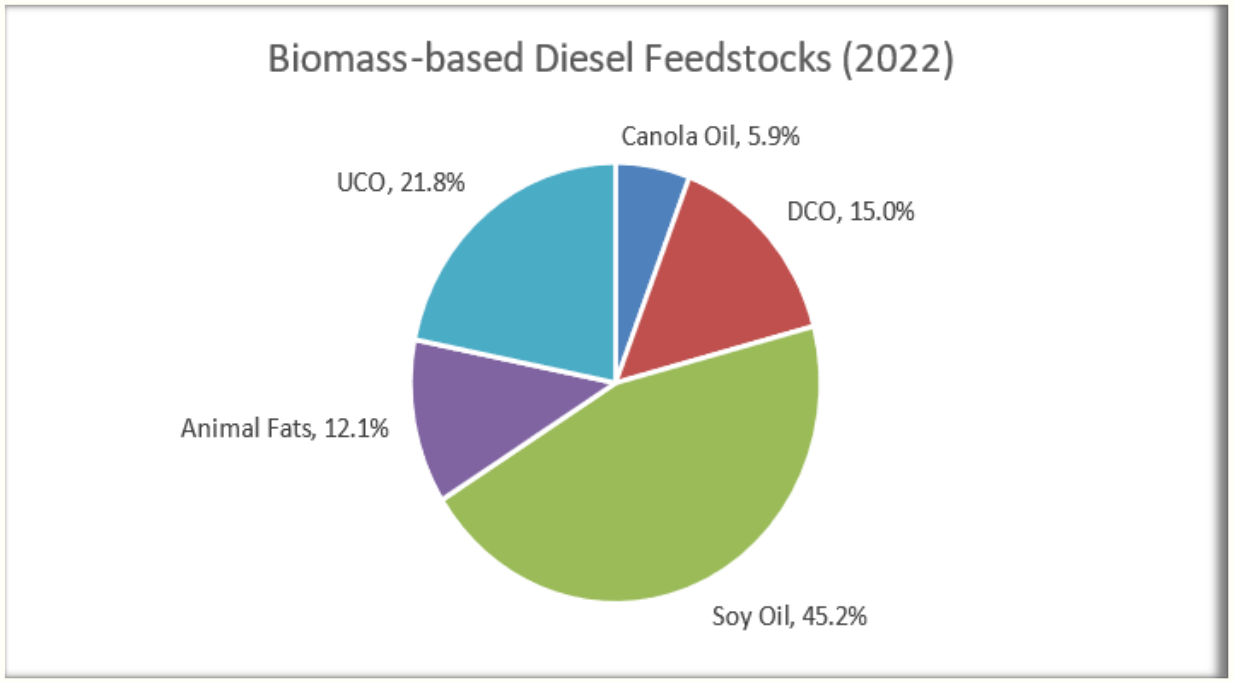
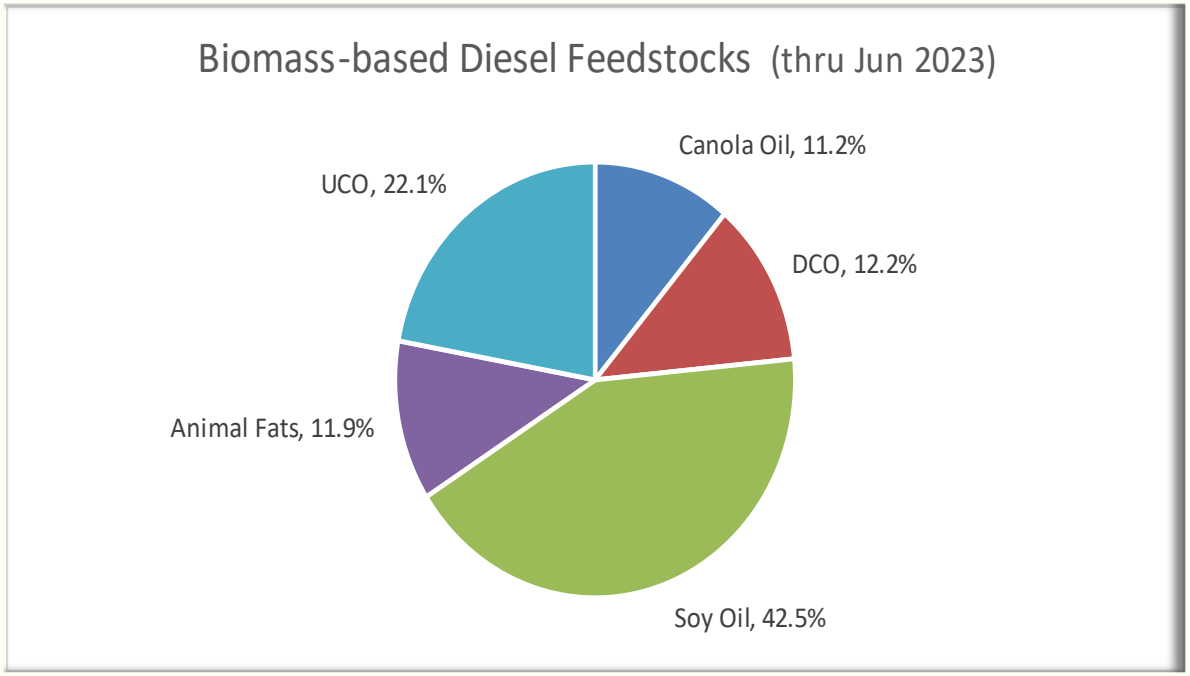
Vegetable Oil Feedstocks Represent More Than 50% of the Feedstock Use in the US

