



Research, Education, and Economics (REE)
National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board
Meeting

Monday, June 3rd – Tuesday, June 4, 2024

North Carolina Research Campus (NCRC), Kannapolis, North Carolina

CONTENTS

EXECUTIVE SUMMARY.....2

MONDAY, JUNE 3 (Meeting Day #1)

Part I: Meeting Overview & Welcome.....3

Part II: Highlights/Updates.....3-5

Part III: Discussion Overviews for New Members.....5-10

Part IV: Presentations.....10-14

Adjournment14

TUESDAY, JUNE 4 (Meeting Day #2)

Part I: Recap of Day 1 and Overview of Day 2.....15

Part II: Old Board Business.....15-19

Part III: Discussion: Relevancy & Adequacy Project.....19-20

Part IV: New Board Business.....20-21

Adjournment21

Appendix A: List of Meeting Attendees22

EXECUTIVE SUMMARY

The National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board held an in-person and zoom Annual Meeting at the North Carolina Research Campus (NCRC) beginning on Monday, June 3, 2024 (Meeting #1 8:30am – 5:00pm EST) and Tuesday, June 4, 2024 (Meeting #2, 8:30 a.m. – 3:00 p.m. EST). The NAREEE Advisory Board is a Federal advisory committee that provides guidance and advice to the Secretary of Agriculture and other key leaders within the U.S. Department of Agriculture (USDA). The Board's primary role is to offer recommendations on priorities and policies for agricultural research, education, extension, and economics programs.

Day 1 Goals- The first meeting day aims to present one-two issues that each Board member brings to light to the organization. Each member will have ten minutes to present their interests and future board project ideas. The Board will delegate all issues from 8:30 a.m. to 5:00 p.m. Other meeting attendees will provide insight into the current issues the Board members will address. A tour will be conducted of the NCRC.

Day 2 Goals- Day 2: The goals include conducting business presentations by the Board's Committees and Subcommittees, focusing on ongoing and new initiatives, and discussing the Relevancy and Adequacy (R&A) report. Additionally, a summary of day 1 will be provided, along with an opportunity for Board members who were absent on day 1 to address issues and discuss previous business. A tour of the Center of Excellence in Post-Harvest Technologies (North Carolina A&T State University) and the North Carolina Food Innovation Lab (North Carolina State University) are scheduled, and the committee will facilitate a Board vote on the Crop Vulnerability report.

PART I: Meeting Overview & Welcome

The meeting commenced at 8:30 a.m. with opening statements by Kate Lewis, Executive Director, and Designated Federal Officer (DFO) of the NAREEE Board. DFO Lewis expressed gratitude to Ms. Deirdra Bieber for identifying the meeting site and to Mr. Brandon Riddle for arranging the audio and visual setup. She also introduced Mr. Kaylon Allen, the newly appointed Science Writer for the NAREEE Board.

Following the opening statements, the NAREEE Board members introduced themselves. The attending members this year were: Dr. Sreekala G. Bajwa, Ms. Donnell Brown, Mr. Richard De Los Santos, Dr. Mario Ferruzzi, Ms. Vanessa Garcia Polanco, Dr. Ellen Harris, Dr. Kenrett Jefferson-Moore, Mr. Edwin Kitzes, Dr. Jane Kolodinsky, Dr. Mark Lawrence, Dr. William Lytle, Dr. Natasha Mast, Dr. Jane Schuchardt, and Ms. Tambra Raye Stevenson (via Zoom).

Board Chair Dr. Kenrett Jefferson-Moore then provided a warm welcome to the Board, highlighting their location in North Carolina. She referenced the welcome packets distributed to the members and inquired whether any of them had prior affiliations with the state. Dr. Jefferson-Moore also mentioned several well-known brands that originated in North Carolina, such as Krispy Kreme, Bojangles, Pepsi, Biscuitville, Cheerwine, and Wrangler. She emphasized that these brands are significant representations of the state's food and agricultural heritage.

PART II: Highlights/Updates

Dr. Jefferson-Moore provided an overview of the recent Board meeting, which included a review of REE leadership priorities, precision tradition programming, and the National Institute of Food and Agriculture (NIFA) NextGen Initiative including collaborations between 1890 and 1862 land-grant institutions. The meeting also addressed discussions related to the Ad Hoc Committee's draft report.

Additionally, the USDA announced a \$262.5 million investment to support institutions nationwide in fostering the next generation of diverse agriculture professionals.

DFO Lewis noted that new and current members had previously introduced themselves in prior meetings. One of the agenda items for today's meeting was to facilitate introductions between new members and the existing members.

DFO Lewis then discussed the importance of translating REE research policies into programs that deliver value to stakeholders. At 9:05 a.m., she introduced Dr. Deidre Chester, Director of the Office of the Chief Scientist (OCS). Dr. Chester, who recently celebrated 20 years of service with the USDA, provided an overview of the OCS. She explained that the OCS's role is to provide scientific leadership and coordination across the USDA, ensuring that all USDA-funded research upholds the highest standards of intellectual rigor and scientific integrity.

Dr. Deidre Chester outlined the key responsibilities of the Office of the Chief Scientist (OCS), which include:

- Coordination
- Communication
- Outreach
- Scientific Integrity

She also highlighted the five highest scientific priorities for the USDA:

1. Accelerating Innovative Technologies & Practices
2. Driving Climate Smart Solutions
3. Bolstering Nutrition Security & Health
4. Cultivating Resilient Ecosystems
5. Translating Research into Action

Dr. Chester provided a key indicator of the USDA's focus on driving climate-smart solutions by mentioning the goal of feeding nine billion people by 2050. She emphasized the development of climate-smart practices that address the necessity of feeding a growing population while preserving the planet for future generations. These initiatives aim to enhance the resilience and sustainability of farmers and producers.

