



agInnovation
science that feeds the world[®]



2026 AWARDS

Grand Junction, Colorado

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EXCELLENCE IN LEADERSHIP AWARDS

LAND-GRANT UNIVERSITY RESEARCH

agInnovation
NORTH CENTRAL



Shibu Jose

University of Missouri



LAND - GRANT UNIVERSITY RESEARCH

agInnovation

NORTHEAST



Margaret Smith

Cornell University





agInnovation

SOUTH



LAND - GRANT
UNIVERSITY
RESEARCH

Scott Senseman

Oklahoma State University

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EXCELLENCE IN MULTISTATE RESEARCH

National Winner - W4112



Reproductive Performance in Domestic Ruminants



W4112

Reproductive
Performance
in Domestic
Ruminants

Accomplishments

- *Current project period: October 1, 2021 – September 30, 2026*
 - **31 scientists, 23 states, all 4 U.S. regions**
 - 340+ peer-reviewed journal articles,
 - 280+ abstracts,
 - 35+ theses and dissertations,
 - 40+ invited lectures, and
 - multiple book chapters



Signature Achievements

- **Open Cow Test (OCT):** 95–100% non-pregnancy detection accuracy at days 16–17 post-artificial insemination (AI) saving producers \$200-400 per open cow.
- **HH2 Causal Mutation (IFT80):** A frameshift mutation introducing a premature stop codon renders IFT80 nonfunctional. Identified by W4112 members and integrated into nationwide AI bull-screening programs.
- **SLICK Cattle Commercialization:** SLICK1/PRLR allele-positive bulls (a CRISPR-edited prolactin receptor gene for enhanced heat tolerance) are commercially available, saving the U.S. dairy industry \$1.3 billion annually.
- **Artificial Insemination Protocol Innovations:** Timed-AI pregnancy rates increased 11–27%, with 25% more AI-sired calves increasing herd genetics and producer profits

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**RESEARCH INNOVATION AWARD OF
EXCELLENCE
~ EARLY CAREER~**



Association of 1890 Research Directors (ARD)

LAND - GRANT UNIVERSITY RESEARCH
agInnovation
1890s

Oluwatoyin Sangokunle

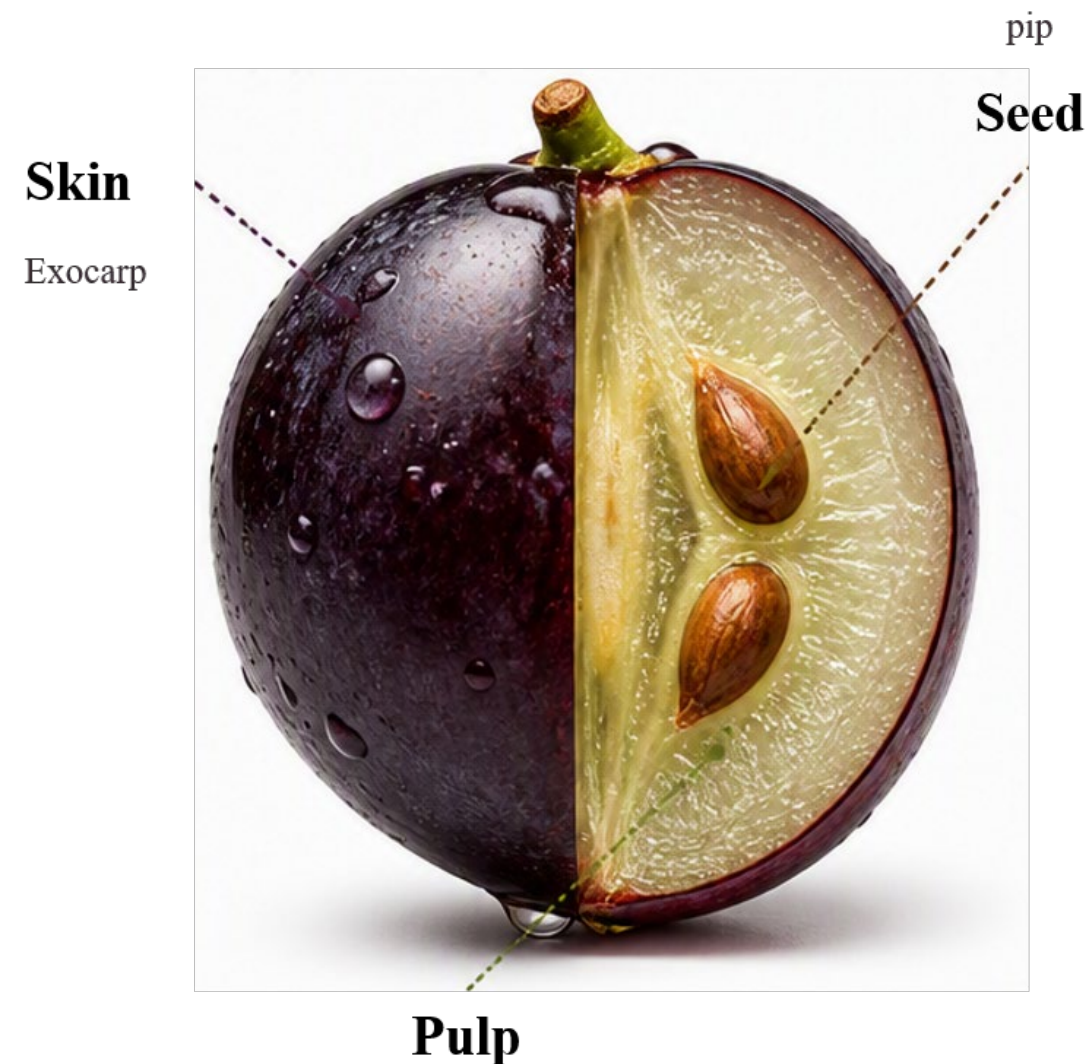
Florida A&M University

FOODS FOR HEALTH AND MEDICINE

Oluwatoyin Sangokunle, Ph.D. - **Early Career Excellence in Agricultural Research Innovation Award**

Acknowledgements

- AgInnovation
- The Association of 1890 Agricultural Research Directors (ARD)
- Florida A&M University
- Collaborators, students, and mentors



Research focus and impacts

- Agricultural innovation
- Value-added utilization of muscadine grapes
- Functional foods
- Chronic disease prevention
- Health disparities in underserved populations

Goals

Training the next generation of scientists

- Strengthening the land-grant mission



agInnovation

SOUTH



LAND - GRANT
UNIVERSITY
RESEARCH

Vitor s. Martins
Mississippi State University

Dr. Vitor Martins

Assistant Professor

Department of Agricultural and Biological Engineering (ABE)



MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

Excellence in Research
Innovation Southern Region
(Early Career) award



THANK YOU!

agInnovation (southern region)

ABE (Dr. Alex Thomasson)

MAFES (Drs. Jamie Larson & Scott Willard)

MSU colleagues

GCERlab students!

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Thank you, **United States**, for giving me the opportunity to build a new home and a fulfilling professional career.

Global agricultural impact through **agInnovation**

 Geospatial Computing for
Earth observation Research Lab

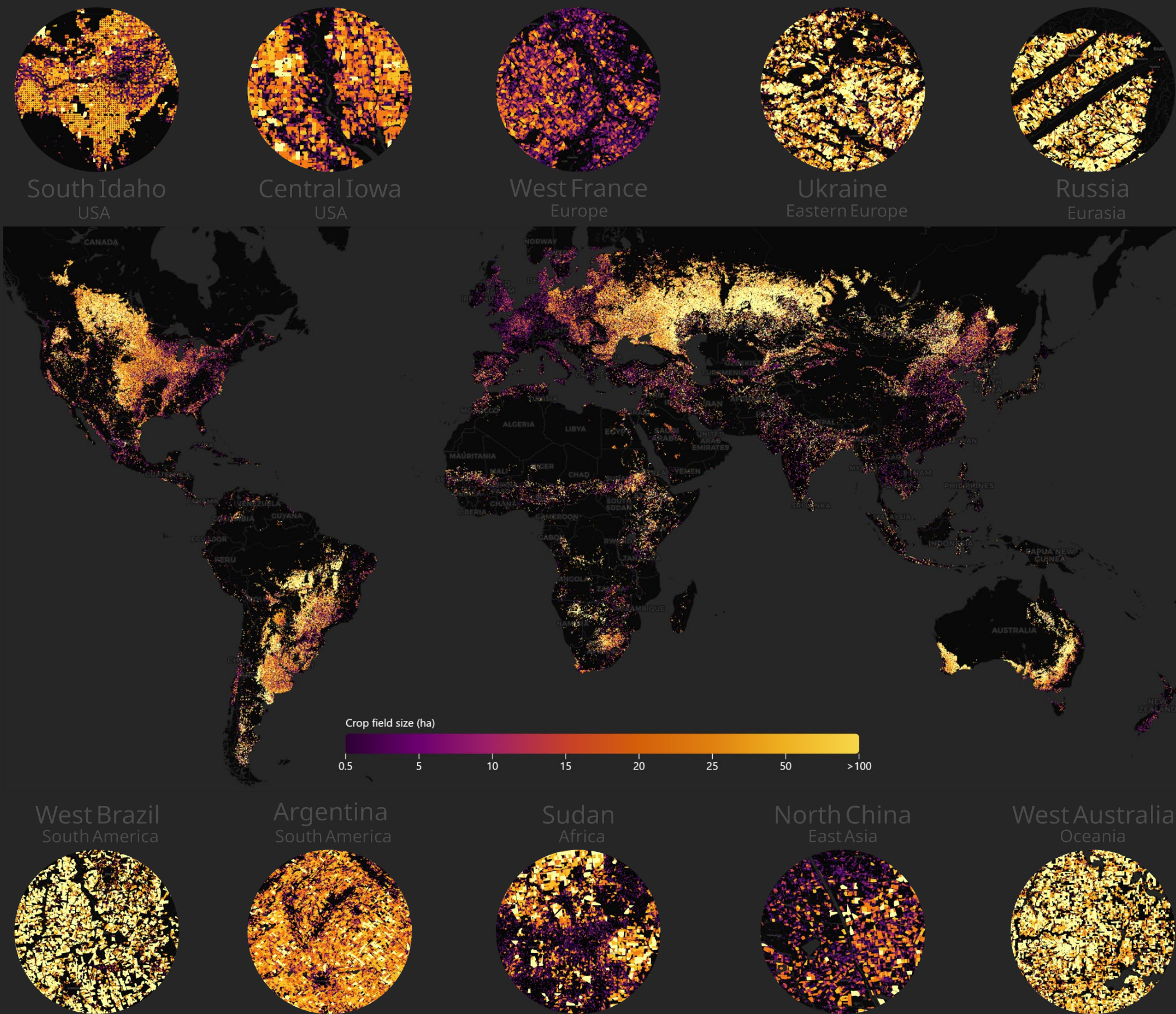


Earth observation

Deep learning

HPC & Big data

Check our research at:
www.gcerlab.abe.msstate.edu



Computer resources: MSU HPC2 | Ptolemy (8x GPU NVIDIA A100 80GB) >130M fields in 2024 (100GB result, >10 TB satellite input images)



National Winner



Barney A. Geddes

North Dakota State University

Barney Geddes

North Dakota State University
College of Agriculture, Food Systems and Natural Resources
Department of Plant Pathology, Microbiology and Biotechnology









1000 μm







LILAC AGRICULTURE

Your inoculant fixes nitrogen. *Does it win the nodule?*

A rhizobium strain that can't outcompete native soil populations can't deliver benefit. Lilac improves both: nitrogen fixing efficiency and competitiveness to claim the nodule. It's the gap Lilac was built to fix.