Feedstocks with lower carbon intensity values are increasing in use



23.27 billion lbs.



14.29 billion lbs. to date

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U.S. Energy Information Administration | Monthly Biofuels Capacity and Feedstocks Update June 2023

Renewable Fuel Standard Targets Are Increasing

- RFS's renewable volume obligations for advanced biofuels (D-5) are expanded from 5.6 billion gallons to 7.35 billion gallons by 2025
- EPA continues to note a limitation of available feedstocks
- Most of the feedstock inputs to produce renewable fuels in the U.S. come from soybean oil → If we are going to have a sustainable supply of feedstock inputs, we need new oilseed sources grown on existing acres
- By 2030, CoverCress commercial scale potential is ~300 million gallons, or about 5% of the current D-5 volume target
- ***CoverCress can become a significant contributor to the growing demand for renewable fuels while not reducing food production***

Volume Targets (billion RINs)[a]

	2023	2024	2025
Cellulosic biofuel	0.84	1.09	1.38
Biomass-based diesel[b]	2.82	3.04	3.35
Advanced biofuel	5.94	6.54	7.33
Renewable fuel	20.94	21.54	22.33
Supplemental standard	0.25	n/a	n/a

[a] One RIN is equivalent to one ethanol-equivalent gallon of renewable fuel.
[b] BBD is given in billion gallons.

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CoverCress® Is A Novel Winter Oilseed Crop

CoverCress acts as a functional cover crop with additional economic benefits

CoverCress

Pennycress domestication process is similar to canola

With use of gene editing technology, the domestication process has been faster

CoverCress

Native Species	Product Development	Domesticated Crop

Rapeseed

Brassica family
Tetraploid genome
19 chromosomes
925 Mb

> Six decades of coordinated work by thousands of breeders and crop scientists in Canada and Europe

Breeding Agronomy

48% oil
22% protein

Canola

Key Traits/Attributes:

Compositional
- Low erucic acid
- Low glucosinolates

Agronomic
- Reduced dormancy
- Reduced pod shatter
- Improved germination
- Optimized maturity
- Disease resistance
- Herbicide tolerance

Pennycress

Brassica family
Diploid genome
7 chromosomes
500 Mb

> Nine years of joint effort by dozens of researchers at CCI and a few Midwestern universities supported by USDA