She also discussed the significance of cultural influences and social environments in shaping society's food choices. In September 2023, the USDA launched its first nutrition hub in partnership with Southern University, focusing on incorporating data that represents underserved communities. Dr. Chester expressed her hope that two additional nutrition hubs will be opened by the end of 2024.

Dr. Chester praised the work of her fellow Board members, emphasizing the importance of their contributions. She announced an upcoming USDA Symposium, an invite-only event for current and emerging partners. The symposium will showcase USDA's science impact stories, highlight investments in critical research, and review progress in implementing the 2023-2026 USDA Science Research Strategy (S&RS). A major announcement related to agricultural research and development will be made during the event, which is scheduled for July 11 in Washington, DC.

Dr. Chester opened the floor for questions at 9:24 a.m.

I made slight modifications to the quotations for clarity and to ensure they fit smoothly within the revised context. However, I can retain the original wording of the quotations if you prefer. Here is the passage with the original quotations intact:

Key Questions and Responses

Dr. Jane Schuchardt asked, "Would you share with us some of the strategies that USDA considers when you translate research to practice?"

Dr. Deidre Chester explained that the USDA looks at science as a whole and that the role of the USDA is to ensure that all the science happening across the department underpins the policies, making sure the science supports all farmers and producers.

Guest Melanie Kirby posed a question, stating, “Does available science include regenerative agriculture science applications and initiatives or research? Is there an interest in pursuing it along with biotechnology approaches?”

Dr. Chester answered that the USDA is creating the definition of regenerative agriculture and will have input from stakeholders and all the equities across the USDA as it develops this definition within the Office of the Chief Scientist.

DFO Lewis concluded this portion of the session and announced an intermission at 10:00 a.m.

PART III: Discussion Overviews for New Members

The Board reconvened at 10:30 a.m. The session began with the introductions of the new members. Ms. Donnell Brown, President of the National Grape Research Alliance, was the first to introduce herself, followed by formal introductions from Dr. Jefferson-Moore, Dr. Jane Kolodinsky, Dr. Mark Lawrence, and Mr. Richard De Los Santos.

Ms. Donnell Brown provided an overview of her professional background, highlighting the projects she has worked on, the issues she has addressed, and her ideas for future board projects. Her experience is summarized as follows:

- Ms. Donnell Brown transitioned from a career in high-tech corporate communications in 2009 to New York’s wine industry, where she served as the executive director of the Long Island Merlot Alliance and the founding event director for the region’s annual Harvest East End.
- She later served as the marketing director for Wölffer Estate Vineyard, a premium Long Island producer, before moving to California to become the marketing director for Visit Temecula Valley.
- Currently, she is the President of the National Grape Research Alliance, where she focuses on aligning the research needs of wine, table, juice, and raisin grapes nationwide and spearheading high-priority, industry-wide projects.
- **Location:** Sacramento, CA

Projects Worked On:

- Drafted the NAREEE Board feedback letter to REE leadership on the last in-person meeting, specifically addressing the Science & Research Strategy section.
- Drafted the Specialty Crop Committee (SCC) feedback letter on the Hemp Research Roadmap.
- Coordinated the SCC in-person meeting, linking it with the California Specialty Crop Tour.

Issues Addressed:

- The need to advance production efficiency through mechanization and automation.
- The improvement of grapevines via traditional breeding, genetics, and biotechnology.
- Addressing the underlying challenges of climate change, labor costs, and availability.
- Short-term priorities include the reauthorization of the Farm Bill and the Specialty Crop Research Initiative (SCRI).

Future Board Project Ideas:

- Conducting a Research & Analysis report on Extension.
- Exploring potential support functions for the Agriculture Advanced Research and Development Authority (AGARDA).
- Arranging meetings with Secretary Vilsack and potentially with the Agriculture Committees of Congress.

Key Points from Ms. Donnell Brown:

- Scientists are concerned about the stigma associated with federal support for winemaking due to religious beliefs.
- There is a perception issue with alcohol production, as some people feel uncomfortable with their tax dollars supporting it.
- Current research priorities do not include organic production.
- Climate change can be tracked through the history of wine production.
- England's emerging sparkling wine industry is a result of climate change.

Ms. Donnell Brown concludes her synopsis of introduction, key points, and issues at 10:46am.

Dr. Jane Kolodinsky, Director of Research at Arrowleaf Consulting, introduced herself at 10:46 a.m. During her introduction, she highlighted her most significant contributions, including her involvement in monthly national seminars and national capital accounting groups. She provided the following details about her role, issues of focus, and current term:

Areas of Focus:

- Industry, Consumer, and Rural Interests
- Economic Development Group
- Serving on the Precision Nutrition Relevancy and Adequacy Subcommittee

- **Committee Involvement:**
 - Executive Committee member
- **Term:** First term, currently being extended
- **Location:** Burlington, VT, and Gunnison, CO
- **Key Issues:**
 1. Food access and value chains
 2. Rural community development

Key Points from Dr. Jane Kolodinsky

- Emphasizes the importance of engaging with the community, particularly in social science.
- Serves on another board, where she translates applied research into practice and participates in monthly national webinars and national capital accounting groups.
- Contributes to transdisciplinary ventures, identifying opportunities for growth in agricultural advancements.
- Subcontracted for large Sustainable Agriculture Grants (SAG) totaling \$10 million.
- Focuses on the diffusion of innovation technologies, highlighting the five components of diffusion innovation, which encompass not only engineering but also education and extension.
- Advocates for regenerative agriculture.
- Meets with the executive committee once a month.