Email: barney.geddes@ndsu.edu

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**RESEARCH INNOVATION AWARD OF
EXCELLENCE
~ MID-CAREER~**



agInnovation

SOUTH

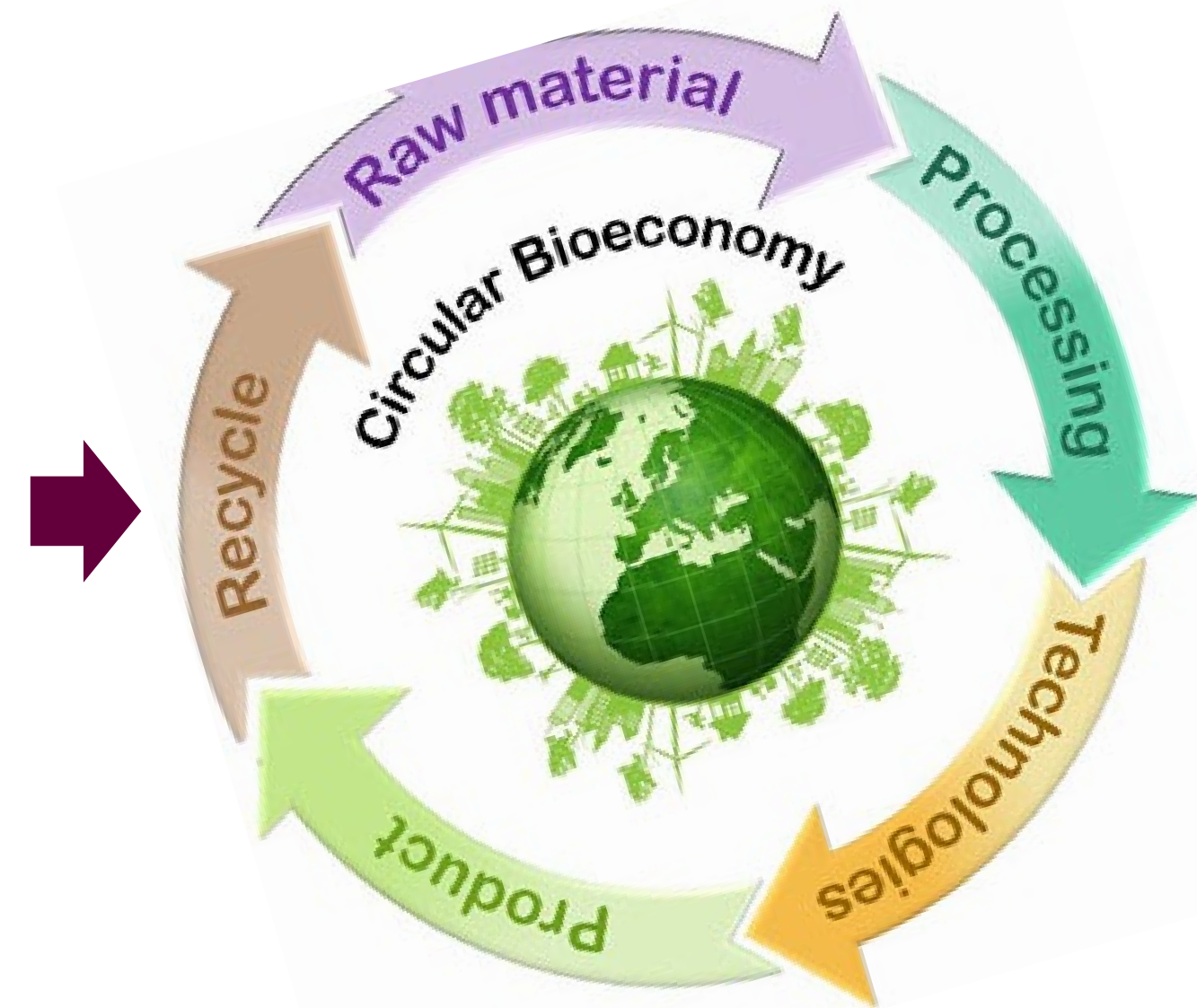
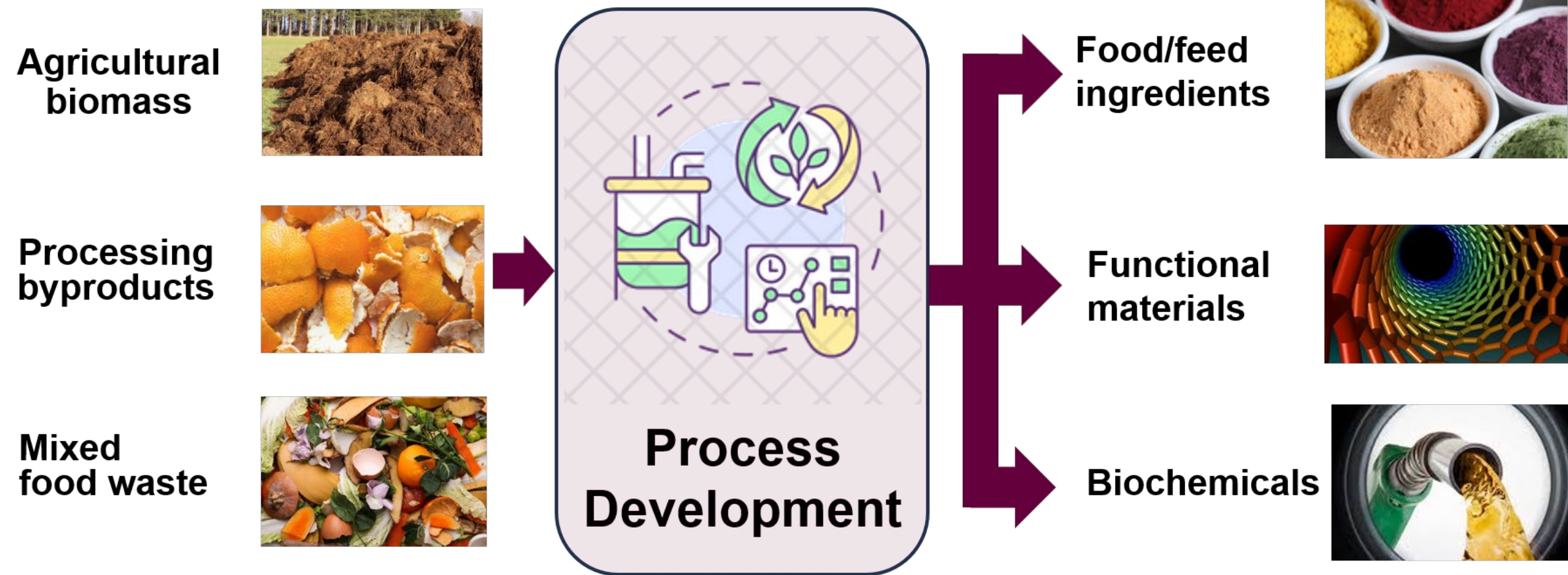


LAND - GRANT
UNIVERSITY
RESEARCH

Haibo Huang

Virginia Tech

Goal: Develop enabling technologies to convert **agricultural and food wastes** into **value-added products**



My Sincere Thanks to My Group Members





National Winner



Ozan N. Ciftci

Purdue University

Thank you,



2026 Mid-Career Agricultural Research
Innovation Award of Excellence



Ozan Ciftci

Scholle Endowed Chair Professor in Food Processing
Department of Food Science



How will we feed a
growing global population
amid grand challenges?



True cost of the food system

What we produce and what we eat shape the planet and our societies.

