



AGENDA

IALR Board of Trustees APPLIED RESEARCH COMMITTEE

Tuesday, January 27, 026 - 9:00–10:30 am – IALR Conference Room 203

- | | |
|--|--------------------|
| I. Convening of Meeting | Dr. Mario Ferruzzi |
| A. Welcome | |
| B. Call to Order and Confirmation of Quorum | |
| C. Call for Changes to Agenda | |
| II. Attendance of Committee Member(s) by Electronic Communication Means (Vote Required) | Dr. Mario Ferruzzi |
| III. Approval of Minutes (Vote Required) | Dr. Mario Ferruzzi |
| A. October 28, 2025 | |
| IV. Applied Research Report | Dr. Scott Lowman |
| V. Open Discussion of Concerns, Issues, and Observations | Group |
| VI. Adjournment | Dr. Mario Ferruzzi |

Reference material included: “Research-Related Updates”

Future Committee Meetings

April 28, 2026

Applied Research Committee Members

Dr. Mario Ferruzzi, *Chair*
Mr. Don Gibson, *Ex Officio*
Ms. Emma Kozlowski
Mr. Charles Majors
Ms. Leslie Mantiply
Mr. Don Merricks
Mr. Kunal Patel
Dr. Tom Powell

Future Plenary/BOT Meetings

February 12, 2026
May 14, 2026

IALR Staff

Mr. Telly Tucker, President
Dr. John Hughes, Executive Vice President, Operations
Dr. Scott Lowman, Director of Applied Research
Ms. Pam Patterson, BOT Secretary & Executive Assistant



**IALR BOARD OF TRUSTEES (BOT)
APPLIED RESEARCH COMMITTEE**

Minutes – Tuesday, October 28, 2025 – 9:00 a.m. – IALR Conference Room 203

<p><u>Members Present</u> Dr. Mario Ferruzzi, <i>Chair, via Zoom</i> Ms. Emma Kozlowski, <i>via Zoom</i> Mr. Charles Majors, <i>via Zoom</i> Ms. Leslie Mantiply Mr. Don Merricks Mr. Kunal Patel Dr. Tom Powell, <i>arrived at 9:33 a.m.</i></p> <p><u>Members unable to attend</u> Mr. Don Gibson, <i>Ex Officio</i></p>	<p><u>IALR Staff Present</u> Mr. Telly Tucker, President, IALR Dr. Scott Lowman, VP of Applied Research Ms. Pam Patterson, BOT Secretary & Executive Assistant</p> <p><u>IALR Staff unable to attend</u> Dr. John Hughes, EVP, Operations</p> <p><u>Guests</u> None</p>
--	--

Call to Order / Quorum / Changes to Agenda

Dr. Mario Ferruzzi called the meeting to order at 9:00 a.m. on Tuesday, October 28, 2025. At the time of commencement, a quorum was not present. No changes were made to the meeting agenda.

The meeting began with introductions from board committee members to Dr. Ferruzzi.

Dr. Tom Powell arrived at 9:33 a.m., thereby establishing a quorum.

Attendance of Committee Member(s) by Electronic Communication Means

Dr. Ferruzzi, Mr. Majors, and Ms. Kozlowski participated electronically. Dr. Ferruzzi joined remotely due to professional obligations at Virginia Tech. Mr. Majors participated electronically for medical reasons, and Ms. Kozlowski attended via Zoom due to the distance between her principal residence and the meeting location. The committee voted to approve their participation via Zoom.

Motion: Mr. Don Merricks made a motion to allow Dr. Mario Ferruzzi, Mr. Charles Majors and Ms. Emma Kozlowski to attend the meeting via Zoom. Ms. Leslie Mantiply seconded the motion, and it passed unanimously.

The results of the vote are shown below.

Committee Members Absent	-	1
Committee Votes For	-	4
Committee Votes Against	-	0
Committee Abstentions	-	0

Approval of Minutes

Motion: Dr. Tom Powell made a motion to accept the minutes for the July 29, 2025 meeting. Mr. Kunal Patel seconded the motion. The motion passed unanimously.

Applied Research and Business Development Update

Dr. Scott Lowman provided an overview of the research team, highlighting key members and their expertise. He mentioned the addition of two new graduate students —one pursuing a master’s degree and the other a Ph.D.—who are involved in various projects at the Controlled Environment and Ag Innovation Center.