As Dr. Kolodinsky concluded, Dr. Jefferson-Moore, Board Chair, reintroduced herself at 10:57 a.m. She outlined her key issues, primarily focusing on limited resources. Dr. Jefferson-Moore's details are as follows:

- **Affiliation:** North Carolina A&T State University
- **Areas of Focus:**
 - Agricultural Research, Extension, and Education – 1890 Land-Grant University (LGU)
 - Board Chair
- **Term:** Second term, ending on September 30, 2025 (FY 2025)
- **Location:** Greensboro, NC
- **Key Issues:**
 1. **Limited Resources:**
 - Critical mass of faculty and staff
 - Academic funding
 - Infrastructure
 2. **Changing Landscape of Agricultural Education and State Programs:**
 - Program reconstruction and elimination
 - Decline in the pipeline due to rural-to-urban migration
 - Overall climate of education
 - State match concerns across the 1890s

Key Points from Dr. Kenrett Jefferson-Moore

- Updated laboratories in challenging locations require significant overhauls. For example, Tennessee State University and NC A&T have faced funding issues highlighted in a recent article.
- Pell Grant Universities, particularly 1862 Institutions, have benefited from funding matches, but this support has not extended to 1890 or 1994 Institutions.
- The ability to hire research personnel has improved.
- There is increasing state support for 1890 Institutions.
- Students from Atlanta, the District of Columbia, Maryland, and Virginia are showing interest in enrolling in agriculture programs. However, public education funding is needed, especially as students entering graduate programs often lack adequate compensation.
- The past year has seen slight growth in agricultural education.
- State funding remains crucial, although federal funding has increased.

At 11:10 a.m., Ms. Donnel Brown contributed to the discussion by asking, “Why is it hard to recruit faculty?”

Dr. Jefferson-Moore responded, explaining that the difficulty is primarily due to scholarship constraints. Institutions like Yale or Harvard can offer full scholarships, something that North Carolina A&T could not match. She mentioned a case where a prospective student wanted to attend her family’s school (A&T); however, she ultimately chose Yale because they could provide the necessary funding.

Dr. Schuchardt interjected, pointing out that A&T struggles to provide essential resources such as books and health insurance. She emphasized that while schools like Appalachian State and UNC can offer full financial support, A&T lacks the endowment to compete with these institutions. Dr. Jefferson-Moore confirmed this, highlighting the financial challenges faced by A&T.

At 11:15 a.m., Dr. Schuchardt further elaborated by sharing an anecdote about a highly intelligent, low-income white female who chose to attend Harvard over Nebraska. However, she struggled to fit in socially at Harvard and is now working as a barista at Starbucks, illustrating the complex dynamics of financial aid and social integration.

- Mississippi State University
- Location: Starkville, MS
- Ag Research, Extension, and Education
- Term: second, ends on 9/30/2025
- Appointed October 1, 2016
- Served on the NAREEE Board Science Advisory Council
- Prepared response to questions from USDA on gene editing (2018)
- Serving on Precision Nutrition Relevance and Adequacy Subcommittee

Key Points from Dr. Mark Lawrence

- Joined the Board on October 16.
- Leads an innovation lab focused on supporting agriculture to improve human nutrition.
- Specializes in fish health, particularly diseases affecting catfish, and addresses antimicrobial resistance issues.
- Member of the National Grape Research Alliance Committee (NGRAC).
- Highlights the shortage of veterinary scientists, emphasizing that many dangerous diseases are zoonotic (transmitted from animals to humans).
- Notes that 70-80% of veterinarians are women, but veterinary schools are among the least diverse, with all schools facing challenges in minority recruitment.
- Reports success at the state level, where rural veterinary practice is supported.
- Stresses that students must have a genuine desire to pursue this field.
- Acknowledges that the USDA has implemented very effective policies to manage antimicrobial resistance.
- Advocates for the responsible use of antimicrobial tools, emphasizing that they should only be used when necessary. Dr. Schuchardt contributes to Dr. Lawrence's engagement at 11:32 a.m. stated, 25 students who are identified as first-year students, who get a full ride are automatically accepted into vet school and signed a five-year service agreement.

At 11:33 a.m., Ms. Vanessa Garcia Polanco asked, “What feedback is the USDA providing?”

Dr. Lawrence responded, stating that financial barriers are the most significant challenge, particularly the need for more loan forgiveness programs. DFO Lewis added that there is at least one program supported by the National Institute of Food and Agriculture (NIFA). However, Dr. Lawrence pointed out that while Congress has passed funding for the loan forgiveness program, it has done so by reallocating funds from animal research, which has hindered the progression and productivity in that area.

Dr. Lawrence concluded his analysis and remarks on the current state of animal research at 11:39 a.m., after which the meeting transitioned to Mr. Richard De Los Santos.