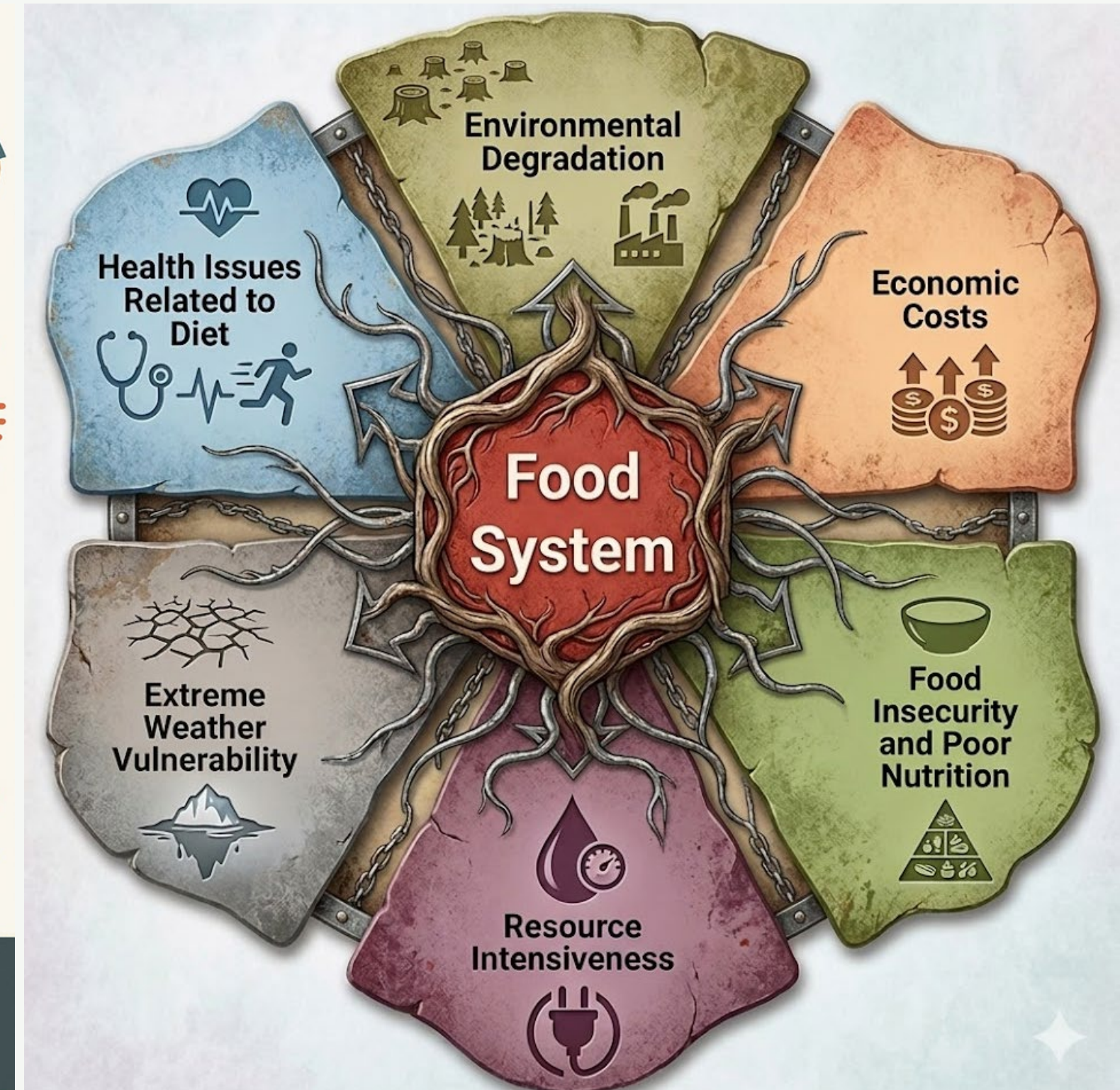
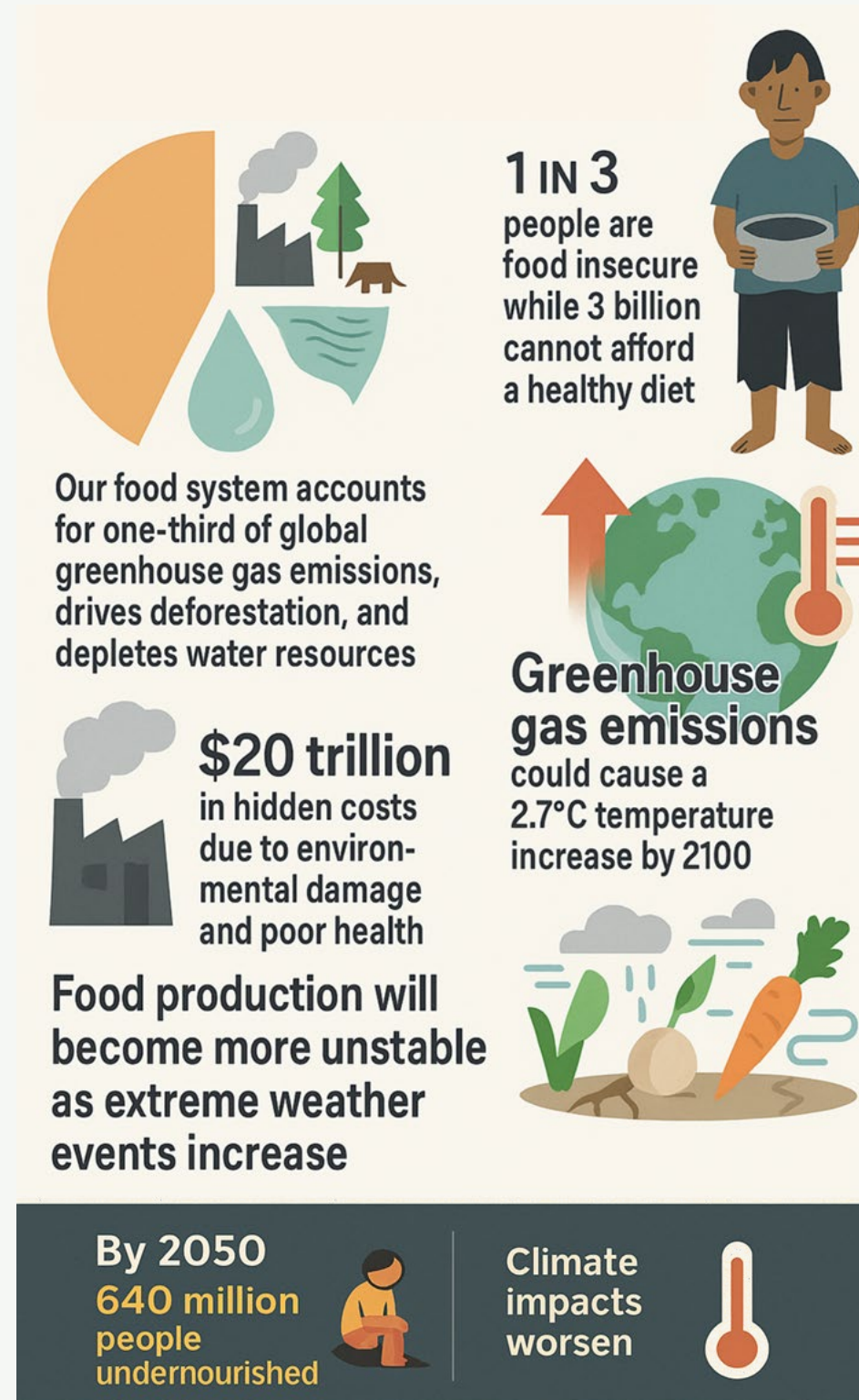


Image generated with the assistance of AI

There is an urgent and timely need for nutritious and environmentally, socially, and economically sustainable food production—a major driver of the future bioeconomy.



The Opportunity



1

Rethink

2

Redesign

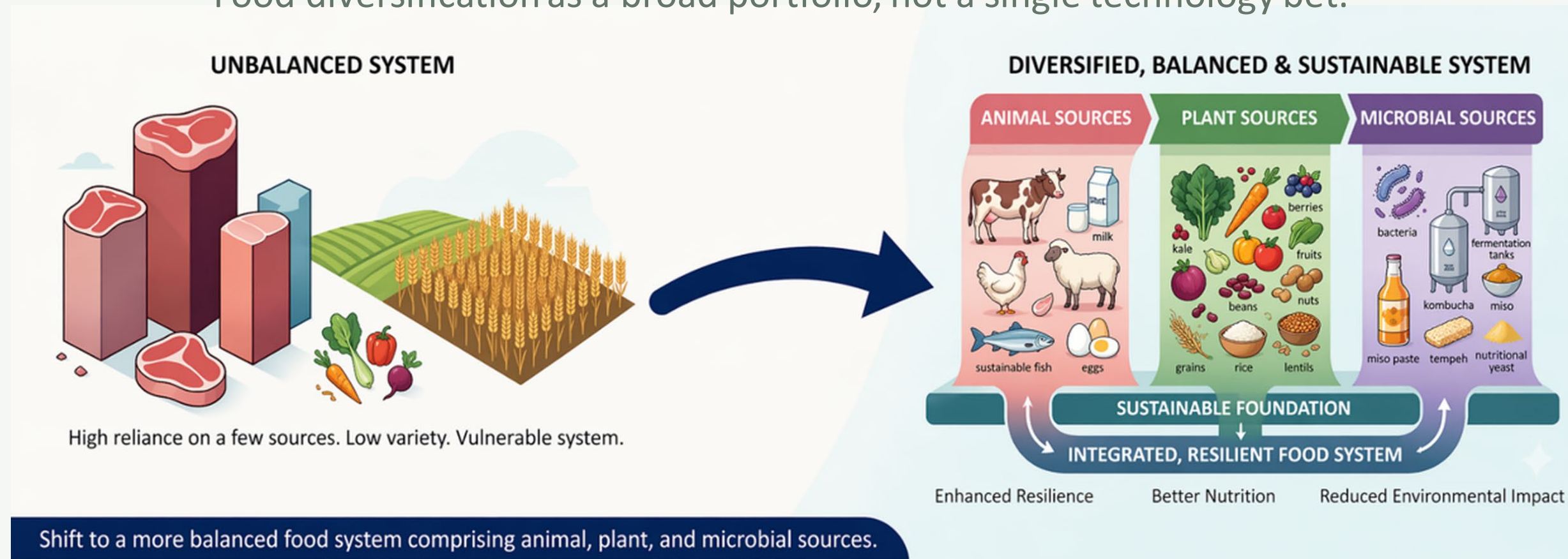
3

Rebuild

Food Diversification

Innovation pathways that expand the food bioeconomy

Food diversification as a broad portfolio, not a single technology bet.



Benefits of food diversification



Food affordability

Broader crops, ingredients, and production systems widen access to affordable, nutritious food.



Resilience

Diversified crops and local protein production cut import dependence and strengthen value chains.



Competitiveness

A wider product range reaches more customers and more dietary preferences.



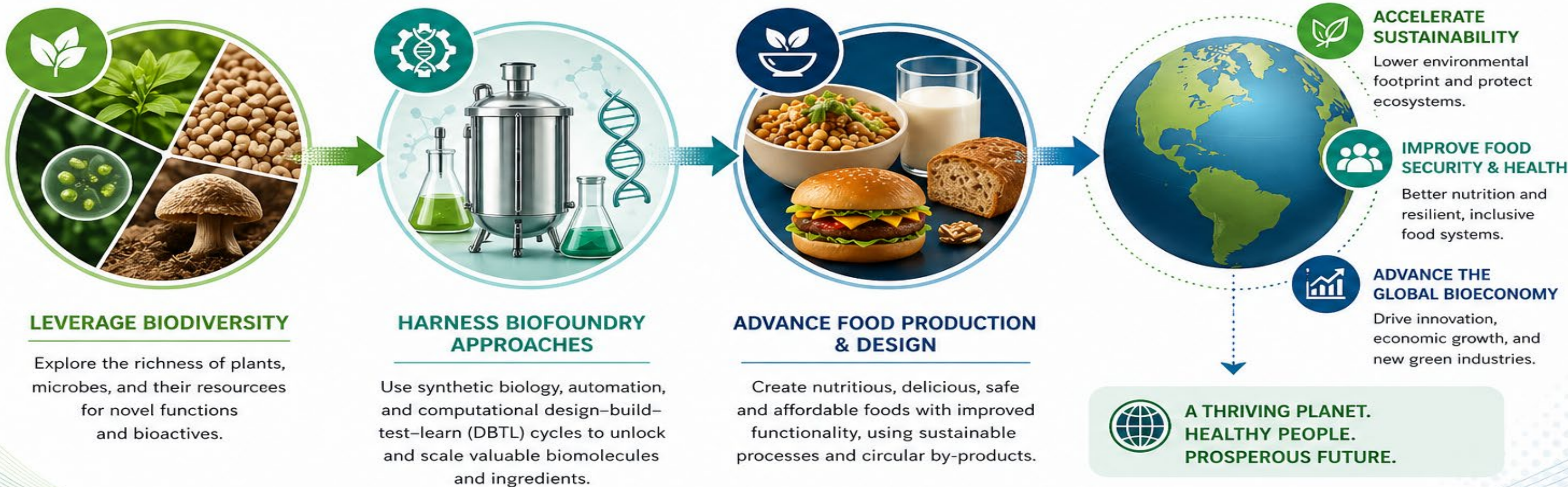
Sustainability

A broader food base eases pressure on soils, land, and emissions and supports rural livelihoods.