Breeding Agronomy Gene Editing

32% oil
30% protein

CoverCress™

Key Traits/Attributes:

Compositional
- Low erucic acid
- Low glucosinolates
- Low fiber → golden seed color

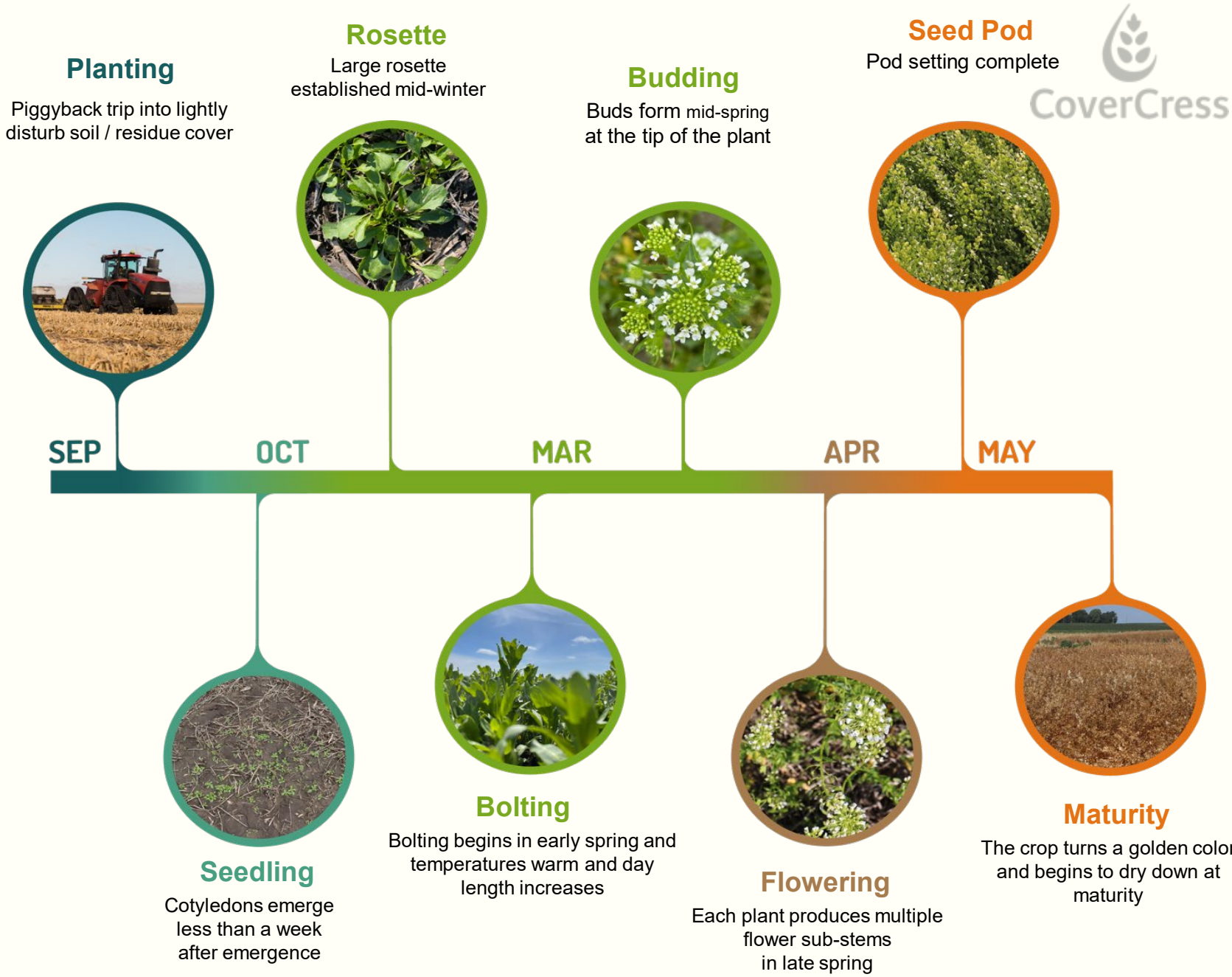
Agronomic
- Minimal dormancy
- Improved germination
- Reduced pod shatter
- Optimized maturity
- Disease resistance
- Stem strength