At 11:40 a.m., Mr. Richard De Los Santos, representing the Texas Department of Agriculture, introduced himself to the Board. His background, term details, and key issues are as follows:

- **Affiliation:** Texas Department of Agriculture
- **Location:** Austin, TX
- **Focus Areas:** Industry, Consumer, and Rural Interests
- **Role:** Representative
- **Term:** Second term, ending on September 30, 2025
- **Appointment Date:** October 1, 2016
- **Committee Involvement:**
 - Executive Committee member
 - Served on the Specialty Crop Subcommittee
 - Served on the Citrus Disease Subcommittee
 - Member of the NAREEE Advisory Board
- **Key Issues:**
 1. Water

2. Rising production costs
3. Food safety

Key Points from Mr. Richard De Los Santos

- Assisted industries in growing and developing crops.
- Recently transitioned to a focus on marketing and safety.
- Highlighted the need for reform in the Food Safety Modernization Act.
- Emphasized that food safety is a priority, and ongoing research includes considerations for this; however, crop production is impossible without adequate water.
- Noted that the Texas Rio Grande River is facing water shortages because Mexico is not meeting its water production obligations, leaving farms without sufficient water access.
- Stressed that farmers are struggling to maintain crop production due to these water shortages, which in turn affects food availability.
- Pointed out the need for increased USDA staffing at the research level to address these challenges effectively.

At 11:46 a.m., guest Melanie Kirby interjected, noting that "New Mexico is sitting on a lot of water, and reservoirs could potentially be diverted to Texas. Everything is interconnected between the water and the land."

Mr. Richard De Los Santos concluded his remarks at 11:50 a.m., and the Board adjourned for a 30-minute luncheon.

PART IV: Presentations

At 12:21 p.m., DFO Lewis introduced Dr. Peter Motavelli, Division Director of Community and Education at the National Institute of Food and Agriculture (NIFA) and a Professor at Missouri.

Dr. Motavelli provided insight into the NextGen initiative, highlighting the aging workforce in U.S. agriculture. He noted that the average age of U.S. farm producers in 2022 was 58.1 years, an increase of 0.6 years from 2017. He also addressed staffing challenges within the USDA, emphasizing that approximately 13% of USDA staff are currently eligible for retirement. Key agencies, including the Farm Services Agency, the Natural Resources Conservation Service, and the Forest Service, are experiencing significant staffing shortages.

The NextGen Program

- The program is designed to allow eligible institutions to determine the most beneficial sources of support, activities, learning experiences, and partnerships.
- It represents a significant USDA investment aimed at supporting innovative and responsive strategies to prepare diverse learners for careers and leadership roles in agriculture.
- The main goal is to prepare and support diverse students for future careers in agriculture, with emphasis on federal sector employment, especially within the USDA.

NextGen Program Eligibility

Section 1006 of the American Rescue Plan Act, as amended by Section 22007 of the Inflation Reduction Act:

- 1890 Land-Grant Institutions (Historically Black Land-Grant Universities)
- 1994 Land-Grant Institutions (Tribal Colleges and Universities)
- Alaska Native-Serving Institutions and Native Hawaiian-Serving Institutions (ANNH)
- Hispanic-Serving Institutions (HSIs)
- Institutions of Higher Education located in the Insular Areas

The NextGen Program encouraged partnerships across institution types.

Dr. Motavelli leaves his contact information and ends his presentation at 12:33 p.m.

Dr. Kenrett Jefferson-Moore introduces Dr. Antoine Alston (Associate Dean for Academic Studies, North Carolina A&T State University's College of Agriculture and Environmental Sciences) at 12:35 p.m.

Dr. Alston proceeds to introduce the Board to System Approach to Promote Learning and Innovation for the Next GenerationS (SAPLINGS) of professionals and leaders in food, agriculture, natural resources, and human sciences as he explains how he served as a major Principal Investigator for a grant for Muhammad Nemetna. Dr. Alston provides a conceptual overview of SAPLINGS and speaks about A&T providing great opportunities for future agricultural professionals. He was ecstatic in providing the program information to board members.

Ms. Donnell Brown adds a question about FANH and what it stood for, which Dr. Alston states means food, agriculture, natural resources, and human sciences.

Dr. Alston provides three major objectives for the SAPLINGS project as listed:

1. Strengthen the college pipeline by igniting interest and engagement in FANH programs among grades 5-12 school students.
2. Use a comprehensive modular approach with multi-layer partnerships to attract, retain, mentor, and graduate more URM college students across the FANH continuum.
3. Increase institutional capacity for student success and boost student awareness of FANH careers.

At 12:48 p.m., DFO Lewis commended Dr. Alston as the presentation transitioned to Dr. Natasha Mast.

Dr. Natasha Mast presented the initiative titled *LEADING Hispanics to Federal Agency Employment*. She provided a comprehensive analysis of Hispanic-Serving Institutions (HSIs), introducing the lead project directors and local project directors. Dr. Mast discussed her partners and outlined the challenges she aims to address. At 12:53 p.m., she detailed the targeted participants and gave an overview of the program activities, which include:

- Financial Support
- Research
- Presentations

Dr. Mast expressed enthusiasm for creating career opportunities for students through youth programs, community initiatives, USDA internships, and outreach via websites and social media. She emphasized the quality and quantity of these efforts and their short-term impact. She also presented numerical statistics related to high school students, teachers, college students, faculty mentors, and USDA employees. Following this breakdown, she highlighted the role of social media in the program at 1:04 p.m.

At 1:08 p.m., Dr. Alston provided insights into Diversity, Equity, and Inclusion (DEI) efforts, highlighting the inequities faced by universities that have traditionally had to achieve more with fewer resources. Dr. Motavelli responded by acknowledging the significant challenges these schools face and noted that the USDA is attempting to provide support. He also mentioned that project director (PD) meetings are planned in Washington, DC, to facilitate networking and problem-solving, but noted that administrative support is still lacking.