Images generated with the assistance of AI

Our overarching research question

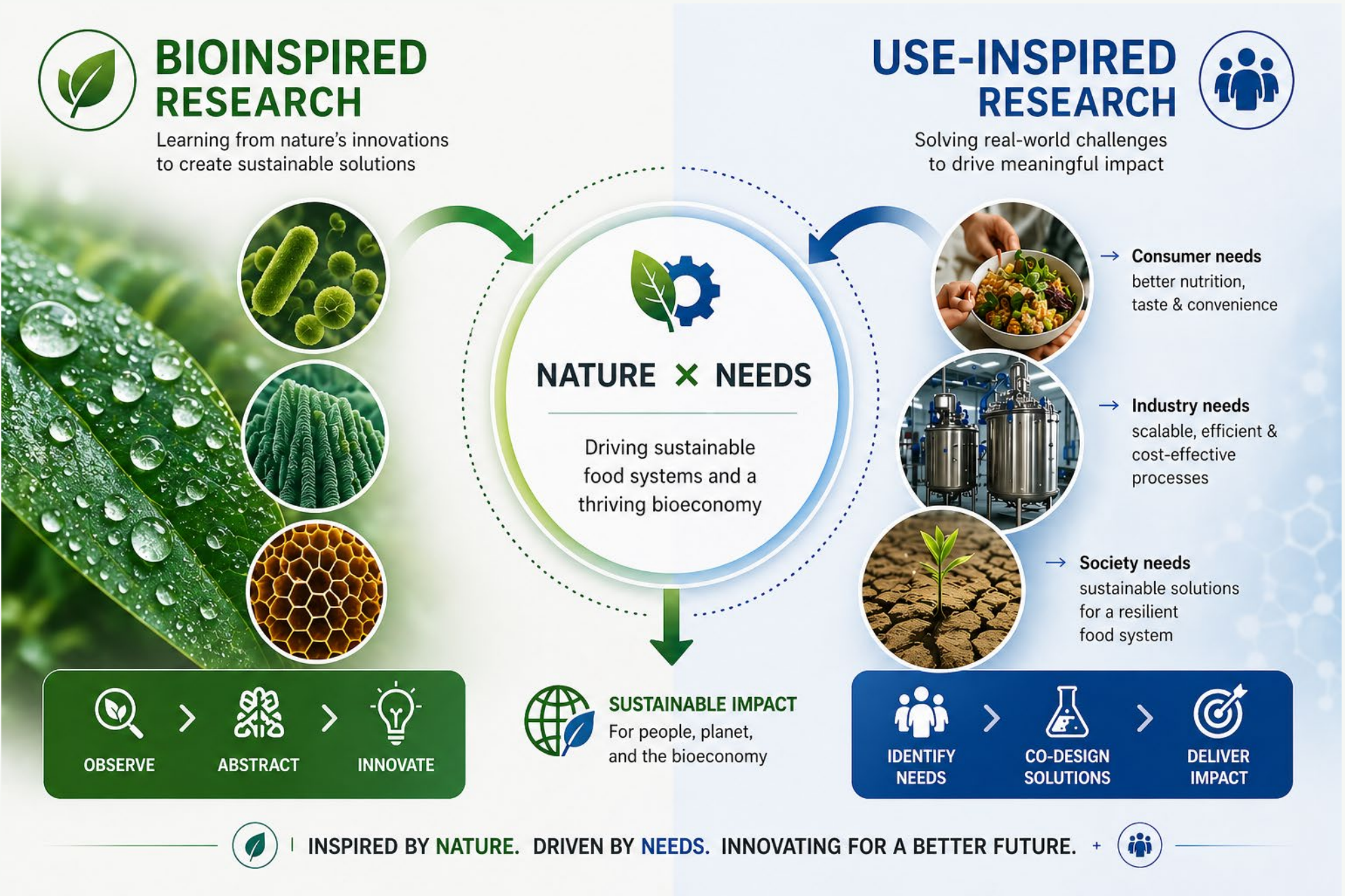
“ How can we leverage **biodiversity** and harness **biofoundry** approaches for food production and design to accelerate the food system’s transition toward **sustainability** and advance the **global bioeconomy**? ”



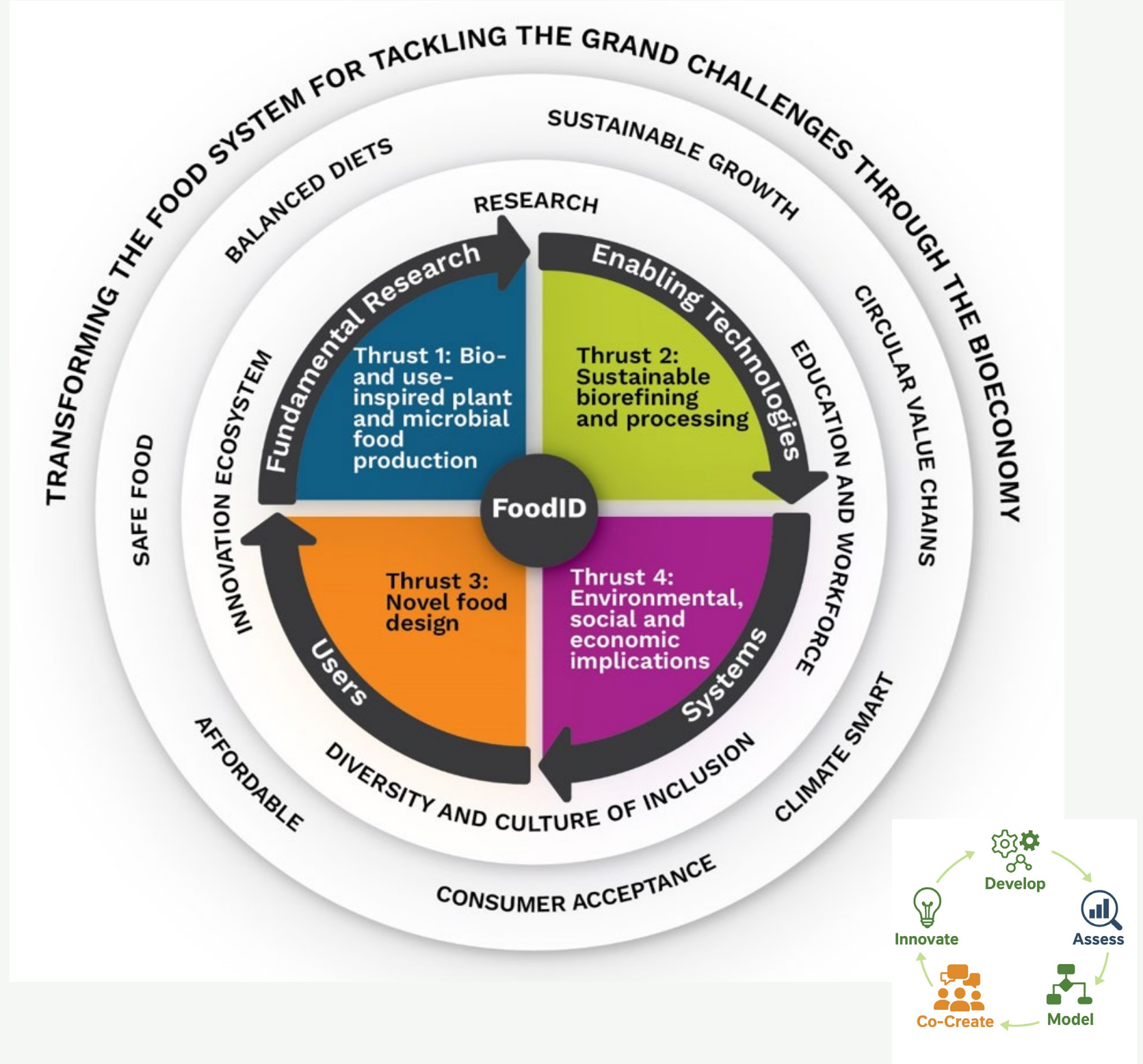
FROM NATURE’S DIVERSITY TO BIOINNOVATION FOR A SUSTAINABLE FUTURE.

Images generated with the assistance of AI

Use-inspired and information transfer approach



Images generated with the assistance of AI



NSF GLOBAL CENTERS

Use-Inspired Research Addressing Global Challenges through the Bioeconomy



Food Innovation and Diversification to Advance the Bioeconomy (FoodID)