Dr. Lowman presented an update on the Controlled Environment Agriculture (CEA) Innovation Center (Exhibits A and B), a strategic partnership between Virginia Tech and IALR that offers advanced research facilities and expert support for CEA businesses. Services include contract research, ISO testing, and access to greenhouses. Recent developments include the publication of a statewide report on co-locating data centers and greenhouses, new partnerships with Babylon Mini Farms and Prospect Ag, and the installation of a greenhouse monitoring system. The Center is expanding its educational outreach through collaborations with students at the Governor’s School and Virginia Tech. Entrepreneurship support continues to grow, with visits from Venture Central, Riot, and Big Idea Ventures. The committee discussed biomanufacturing and CEA projects across Virginia, including partnerships with Virginia Tech and NC Biotech. Highlights included USDA grant applications, greenhouse construction plans, and licensing agreements for disease control technologies.

The 2025 CEA Summit East was a resounding success, attracting over 300 attendees from around the world. Marketing efforts are underway to enhance visibility through multimedia and podcast initiatives. In biomanufacturing, IALR partnered with BioMade and hosted a summit to support the development of a statewide strategy. Numerous grants have been received to fund research, workforce training, and infrastructure, including collaborations with USDA, Virginia Tech, and Cornell University. Economic development is also progressing, with several companies now utilizing space at IALR, including MicroEndo and Lester Polymer Insights.

Dr. Ferruzzi and Dr. Lowman discussed initiatives to grow the entrepreneurship ecosystem, including collaborations with Agrospheres, George Mason University, and the Innovation Hub in Farmville. Plans for expanding ag tech and biotech education through regional community colleges and a new two-year food manufacturing degree were also discussed.

Open Discussion of Concerns, Issues, and Observations

Mr. Tucker requested that the information on data center co-location strategies be shared with Ms. Linda Green, Vice President of Economic Development (SVRA), for use in economic development efforts.

Action Items:

- Ms. Pam Patterson – Share event details for the 54th Virginia Agribusiness Council Annual Legislative Appreciation Banquet with Dr. Ferruzzi and Ms. Emma Kozlowski.
- Mr. Telly Tucker – Review and revise the GO TEC letter of support to include language on fermentation training; send the updated version to the team. Await feedback from Ms. Linda Green before finalizing the letter of support.
- Dr. Scott Lowman – Share research publications and project details with Dr. Ferruzzi and the committee members.
- Dr. Scott Lowman – Coordinate with Ms. Linda Green on the data center co-location report and explore its use as a recruitment tool.
- Dr. Mario Ferruzzi – Facilitate a connection between Dr. Lowman and Ms. Julie Mann, Director of the NC Food Innovation Lab, regarding Big Idea Ventures.
- Dr. Mario Ferruzzi – Ask Dr. Susan Sumner, Associate Dean of Academic Programs, Food Science & Technology, Virginia Tech, to connect with Dr. Lowman on market research for ag tech programs and potential collaboration with Virginia Western and regional partners.

Adjournment

Dr. Ferruzzi asked for a motion to adjourn the meeting.

- **Motion:** Dr. Tom Powell made a motion to adjourn the meeting. Mr. Charles Majors seconded the motion, and it passed unanimously. The meeting adjourned at 10:20 a.m.

Signatures and Exhibits are shown on the following page.

Minutes Recorded By:

Minutes Approved By:

Ms. Pam Patterson
BOT Secretary

Dr. Mario Ferruzzi
Chair, Applied Research Committee

Date

Date

Attachments Included as Official Part of Minutes

Exhibit A – Applied Research Narrative Report, October 2025

Exhibit B – Applied Research – Discovering Breakthroughs

DRAFT



Research Committee Report
Dr. Scott Lowman
2nd Quarter - FY2026

Name of Program or Initiative: Building Virginia’s Controlled Environment Agriculture (CEA) Industry Through Targeted Research, Workforce, and Economic Development Initiatives (**The Virginia Tech / IALR Controlled Environment Agriculture Innovation Center**)

1) Background

- a. The Center’s strategic partnership with Virginia Tech’s School of Plant and Environmental Sciences in the College of Agriculture and Life Sciences provides CEA businesses access to a diverse array of globally recognized subject matter experts and leading-edge translational research capabilities.
 - The VT/IALR CEA Innovation Center houses facilities encompassing laboratories, offices, and greenhouse spaces devoted to biology, chemistry, robotics, data science, and hydroponic research in plant science.
 - Partnering companies benefit from a comprehensive suite of services, including IP-friendly and low-cost contract research, ISO chemistry testing, access to bench and greenhouse spaces, and experts for guidance.
 - While the above capabilities and partnerships highlight a competitive industry-focused research capacity, current small-scale internship programs, and entrepreneurship support are presently pilot-scale and have tremendous room for growth.
 - The Virginia Tech Center for Economic and Community Engagement helped develop the CEA Strategy and Roadmap in GO Virginia Region 3, which identified several strategic needs and opportunities.
 - The team has supported numerous VEDP and other economic development initiatives since its inception.