At 1:10 p.m., Dr. Motavelli presented a plan focused on both numerical goals and quality outcomes. Dr. Mast acknowledged the support that federal agencies have provided for LEADING programs, emphasizing the need for students who are a good fit for these opportunities.

Dr. Schuchardt added that many 1890 Land-Grant Universities contribute to the pipeline of students pursuing Master's and Ph.D. programs. Dr. Motavelli agreed with Dr. Schuchardt's comments, noting the importance of illustrating how all programs fit together. Dr. Schuchardt also pointed out that sustaining a five-year program commitment could be challenging over time.

Dr. Mast concluded by acknowledging that not all students could be guaranteed placement in these positions.

At 1:20 p.m., DFO Lewis thanked the Zoom participants and concluded the virtual portion of the meeting before proceeding with the planned tour of the research facilities.

TOUR (1:00 p.m. -3:00 p.m.)

PART IV: Presentation Continued

At 3:05 p.m., Dr. David Warren, Senior Director of Integrated Digital Strategies at Oklahoma State University, presented the largest portion of the day's agenda, focusing on the Basics of Artificial Intelligence (AI). He began by discussing the rapid progress AI has made over the years, emphasizing the comparison between AI and human performance. His presentation included the following key points:

- **Artificial Narrow Intelligence (ANI):** Dr. Warren explained that many companies are actively developing narrow AI, which specializes in specific tasks.
- **Transformers (Deep Learning Neural Networks):** He discussed the capabilities of

Transformers, highlighting their ability to:

- Understand context
- Parallelize processes
- Operate with speed and efficiency
- Learn from large datasets
- Utilize large context windows

Dr. Warren noted that \$300 billion in capital has been invested in AI technology. He referenced his experience building gaming PCs in the 1990s and mentioned that modern graphic processing units, such as those produced by Nvidia, are now capable of generating vast amounts of text. Large Language Models (LLMs) are designed to process and learn from billions of training datasets.

During the presentation, Dr. Schuchardt inquired about AI and its relationship with Emotional Intelligence (EI), to which Dr. Warren responded that EI is not currently integrated into AI. He also mentioned that Artificial General Intelligence (AGI) would be the next evolution of AI.

When Dr. Schuchardt asked about the open-source nature of AI and the associated costs, Dr. Warren clarified, “Generative pre-trained transformer (GPT) is open-source, but the cost is for the service provided by ChatGPT.” He mentioned that platforms like Cloud.AI offer both free and paid plans and that other tools, such as Perplexity, are also available. He noted that Reddit often contains content written in a sarcastic tone and that OpenAI, which operates ChatGPT, is primarily owned by Microsoft.

Dr. Jane Kolodinsky raised concerns about cybersecurity, to which Dr. Warren responded, “Anything a human can build, a human can hack.”

Dr. Warren continued by discussing the onset of the digital age and shared key statistics:

- Two billion Google searches are conducted daily.
- The average screen time is eight hours per day.
- There are 112 extension services.
- Annually, 50,000 extension-related questions are asked.
- Annually, 500,000 extension-related questions are asked.
- A \$180,000 NTAE grant was awarded.
- \$20,000 was allocated for a conference, totaling \$200,000 in spending.

Dr. Warren concluded his presentation at 4:30 p.m.

Closing Presentation by Ms. Aarti Arora

Ms. Aarti Arora, ORISE Data Science Fellow at the Office of the Chief Scientist, USDA, concluded the day’s presentations with a discussion on moving the Science and Research Strategy from intention to implementation, marking a first for a cross-departmental effort. She outlined five key priority themes of the strategy, with bolstering nutrition security and health as the top priority:

1. Accelerating Innovative Technologies & Practices
2. Driving Climate Smart Solutions
3. Bolstering Nutrition Security & Health
4. Cultivating Resilient Ecosystems
5. Translating Research into Action

DFO Lewis wrapped up the day's session. Dr. William Lytle asked Ms. Arora, "What can the board do to contribute to the cause?" This led to a discussion involving Dr. Sreeja Bajwa, Dr. Schuchardt, and Ms. Donnell Brown on Science and Research.

During the discussion, Dr. Ellen Harris informed Dr. Sreeja Bajwa that enforcing regulations over the federal government, particularly in relation to the USDA, is not feasible.

The public forum opened at 5:35 p.m. for comments, but no additional comments were provided.

Adjournment

Meeting adjourns at 5:40 p.m.

TUESDAY, JUNE 4, (Meeting Day #2)

PART I: Remarks, Recap of Day 1 & Day 2

The Board opens the meeting at 8:15 a.m. with additional members than the day before. DFO Lewis recaps the success of the meeting the day before, stating the flow of the meeting and the Board location was ideal for everyone. DFO Lewis recalls the new Board members introducing themselves to the new Board members. They did so using presentation slides as DFO Lewis introduced Ms. Izzy Hill to the Board as well. DFO Lewis also introduces Dr. Mario Ferruzzi.

Dr. Mario Ferruzzi explains that he is representing Nutrition Research societies. Nutrition and Food Science is what he is passionate about. He has worked at The North Carolina Food Innovation Lab. The ongoing discussion on dietary guidelines and enhancements of what they have in a space from a translation perspective summarizes the issues that he wishes to coordinate for the day.