NSF Global Centers Project



**BUSINESS
FINLAND**

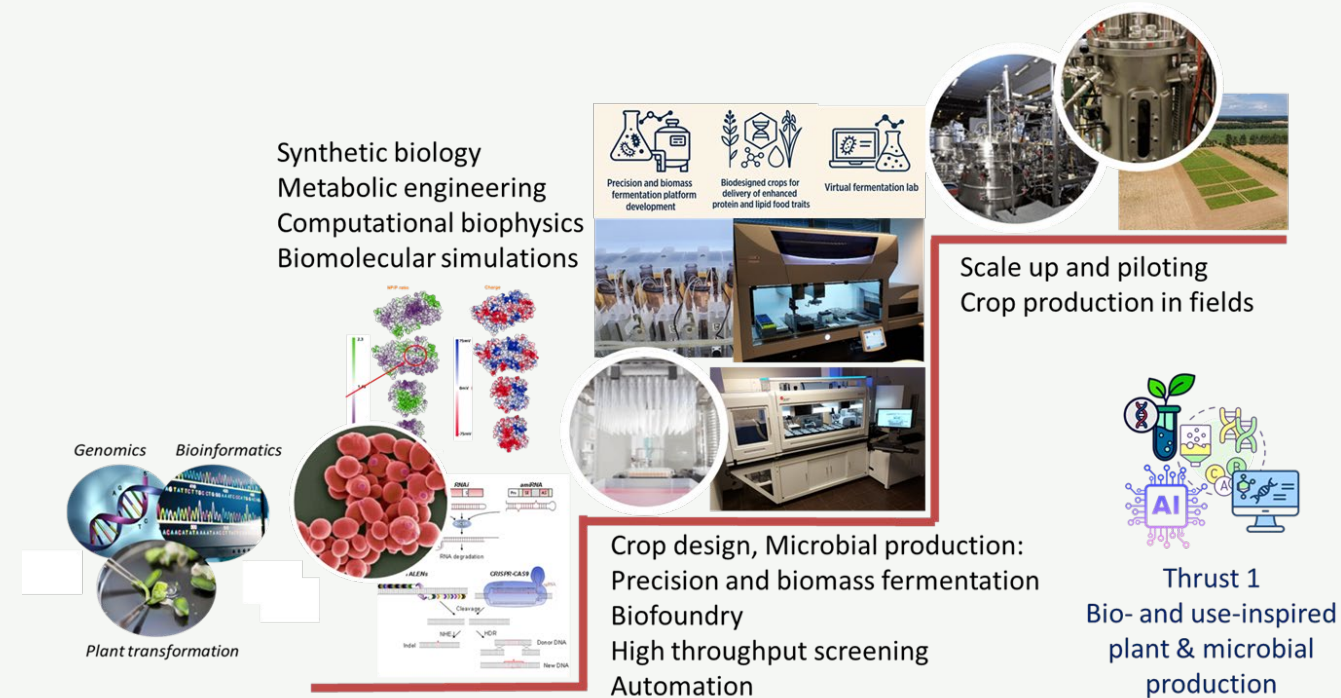


A Global Innovation Ecosystem

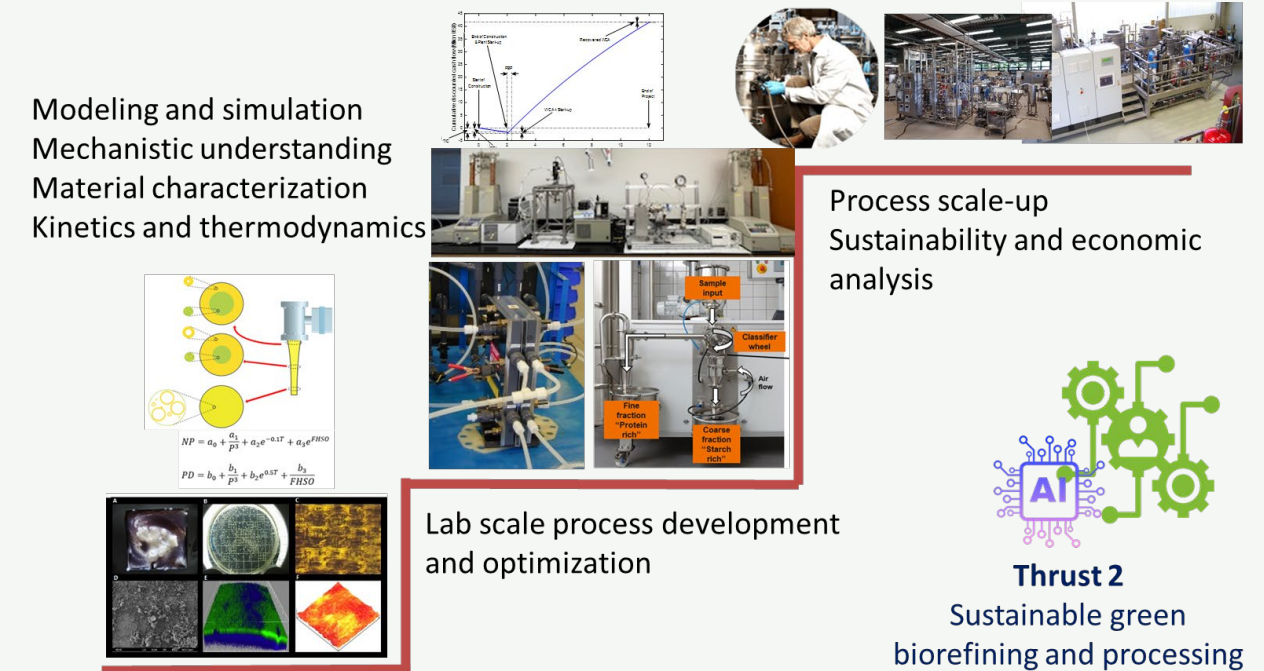


Research Thrusts

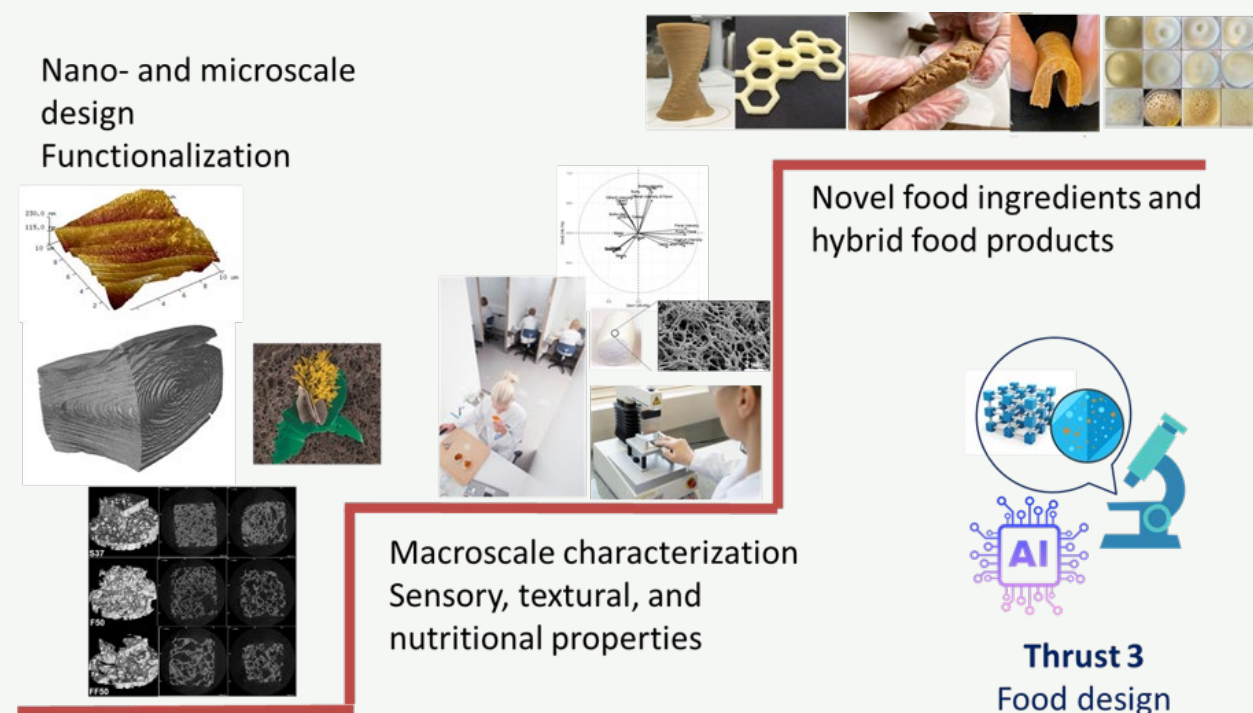
Bio- and use-inspired plant and microbial food ingredient production



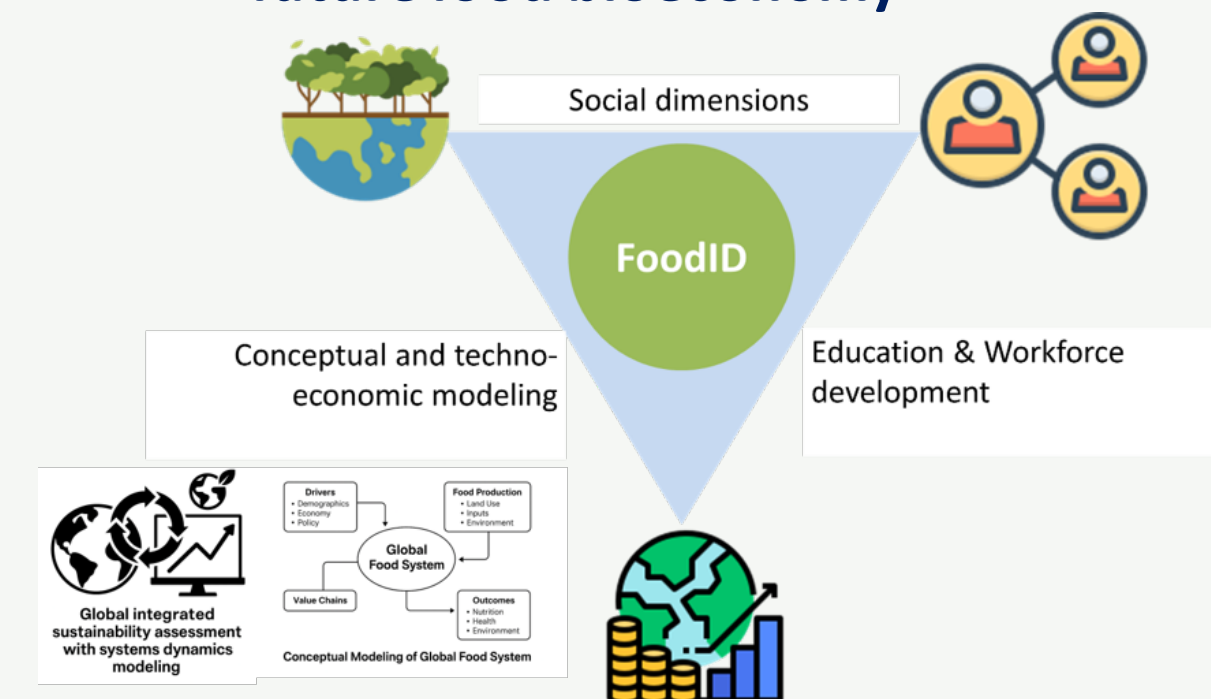
Sustainable biorefining and processing for functional plant and microbial ingredients