Production takes place during a fallow period and uses existing equipment

Valuable Sustainability Benefits

Carbon Sequestration & Carbon Mitigation

Ecosystem Benefits of a Cover Crop



Maximizing Sustainability Benefits: New Oil Feedstock for Renewable Fuels and High Protein Meal for Animal Feed

Oil used for renewable fuel production

Meal co-product has significant potential in animal feed and would be like canola meal in animal diets

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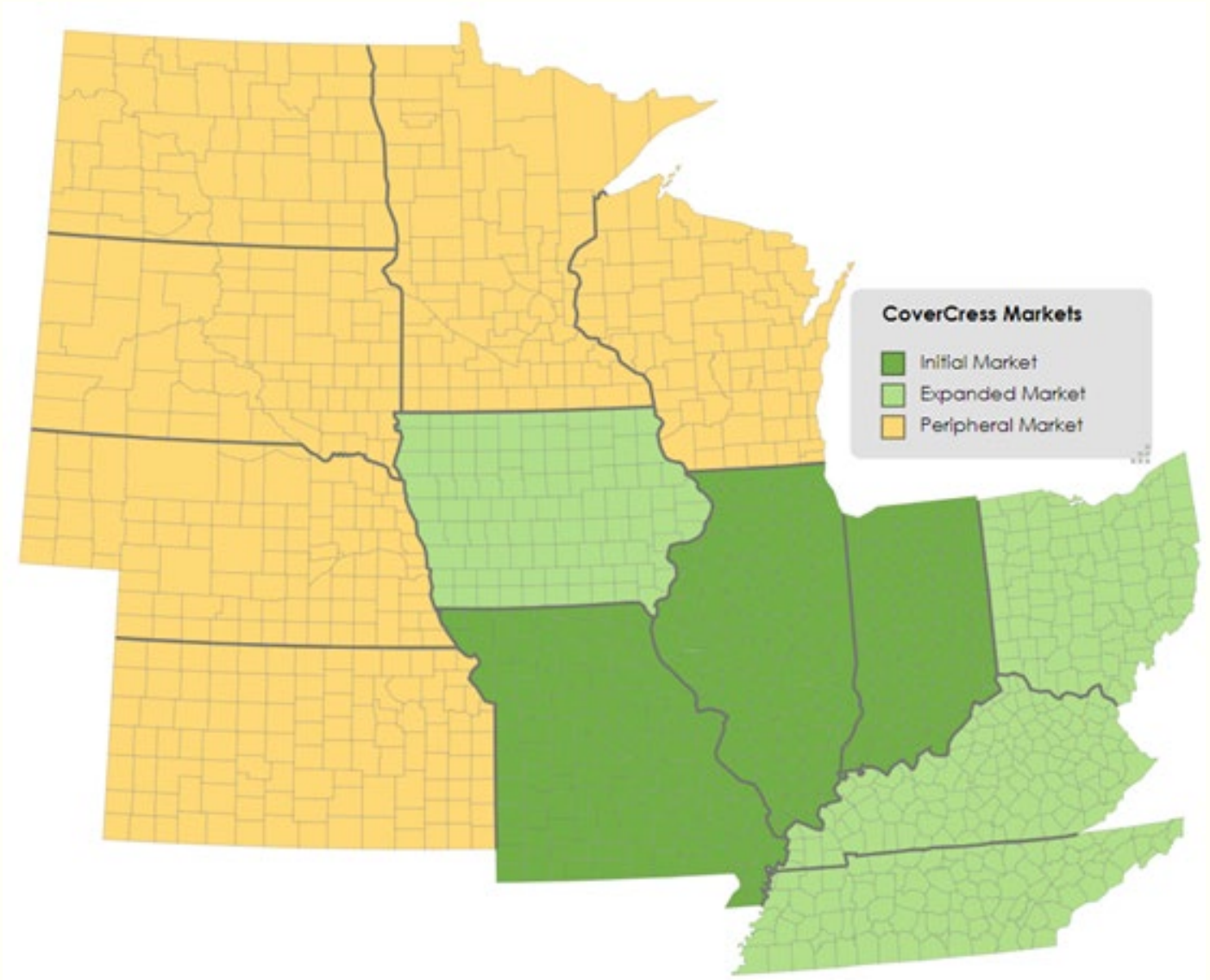
Millions of acres in target geography that currently do not get a cover crop or other rotational crop planted on them