PART II: Old Board Business

Mr. Gee Roe (W.G. Roe and Sons, Chair and Citrus Disease Subcommittee) begins the presentation giving a definitive explanation of what the subcommittee is dedicated to, he advises that the board is listed as the following responsibilities:

- Advise USDA on citrus research, extension, and development needs; engages in regular consultation and collaboration with USDA and other organizations involved in citrus; and provides recommendations for research and extension activities related to citrus disease.
- HLB/Citrus Greening “101”
 - Bacterial Disease that infects the phloem
 - Vectored by Asian Citrus Psyllid
 - FL vs. CA – Two Different Situations
 - Disease and Vector prefer more tropical environments
 - CA – success at containing so far
 - Central and South FL not successful at containing, industry currently 10% of pre- HLB levels.
 - TX, AZ, LA, GA, North FL –in the middle

Mr. Gee Roe proceeds to break down the Citrus screening disease process with nine research priorities such as relaying progress in the development of commercial citrus varieties (rootstocks and scions) for both fresh and processed markets, with genetic tolerance and resistance to HLB using traditional breeding techniques and/or gene editing.

Ms. Donnell Brown asks if the priorities are in order, Mr. Roe responds that they are in short form order.

Mr. Richard De Los Santos presents a question to Mr. Roe about Texas and priority #1. Texas is included in the priority Mr. Roe states.

DFO Lewis acknowledges the need for a subcommittee member from Texas or Arizona for the fiscal year 2026.

Dr. Jim McFerson asks what the price of the Citrus industry is economically. Mr. Roe declares a ballpark figure estimation of \$9 billion.

DFO Lewis transitions the presentation to Ms. Izzy Hill on the Pollinator Subcommittee. Ms. Elizabeth (Izzy) Hill (Honey Bee and Pollinator Research Coordinator, USDA) speaks at 9:05am on the Pollinator Subcommittee and what they do as listed:

- Advise on the best available science in informing specific USDA pollinator programmatic or policy needs.
- Advise on USDA pollinator research priorities.
- Subcommittee initiated in Jan 2024
- Meetings in March and May 2024
- Member introductions
- Overview of logistics and subcommittee charges and organizational structure.
- 2024 Pollinator Priorities report feedback
- Feedback given to Farm Service Agency on the definition of a hive for the Emergency Livestock Assistance Program (ELAP)
- Next Meeting in July 2024
- Plan to elect chair

DFO Lewis opens the floor for questions regarding Ms. Izzy Hill's presentation.

Dr. Bajwa acknowledges at 9:18 a.m. that a reading group caught her attention and asks about genetics and breeding.

Ms. Izzy Hill responds that they have a lab in Baton Rouge, LA dedicated to genetics and breeding. She states that they can do artificial assimilation with bees. There are pre-breeding programs that are strategically placed colonies that can be implemented into drone production. Honey production can be bred and temperament of colonies. There is a new program called the Beedom 100, which can perform the genome easily.

Ms. Kirby expressed concern about the current state of the agricultural system, highlighting the challenges faced by pollinators. She shared her extensive experience in the field, noting her 30 years of work and a Master's degree in Science & Etymology, though she has not yet attained a formal doctoral title. Ms. Kirby recalls what the stressors are that are affecting pollinators listing the four P's, pest, pathogens, poor nutrition, and pesticides. The path to counterattack these degradables is trying to breed for variations of resistance. Logistically when something like colony collapse disorder happens, where pollinators are being affected, there is not a single smoking gun, it all depends on what part of the country it is in and how strong the foundation is to combat these negativities.

Dr. Mark Lawrence asks about the status of pollinator health and if there are veterinarians supporting the advancements of health.

Ms. Izzy Hill responds that the Food and Drug Administration must always have a veterinarian administer the antibiotics. Ms. Kirby states that Michigan State University is a leading university in this research.

DFO Lewis transitions into NGRAC (National Genetic Resources Advisory Council) and Dr. Jim McFerson's analysis and overview of the program. She opens an initial questionnaire while preparing the current presentation slides for NGRAC.

Ms. Donnell Brown provides a question about how NGRAC gathers input for different agriculture sectors for what they need, involving genetic resources. Dr. McFerson responds that the organization utilizes their own council. They help develop reports focusing on different livestock, microbes and crop plants.

Dr. Jim McFerson explains the FY24 work in progress and biotechnological material.

Deployment White Paper

- Innovative approaches to more efficiently and effectively utilize genetic resources to mitigate or resolve national problems

Tribal Engagement Initiative

- Highlight processes that impinge upon Tribal rights and interests
 - USDA
 - Department of Interior (DOI)
 - Bureau of Land Management (BLM)
 - Department of Defense (DoD)

Interagency Aquaculture White Paper

- National framework for aquatic genetic resources
- USDA, NOAA, FWS
- Builds on previous NGRAC reports

Dr. McFerson speaks about participants doing a better job within the organizations of Tribal Engagement.

Dr. McFerson moves on to the technical details of the recommendations and says they are in importance of priority or order. There are 44 germplasm committees he states. The recommendations are listed as:

- Implement the 2023 National Plant Germplasm System (NPGS) Strategic Plan.
- Empower curators to develop crop-specific Crop Vulnerability Statements for every collection.

- Provide the necessary resources for crop-specific curators to develop and implement prioritized action plans
- Require action plans balance costs/resources and optimize collection composition.
- Empower curators and Crop Germplasm Committees to develop regular updates on societal impact.
- Improve engagement with stakeholders, tribal communities, international partners, and the general public.
- Recruit and retain curators trained in genetics, genomics, and breeding.
- Enhance training opportunities for NPGS personnel, especially crop-specific curators.
- Improve access to well-curated genomic, genetic, and breeding databases.