High quality affordable and diversified food design



Environmental, social and economic implications of the future food bioeconomy

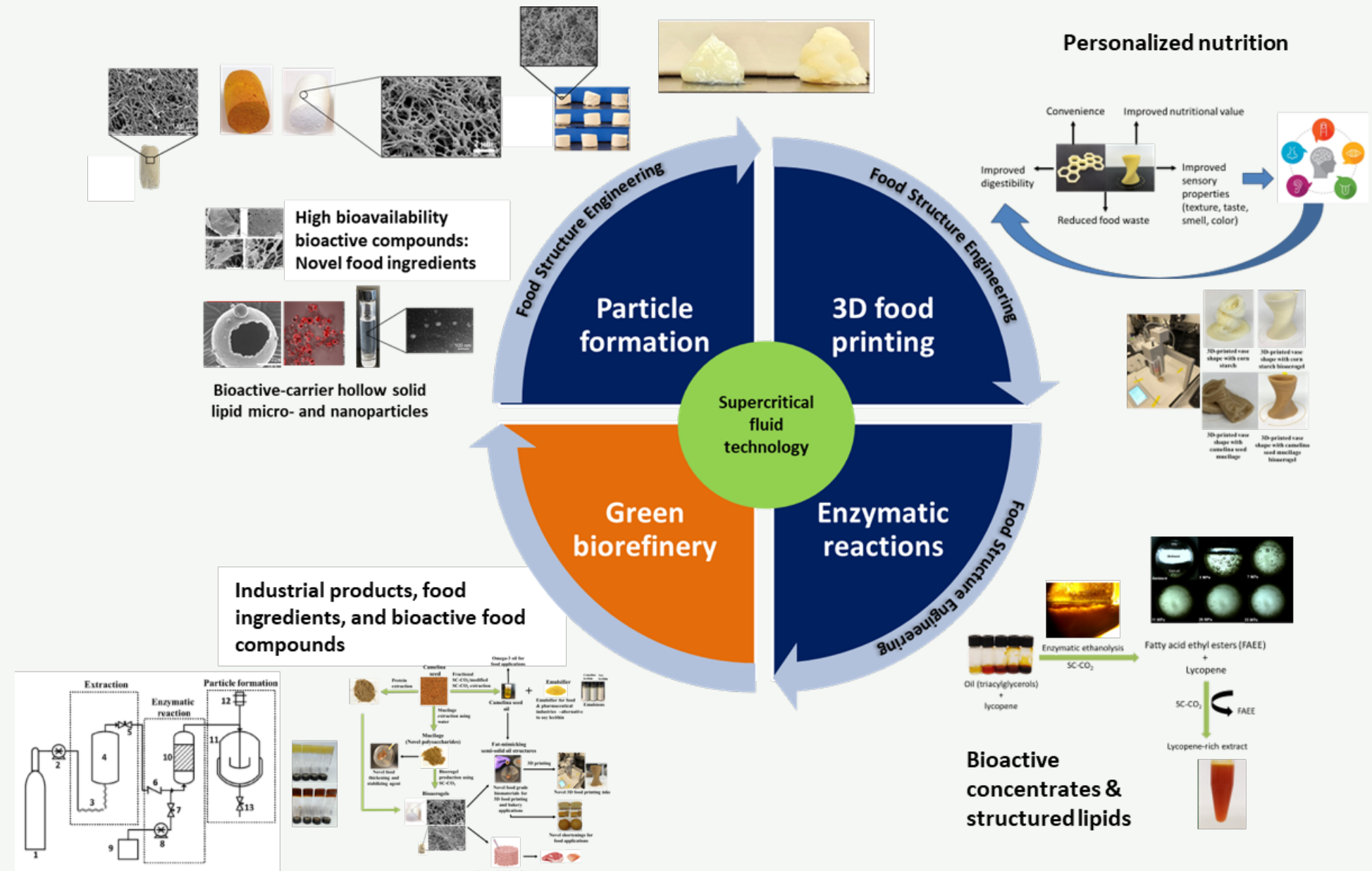


PARTICLE
ENGINEERING
USING SC-CO₂ FOR
HUMAN HEALTH
AND FOOD QUALITY



CIRCULAR FOOD
SYSTEMS AND
SUSTAINABLE
INTEGRATED GREEN
BIOREFINERIES

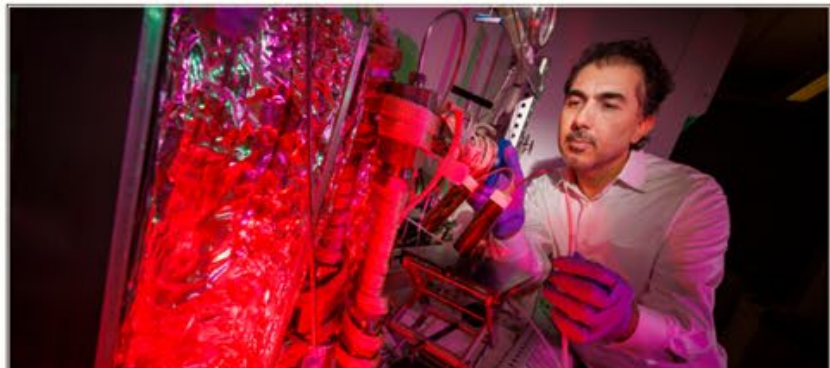
Supercritical fluid technology platforms for novel food design and circular bioeconomy



University-Industry Partnership

Nebraska-based global center to drive bioeconomy solutions for future of food

By Dan Miller | Research and Innovation
January 21, 2025



Oliver Ojajarvi, Researcher at VTT, is working on integrated experimental carbon-dioxide extraction technology. A high-value by-product from tomato waste while simultaneously being a valuable resource for the food industry.

VTT

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Home News and stories VTT launches bioeconomy projects worth nearly 20 million euros as part of the US National Science Foundation's Global Centers research program

VTT launches bioeconomy projects worth nearly 20 million euros as part of the US National Science Foundation's Global Centers research program

News, Press release 23.10.2024 14:00 EEST



ARTICLE

Food 2.0's first co-innovation project FoodID receives positive funding decision from Business Finland

24/10/2024

Business Finland has awarded funding to FoodID, the first co-innovation project under the Food 2.0 programme. The project has also been accepted into the Global Centers research programme, led by the US National Science Foundation (NSF) and jointly operated by six countries, which aims to find breakthrough solutions to global challenges.

THE FOODID PROJECT DIVERSIFIES THE GLOBAL FOOD SYSTEM

The FoodID project develops new sustainable processes based on the production of alternative proteins and lipids from plants and by fermentation. Digital tools play a central role in FoodID, and the project utilizes global networks of academic and industry partners, maximizing the impact and exploitation of the results. In Finland, VTT, University of Helsinki, Fazer, Valio, MeEat, Enifer and Onego Bio are involved in the FoodID RDI activities.

BUSINESS FINLAND

To the website Do business with Finland FI SV Log in

NEWS 28.10.2024

MILLIONS OF FUNDING FOR FINNISH BIOECONOMY RESEARCH AND DEVELOPMENT PROJECTS



Business Finland has granted a total of EUR 10 million in R&D funding for two Finnish projects engaged in international bioeconomy research cooperation. The projects have been approved for participation in the Global Centers research program, led by the US National Science Foundation (NSF) and jointly operated by six countries, which seeks breakthrough solutions to global challenges.

Each year, the US National Science Foundation (NSF) hosts thematic International Global Center programs. This year, the program's funding call focused on the bioeconomy, with the main themes being bio-foundries and biodiversity. The Global Centers Funding call, which was organized by six countries (USA, Canada, Finland, UK, Republic of Korea, Japan), received 53 high-quality consortium applications, ten of which involved Finnish partners.

LinkedIn



BUSINESS FINLAND

€10M in funding for Finnish bioeconomy research and development

ONEGO



Onego Bio is proud to receive Co-innovation funding from Business Finland as part of the international FoodID project!

The project is part of the Global Centers research program, led by the U.S. National Science Foundation (NSF) and operated jointly by six countries, with the aim of developing solutions that support a climate-neutral future and solving global challenges, especially through bioeconomy.

The project develops new sustainable processes based on the production of alternative

Feedstuffs

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New FoodFD center to drive bioeconomy solutions for future of food

Nebraska-based global research center will focus on developing alternative protein and lipid sources from purposefully designed plants and microorganisms.

University of Nebraska-Lincoln
January 26, 2023

5 Min Read

Own your future, now. Register today! Register today!

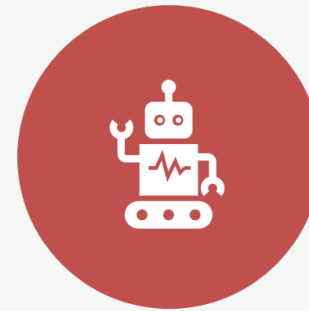


PRODUCTION RECIPES BLOG FAQ MORE CONTACT INFORMATION



MEEAT PARTICIPATES IN THE INTERNATIONAL FOODID PROJECT

Core Functions



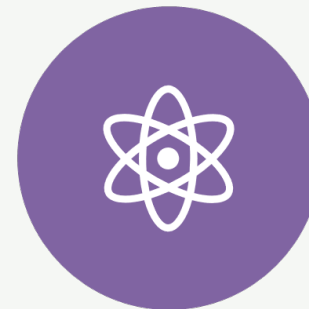
Knowledge Hub

Explore the science behind flexible, efficient, safe, and scalable food systems that produce healthy food sustainably.



Workforce Development

Catalyze the change in workforce development for the future's food system



Education

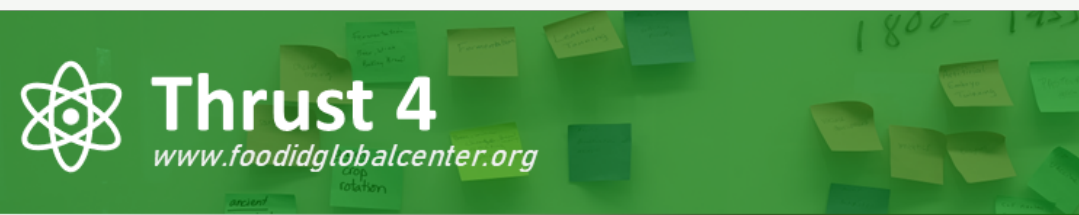
Foster global collaboration and inclusivity in STEM to drive discoveries transforming our food system, with a focus on underrepresented and rural communities.



Innovation Hub

Build a global innovation ecosystem to drive food diversification through technology, education, workforce development, and public awareness.

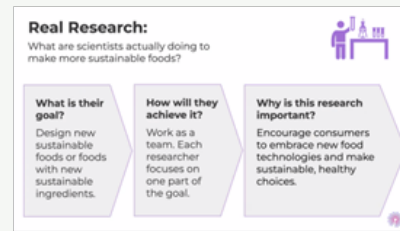
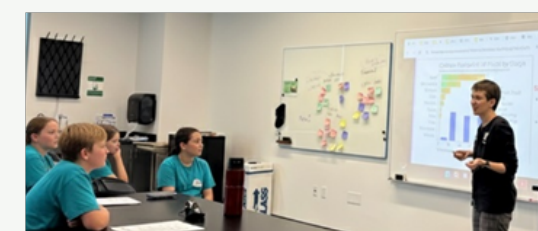
Education & Workforce Development



K-12 Students



- Galactic Polymath Lessons 1-3 on the Future of Food (more to come)
- Middle school summer day camp
- Family Science Night at Southeast Community College (SCC) and Lincoln Northeast High school fermentation and biodesign demonstrations



Coming soon: After school high school club on Biodesign Challenge

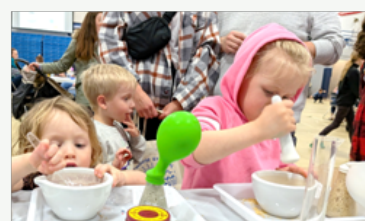
College Students



Monthly STEM seminar series of UNL Research Faculty at SCC (webcast to high school teacher network across NE)

Coming soon: - UNL and SCC students mentor at after school club
- Guest lecture on Plant Biotechnology by Ed Cahoon for SCC Biotechnology

Program students



Public

Family Science Night: elementary youth with their families – April approx. 650 people attended

Coming soon: Future Food Forums. | VR outreach module.