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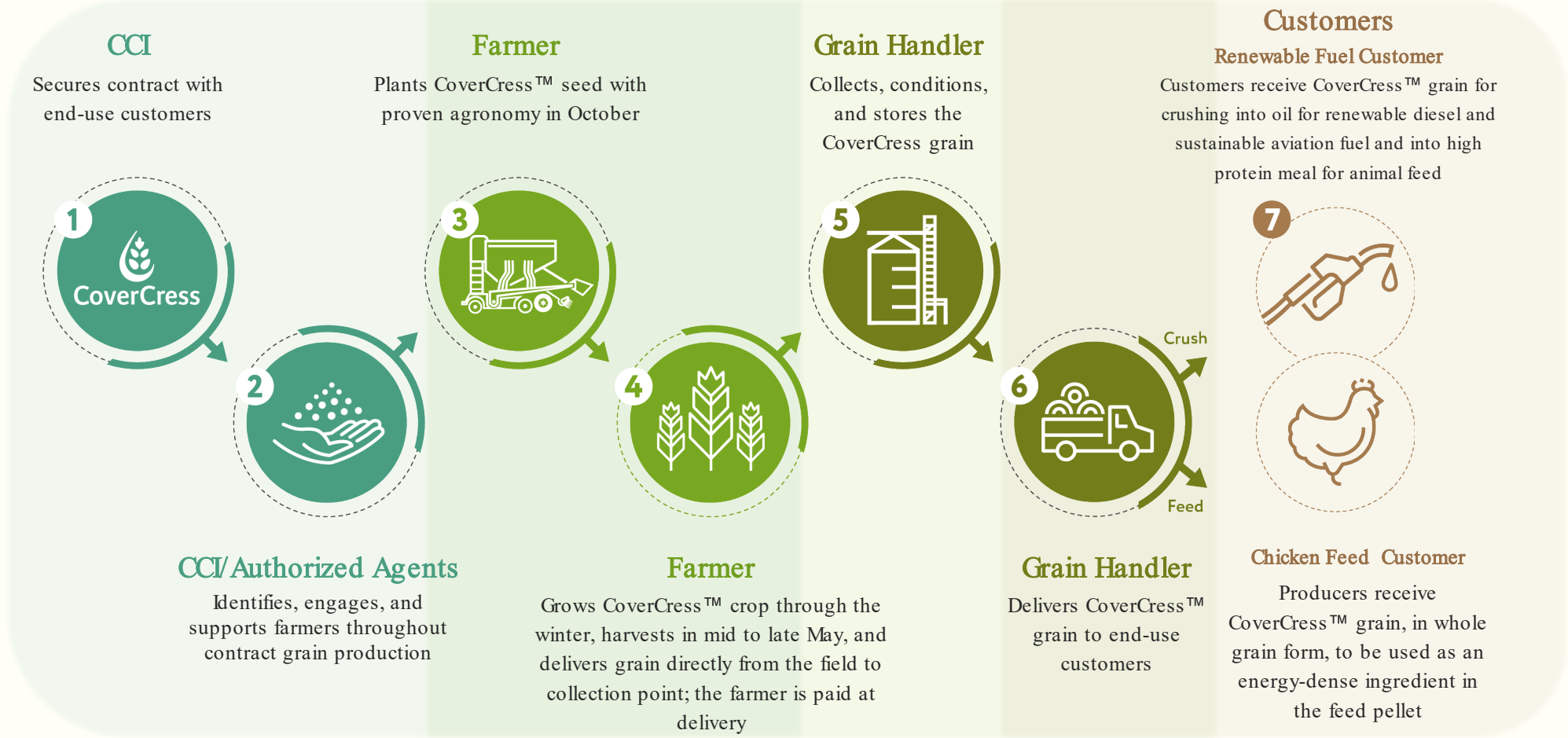
CoverCress® is Produced & Delivered Via a Closed-Loop System