Dr. McFerson speaks about working on these recommendations to the USDA (ARS) Agricultural Research Service. This was presented to the NAREEE's Executive Committee in 2024, it has been about 5 years since this plan was started to formulate. The implementation of the 2023 NPGS Strategic Plan is of high importance and was mandated by Congress in the Farm Bill in 2018. Dr. McFerson wishes to amass more genetic material because it is always a good idea to do so. The nine recommendations are at the heart of this report.

Mr. Richard De Los Santos asks Dr. McFerson about staffing and recruiting currently. Dr. McFerson explains that more widely trained and capable science groups are being coordinated to adjust to staffing issues.

DFO Lewis transitions into Dr. Gregory Goins (Chair, Specialty Crop Committee (SCC) and Professor of Environmental Biology at North Carolina A&T State University) sector of the presentation space. She acknowledges that Dr. Kenrett Jefferson-Moore & Dr. Goins are colleagues at North Carolina A&T State University. Dr. Goins appeared in a recent research magazine. Dr. Jefferson-Moore breaks down the manufacturing and cotton mills in Kannapolis, NC location indicating its centralized area.

Dr. Goins explains that this is the smallest board for the specialty crops at 10:10am. He gives a definitive insight on the purpose of the Specialty Crop Committee. The committee's purpose is to study the scope and effectiveness of research, extension and economics programs affecting the specialty crop industry. It is also to report research findings and share feedback to make US specialty crop production more efficient, productive, and profitable.

Dr. Goins transitions to the SCC's Recommendations for NIFA's FY2024 Specialty Crop Research Initiative (SCRI):

- Formulate inclusive panel structure requirements that reflect larger, transdisciplinary programs which can facilitate a broad reviewer matrix while maintaining panel diversity and integrity.
 - Recruitment of industry reviewers for the relevance review has always been a key challenge for SCRI program administrators.
- Program evaluation could/should be a component in RFAs, so that research labs that specialize in program evaluation could submit proposals.
 - The SCRI program would benefit from a program gap analysis to assess what states, crops, and program priorities are being funded, and whether SCRI efforts

reflect USDA’s commitments to scientific integrity and diversity, equity, and inclusion.

- Take steps to increase awareness of transdisciplinary approaches and ensure projects are transdisciplinary in nature, based on feedback from past panel reviewers and reviews. NIFA should consider offering pre-testing, perhaps based on AI technology, to help applicants pre-screen their projects for transdisciplinary fitness.
 - SCRI projects are required to demonstrate a systems approach, which often requires that project teams span transdisciplinary boundaries.

Dr. Bajwa asks questions to Dr. Goins about the committee (10:25am). Dr. Schuchardt recommends seeing the final step that goes back to the committee.

Ms. Vanessa Garcia Polanco asks about travel compensation to Dr. Goins.

Dr. Zolodinsky talks about her experience while Ms. Donnell Brown intervenes as well. Dr. William Lytle acknowledges a specialty crop of indigenous knowledge holders.

PART III: Discussion: Relevancy & Adequacy Project

Dr. Mario Ferruzzi of the Ad Hoc committee explains what the requirements are of the Relevancy & Adequacy Project and where they are at in this past year, they’ve passed the precision nutrition is a very broad area of research and he will get a little bit more about description science research strategy the board presented precision nutrition as a component effort administration so it is an emerging area and he would say that it's an interconnected area that connects agriculture food nutrition and a more broad health goal is to be a little bit more specific.

Why “Precision Nutrition”

- Key Component of USDA Science & Research Strategy (S&RS)
- Emerging area connecting agriculture, food, nutrition and public health
- At the Board’s annual meeting in June 2023, Board members heard Dr. Jacobs-Young present on REE’s ‘Precision Nutrition’ (PN) strategy and efforts.

Dr. Ferruzzi explains that everyone has the report on precision nutrition already, so they are aware of the outlined summary. He provides a project timeline on events taking place on a month-to-month basis. The FY 23/24 Project Timeline ranges from July 2023 to September 2024. He further emphasizes that components we need to know more about are underpopulated and the need to incorporate data and designs to have far more dissemination across all stages parallel to research probability for success. Understanding the funding level where they are perhaps for human nutrition research or other additional resources also spend the time to do research and translation and enable progress. This is one of the initial judgements Dr. Jacob introduced last year to them, and this makes dissemination of research relevant, and it needs to ensure it has resources.

The recommendations on the Relevance and Adequacy of the Precision Nutrition Programs and Activities at the USDA are as listed:

- USDA-REE programs and activities in precision nutrition are emerging and highly relevant.
- Efforts should continue to coordinate and communicate across related agriculture, food and consumer programs that will enable ultimate translation of findings to stakeholders.
- Research programs should focus on unique REE strengths in connecting human nutrition to agriculture, food processing, food nutrient composition, food systems and community engagement.
- Current efforts to generate and incorporate data representative of underserved populations and support development of dissemination efforts to increase healthy lifestyle and eating habits across all life stages is highly relevant.
- Efforts for implementation should continue to be developed in parallel to research to enhance dissemination of science and probability for successful adoption by producers and consumers.
- Additional resources are needed to enable and monitor the progress and success of these programs.
- Agricultural Science Center of Excellence for Nutrition and Diet (ASCEND) for Better Health should be supported with new resources for implementation.
- Interdisciplinary educational and training programs supported by USDA-REE should expand their inclusion of precision nutrition to educate the workforce.
- Attention to consumer education on precision nutrition will be required for translation of precision nutrition through dietary guidance.
- Engagement across USDA agencies for data collection and dissemination could be helpful. This includes USDA's National Agricultural Statistics Service (NASS) and the Agricultural Marketing Service (AMS).
- Efforts to coordinate precision nutrition research across agencies must include alignment of data and analytics tools and approaches to enable integration and use of open data platforms.
- In recognition of the difficulty in assessing a spectrum of emerging programs in precision nutrition, the AHC recommends a reassessment of this area in no less than 5 years, which should coincide with the maturation of several programs identified by the working group and the field overall.