Secondary Teachers

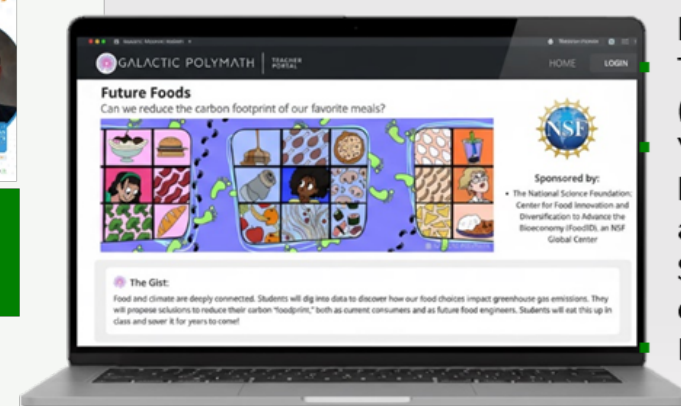


- Teacher workshop Fermentation and the Future of Food
- Lincoln Science Teacher Professional Development (galactic polymath lessons)
- Hosted rural high school research class to learn Biotechnology and Fermentation lessons at CC

Coming soon: - Nebraska Association of Teachers Conference Presentation.
- Lincoln Professional Development Day (new galactic polymath lessons and fermentation lessons).
- NSF InnovateBIO National Biotechnology Center Spring Webinar Series Presentation.



Lesson Development:



- Teacher workshop (N = 12, k-12, 7 hours)
- Teacher professional development (N=160; k-12, 3.5 hours)
- Youth day-long workshop play testing lessons and activities, co-constructing a future food system (N = 15, Middle School, from an indigenous community)
- High School outreach

Biodesign Challenge
High school Afterschool club (starting Fall 2025, led by college students)

FUTURE FOOD FORCE!
BIODESIGN CLUB

Future

- Future food forums with Stakeholders
- Publications about education deliverables
- Assessment of products
- Publication about media search of attitudes towards future foods



We make the advances in technology leading to the future of food more fun and easy to access by engaging students and teachers in hands-on learning that blends science, technology, and education with the real-world innovations in the bioeconomy.



What success would look like

A practical set of outcomes for science, industry, society, and workforce development.



Scientific

- New knowledge in plant and microbial ingredient production
- Validated sustainable processing routes
- AI-enabled design tools and predictive models



Industrial

- Piloted ingredients and product prototypes
- More investable translation pathways
- Stronger ties among academia, startups, and established industry



Societal

- Better sustainability evidence
- Better-informed policy choices
- Greater consumer relevance, affordability, and acceptance



Workforce

- Training across biology, engineering, and systems thinking
- International collaboration skills
- Stronger pipeline for the future food bioeconomy



National
Science
Foundation

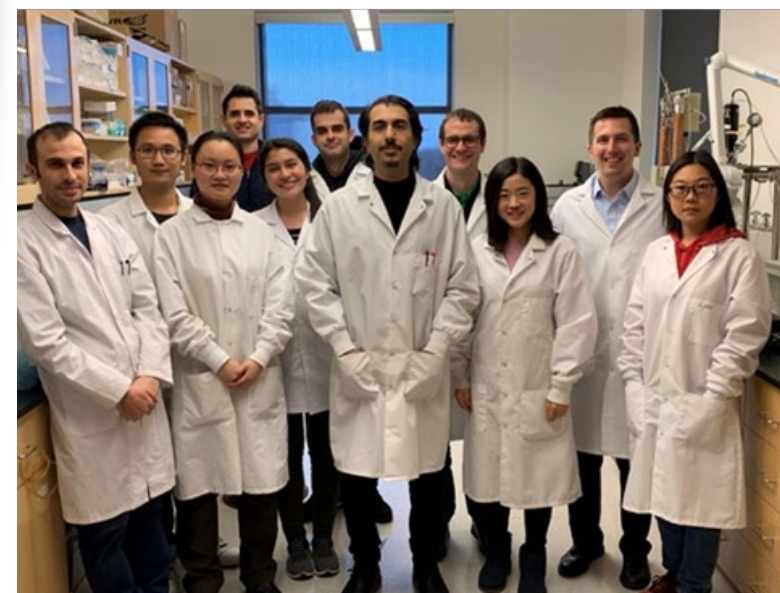
**BUSINESS
FINLAND**



National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

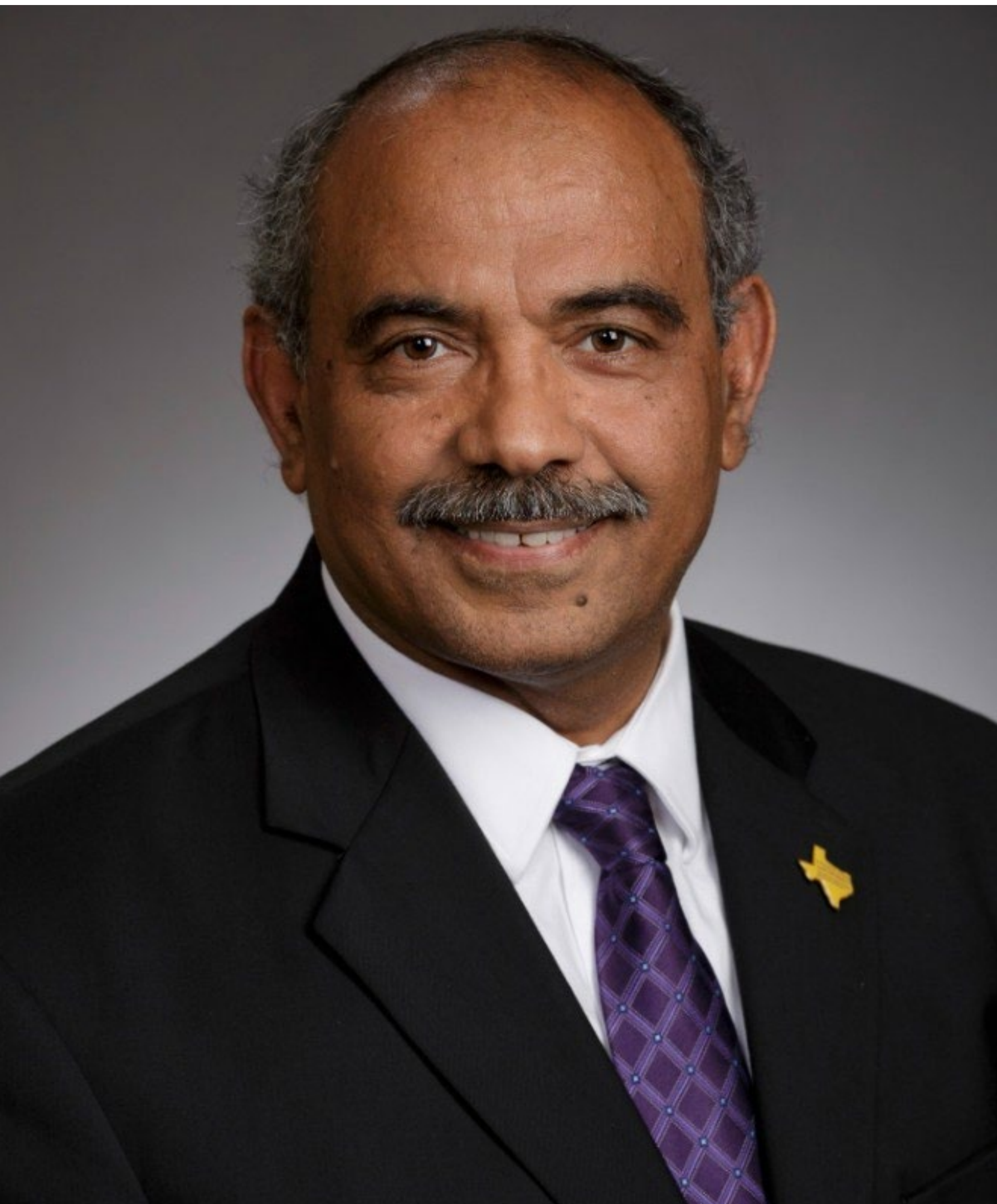


Thank you





**RESEARCH INNOVATION AWARD OF
EXCELLENCE
~ LIFETIME ~**



Association of 1890 Research Directors (ARD)