A dedicated farm-to-fuel supply chain for a low carbon intensity oil feedstock



Part of the Solution to a Low Carbon Future for Our Planet

New opportunity for farmers, fuel producers and livestock producers

Planting a CoverCress crop enhances farm income

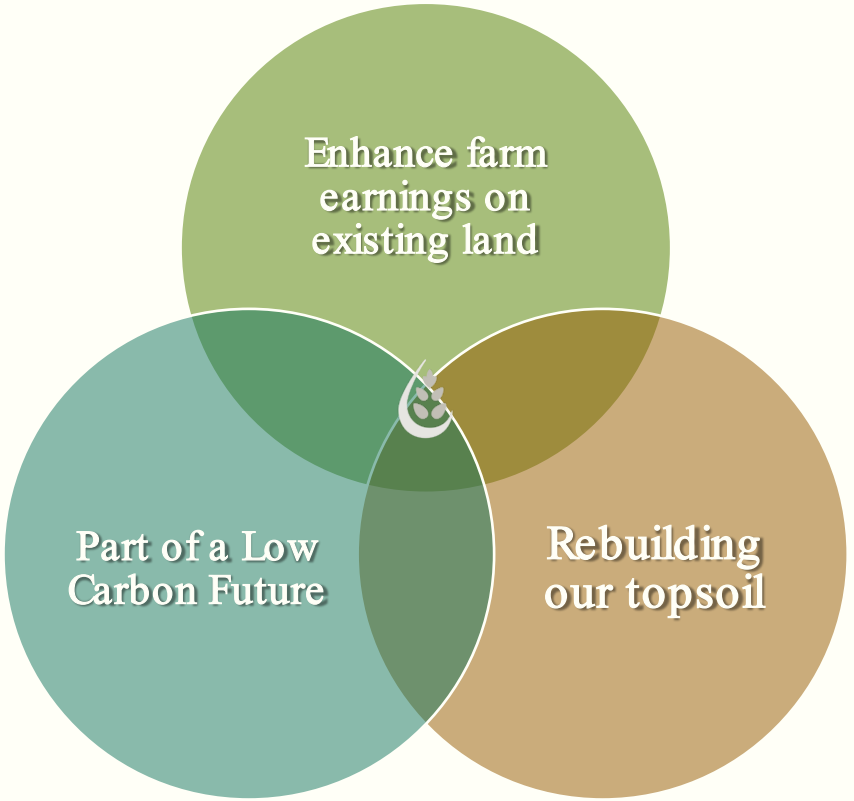
- This occurs on existing land utilizing existing equipment by adding a low input crop grown in the offseason. CoverCress is uniquely positioned to provide this solution to corn-soybean producers.

As a functional cover crop as well as a cash crop, planting a CoverCress crop helps to rebuild our topsoil

- Henry Wallace once said, "nations endure only as long as their topsoil". The U.S. has lost over sixty percent of its organic topsoil → **We need to hold on to what we have and rebuild it.**
- Cover crops are a known solution to help, but they require investment without near term return. Farmers can now gain the benefits from cover cropping, including holding and building topsoil organic, revitalization of soil microbes and more while they earn income from planting CoverCress™.