After Dr. Ferruzzi concluded his presentation, the space was opened by DFO Lewis for public comments, in which no board member had questions or statements made for the public comment section.

PART IV: New Board Business

DFO Lewis acknowledges what she has heard from the meeting of possible topics are data science, precision agriculture and KPIs for science metrics at 12:10 p.m. as she opts to have a Boardroom luncheon versus a dispersing lunch.

Dr. Schuchardt proposes pushing forward a water incentive and seconds that motion from Dr. Bajwa. Dr. Schuchardt also agrees with the organic mechanisms of feed and food, self-serving options.

Dr. William Lytle adds in climate justice based upon social equity.

Dr. Ellen Harris continued to make a statement on scientists to do the research, scientists don't get credit, and it is not reflected in the final analysis - future thinking on research and a framework on how to manage success.

FY 25 from Dr. Jefferson-Moore would like to propose and maintain the existing membership of the executive committee, elect vice chair, extend the current executive committee membership through the 2025 fiscal year, which will provide continuity throughout the next two fiscal years. , It would be problematic to disrupt the committee at this point. This would allow time for, , the vice chair to sit in their seat to learn the chair role. .

Dr. William Lytle confers that he is not sure they can reinsert those metrics presented once proposed at 12:23 p.m.

Ms. Donnell Brown states that it would only be a review of what metrics exist.

Who currently wants to stay on the executive committee? Dr. Lytle asks.

Dr. Jefferson-Moore asks who they would like to nominate for vice chair? Dr. Mario Feruzzi is nominated by Ms. Donnell Brown.

The floor is open for nominations.

The needs of majority approval or unanimous approval is asked by Dr. Schuchardt

Dr. Mario Ferruzzi is elected as vice chair by the board at 12:58pm, everyone agreed/obliged, no one opposed.

Dr. Ellen Harris is trying to be mindful of the voting situation with DFO Lewis, proposing an altered solution to limit it to five.

Dr. Lytle suggests two slots are open now.

Ms. Vanessa Garcia Polanco is nominated by Dr. William Lytle

Dr. Natasha Mast proposes that they want to consolidate the group.

There is an objection to leaving this open to the end of the fiscal year.

Next Board Meeting/Location

Monterey, California would next prospectively next board meeting, to be determined by late 2024 and proposed for early 2025.

TOUR 1:00 p.m. – 3:00 p.m.

Meeting Adjourned at 3:00 p.m.

APPENDIX A: LIST OF MEETING ATTENDEES

MEETING DAY #1, Monday, June 3, 2024

NAREEE Board Members

Dr. Sreeja Bajwa, Ms. Donnell Brown, Mr. Richard De Los Santos, Ms. Vanessa Garcia Polanco, Dr. Ellen Harris, Dr. Kenrett Jefferson-Moore, Mr. Edwin Kitzes, Dr. Mark Lawrence, Dr. William Lytle, Dr. Natasha Mast, Dr. Jane Schuchardt, Dr. Jane Zolodinsky

NAREEE Advisory Board Staff: Kate Lewis, Michele Simmons

Zoom Attendees- Ms. Tambra Stevenson (Patent Holder, Author, CEO, Women Advancing Nutrition Dietetics & Agriculture), Dr. Jim McFerson (Chair, National Genetics, Resources Advisory Council), Mr. Gee Roe (W.G. Roe and Sons, Chair and Citrus Disease Subcommittee), Dr. Antoine Alston (Associate Dean for Academic Studies, North Carolina A&T State University's School of Agriculture and Environmental Sciences), Ms. Melanie Kirby (Extension Educator of Land Grant Programs, Institute of American Indian Arts), Dr. Deidra Chester (Director, Office of the Chief Scientist, USDA), Dr. Rich Derksen (Deputy Director, Office of the Chief Scientist, USDA), Ms. Megan Bame, Ms. Chesney Richter (Research Consultant, Nutrition in Demand)

MEETING DAY #2, Tuesday, June 4, 2024

NAREEE Board Members: Dr. Sreeja Bajwa, Ms. Donnell Brown, Mr. Richard De Los Santos, Dr. Mario Ferruzzi, Dr. Vanessa Garcia Polanco, Dr. Ellen Harris, Dr. Kenrett Jefferson-Moore, Mr. Edwin Kitzes, Dr. Mark Lawrence, Dr. William Lytle, Dr. Natasha Mast, Dr. Jane Schuchardt, Dr. Jane Zolodinsky

NAREEE Advisory Board Staff: Kate Lewis, Michele Simmons

Zoom Attendees: Ms. Tambra Stevenson (Patent Holder, Author, CEO, Women Advancing Nutrition Dietetics & Agriculture), Dr. Jim McFerson (Chair, National Genetics, Resources Advisory Council), Mr. Gee Roe (W.G. Roe and Sons, Chair and Citrus Disease Subcommittee), Dr. Antoine Alston (Associate Dean for Academic Studies, North Carolina A&T State University's School of Agriculture and Environmental Sciences), Ms. Melanie Kirby (Extension Educator of Land Grant Programs, Institute of American Indian Arts), Ms. Megan Bame, Ms. Chesney Richter (Research Consultant, Nutrition in Demand)