LAND - GRANT UNIVERSITY RESEARCH
agInnovation
1890s

Ali Fares

Prairie View A&M University



agInnovation

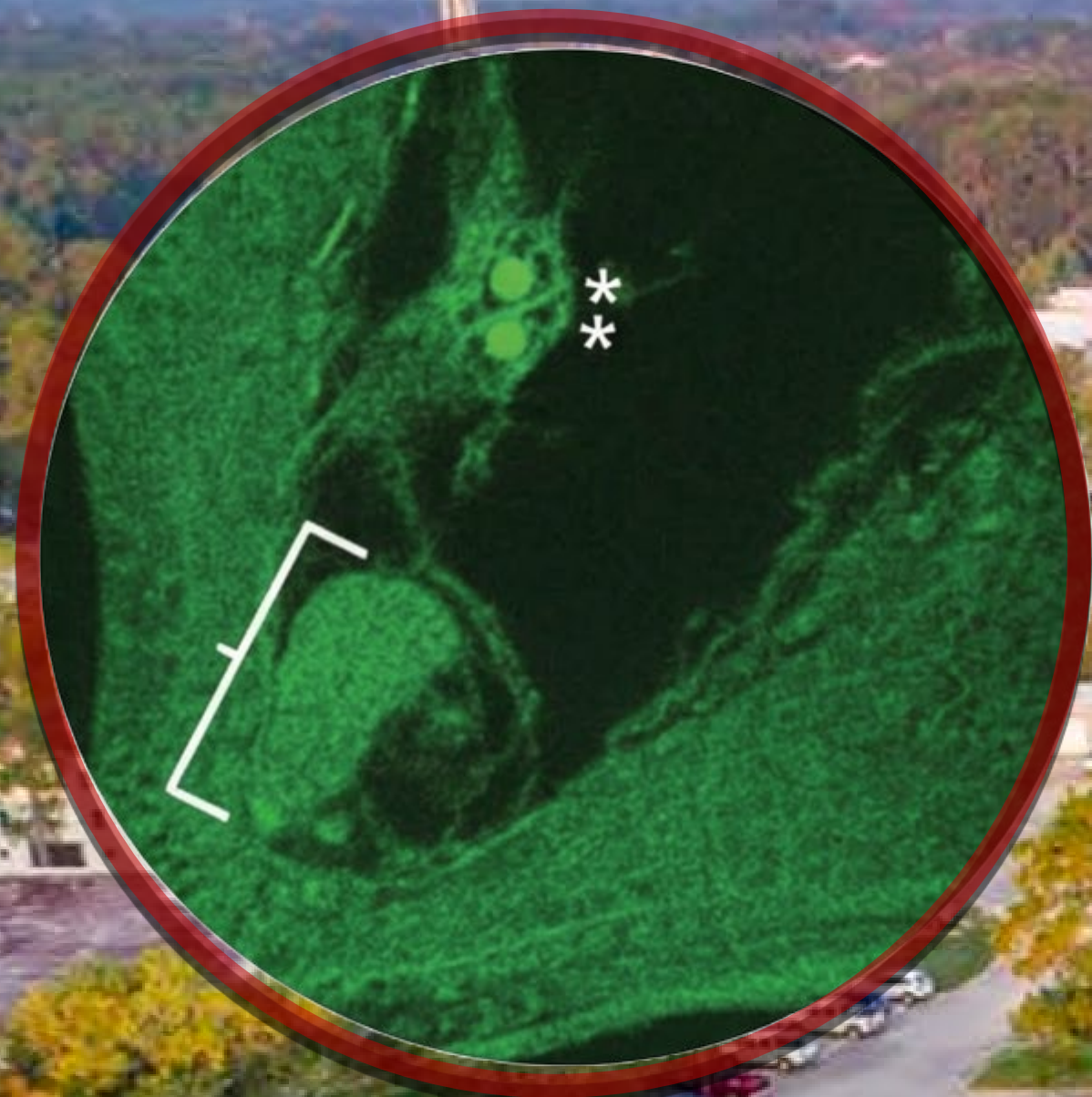
SOUTH



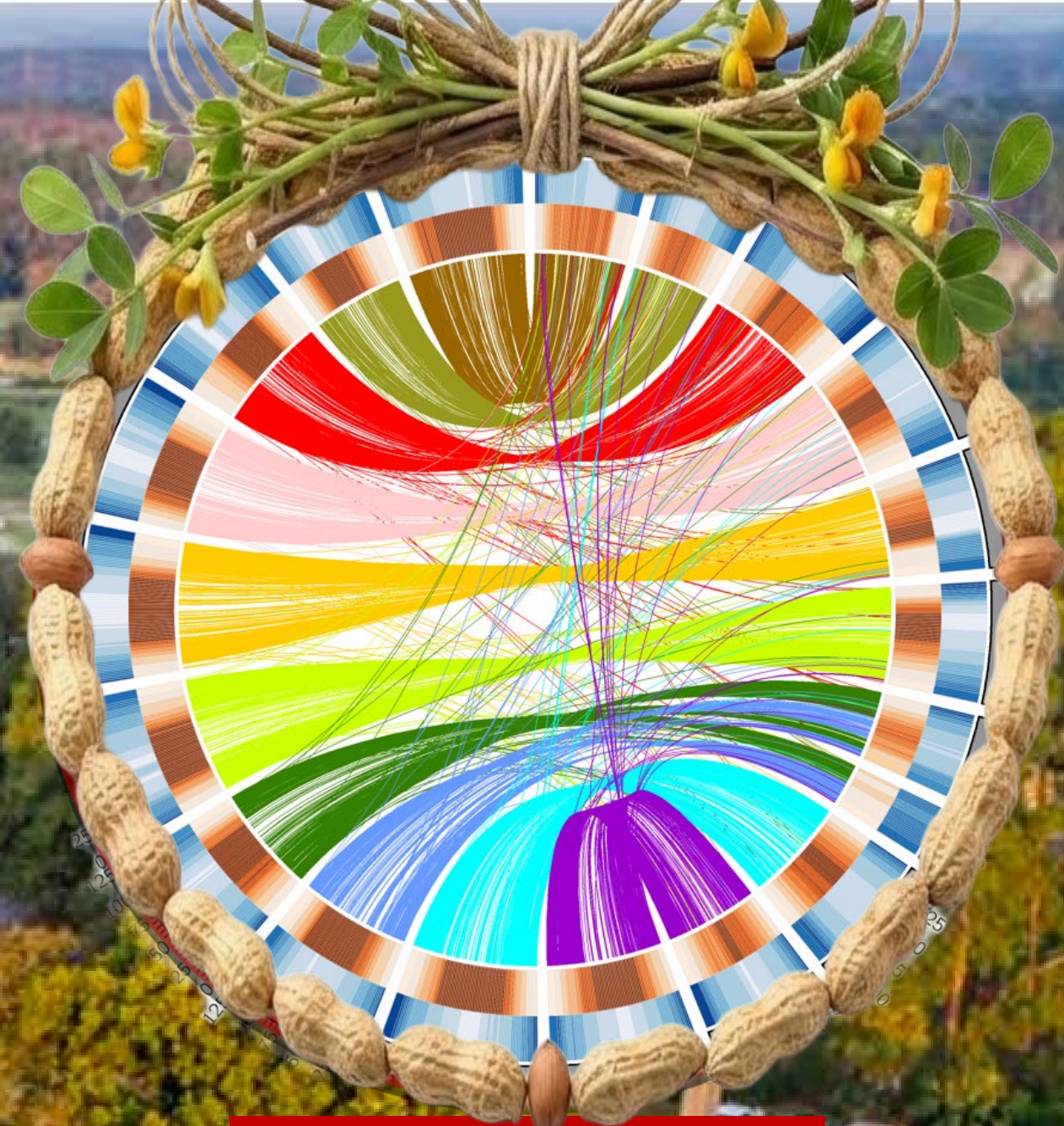
LAND - GRANT
UNIVERSITY
RESEARCH

Peggy Ozias-Akins

University of Georgia



Apomixis



Peanut Genomics



College of Agricultural &
Environmental Sciences
UNIVERSITY OF GEORGIA





National Winner

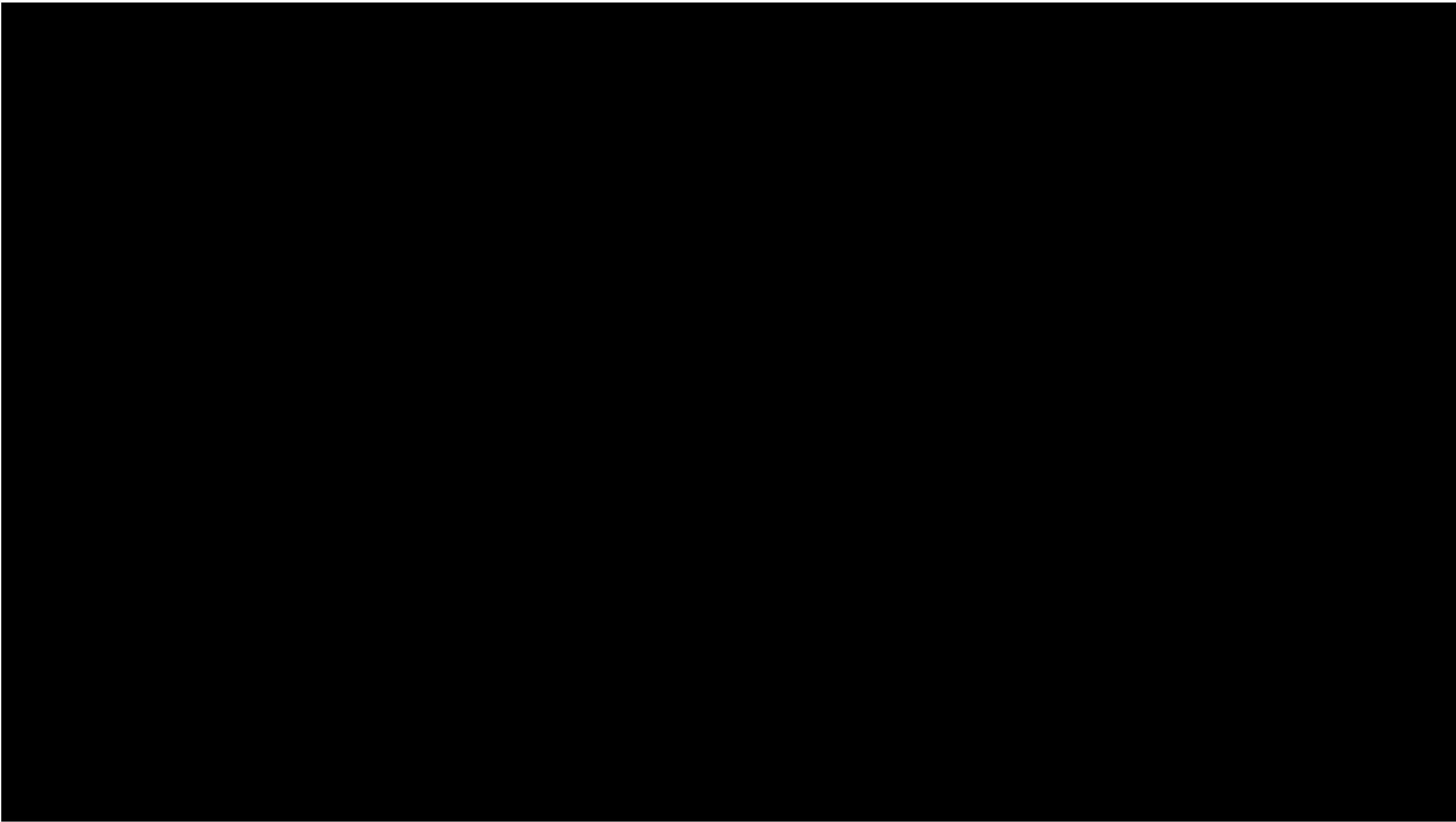
LAND-GRANT UNIVERSITY RESEARCH

agInnovation
NORTH CENTRAL



Edward Cahoon

University of Nebraska, Lincoln





**CONGRATULATIONS
AWARDEES!**

RETIREE

**Thank you Gary Thompson for
your years of service!**

**May your days be filled with
sunshine, top shelf burbon and
no agendas!**

10 YEARS OF SERVICE

Thank you Alton Thompson!

**You are a leader we are proud
to follow!**

RETIREE

**Thank you Rick Rhodes for your
years of service!**

May your adventures never stop!





POST MEETING SURVEY