The CoverCress™ crop is a crucial part of a low carbon future

- Oil from CoverCress™ is an ultra-low carbon intensity feedstock to provide new options for greener diesel and jet fuel producers.
- Growing a new crop in the off-season is also new source of carbon sequestration in our soils. CoverCress both decarbonizes fuel and stores more in our soils.



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Thank You
ST.LOUIS INNO
STARTUPS TO WATCH
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2022
ST. LOUIS BUSINESS JOURNAL
EXIT OF THE YEAR
CoverCress
2023
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FIRE AWARDS WINNER
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Global Produce & Floral Sustainability: Sustainable Innovation and New Market Opportunities

Tamara Muruetagoiena
Vice President of Sustainability at IFPA
Waikoloa Beach, HI January 19th, 2024

INTERNATIONAL FRESH PRODUCE ASSOCIATION

Global Sustainability Trends

Packaging

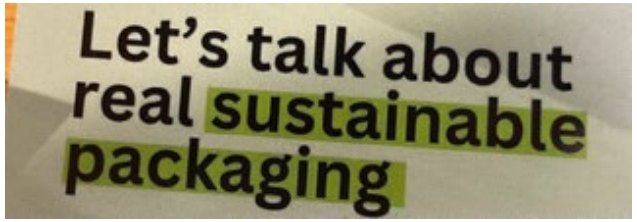
Climate Change

Regenerative Agriculture

Sustainability

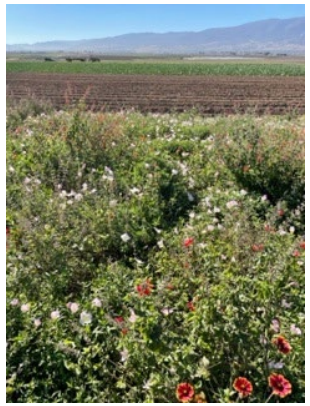
Sustainable Packaging

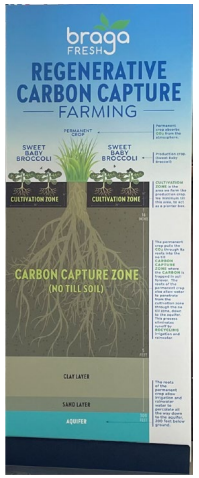
- **Global Packaging regulations**
  - European Union
  - Canada
- **Our goal: less packaging and better packaging**
  - **Recycling**
    - Supporting innovation to increase recyclability and recycled content
  - **Compostables**
    - Packaging &PLU stickers
  - **System Design & Reusable Packaging**
    - Reduce packaging while maintaining food safety, quality & reducing waste



Regenerative Agriculture & Climate-Smart Farming

- Regenerative Agriculture is driven by consumers and retailers
- Still an area with more questions than answers for produce and floral: Organics? Food safety? Indoor/soilless farming?
- Connecting Regenerative Agriculture with Climate Solutions
- Understanding our footprint:
  - CO_2 + N_2O + CH_4
  - Energy + Transport + **Farming** + Waste






Thank you!
Mahalo!
Sustainability

QUESTION AND ANSWER

Please submit your questions on the meeting app or use one of the microphones.

- **Go to app** 
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- **Find The Session**
- **Q&A Tab**

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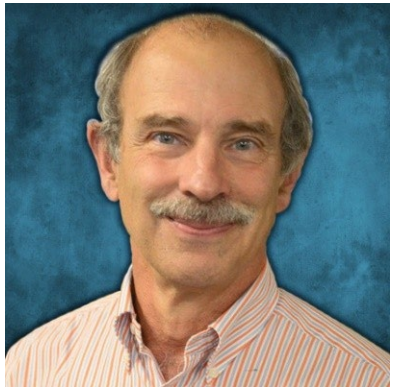

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CLOSING KEYNOTE

Round Table Meeting January 2024

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President and CEO
National Milk Producers Federation

Farm Foundation
Round Table Fellow

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Mark Schweitzer

Consultant

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OPEN MIC SESSION

Round Table Meeting January 2024

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We look forward to seeing you at the next Round Table June 19-21, in Colorado.


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