2) CEA Research

- a. The report titled “Co-locating Data Centers and Greenhouses” was published recently. Funded by Go Virginia Region 3, the report was prepared by the Resource Innovation Institute.
 - Currently leveraged across the state



- A working group has been formed with GoVa, REII, and IALR to explore the concept of a farm park for economic development.
- b. IALR assisted 4 Governors School students with their research projects.
- c. The VT / IALR team published a new peer-reviewed article in PLOS One titled “Integrated effects of anaerobic soil disinfestation and beneficial microbes in strawberry production.” (Baker D. Aljawasim, Patricia Richardson, Chuansheng Mei, Robert L. Chretien, Scott Lowman, Jayesh B. Samtani).
- d. The VT / IALR team published a new peer-reviewed article in HortTech titled “Microtomato Fruit Production Varies among Cultivar and Photosynthetic Photon Flux Density in an Indoor Vertical Production System” (Anna Ekene Tharpe, Kaylee A. South, Scott Lowman, Brandan Shur, and Michael R. Evans)
- e. The VT / IALR team published an extension article titled “What is Controlled Environment Agriculture” (Authored by Mitchell Doss, Research Technician, School of Plant and Environmental Sciences, Virginia Tech; Kaylee A. South, Assistant Professor and Extension Specialist, School of Plant and Environmental Sciences, Virginia Tech; J. Scott Lowman, VP Applied Research, the Institute for Advanced Learning and Research; Michael R. Evans, Professor, School of Plant and Environmental Sciences, Virginia Tech)
- f. A new greenhouse environment monitoring system from MicroClimates, was installed. The system includes 36 sensors monitoring water, air, sunlight, and carbon dioxide data collection across all greenhouse structures.
- g. A large contract research project focused on tomatoes is underway with Agrospheres.

3) Entrepreneurship support

- a. Dr. Lowman was a speaker at this year’s RISE entrepreneur event on Nov 1st.
- b. Dr. Lowman will serve as a mentor for AgTech companies partnering with the SOVA Innovation Hub in Farmville, Virginia.



4) Grants

- a. IALR was awarded \$500,000 from the Southern Crescent Regional Commission for Greenhouse expansion and Entrepreneurship support. Next steps will be to secure a Tobacco Commission Grant as a match.
- b. Dr Mei and Lowman received a grant from the Virginia Department of Agriculture and Consumer Services for \$62,000. The grant is focused on developing new crops for the CEA industry.

5) Other Items to Support the Above

- a. Work continues on the VT IALR team's development of a web-based credential system.
 - Work is underway on the Virginia Tech / IALR Controlled Environment Agriculture (CEA) online workforce training website. The site will be linked to the CEA Innovation Center site and will provide a pathway to earn badges, credentials, and support apprenticeships.
 - Biweekly meetings are being held to move the website forward.

Name of Program or Objective: AgTech and Life Sciences Manufacturing Support to Grow Industries Through Testing, Contract Research, and Lab Access

Current Activities

1) Background

- a. To support the IALR Strategic Plan Goal of Strategically Expanding Applied Research, the rapidly growing biomanufacturing industry has been a focus.
- b. In 2024, strategic partnerships were established with the following entities:
 - NC Biotechnology Center
 - NC Life Science Corporation
 - Va Bio
 - Virginia Tech Applied Research Corporation
 - George Mason University
 - Capra BioSciences
 - Virginia Tech Biochemistry



- c. To develop a plan statewide, a Biomanufacturing Summit was held in Richmond Va. The conference took place in Richmond, and the Keynote was Senator Mark Warner.

2) Supporting Industry

- a. Applied research licensed three endophytes to Leone Bio Ventures, a portfolio company focused on sustainability in agriculture.
- b. Applied research licensed an endophyte for sugar beet disease control in the UK.
- c. A large new project is underway with Syngenta.

3) Grants/Funding

- a. A grant was submitted to the Tobacco Commission for the construction of new greenhouse space.
- b. The E-Grow grant with Cornell University has officially started, with Dr. Lowman and Virginia Tech's Dr. South leading the implementation.
 - i. Multiple opportunities to partner with local schools and GoVa.
- c. A new USDA grant is under development with Virginia Tech, the University of Arkansas, and others.
- d. A new collaboration was established with the University of Georgia, focused on a strategic application to the USDA.
- e. Israel Mini Conference Grant was submitted to follow the CEA Summit East for Israeli companies.
- f. Submitted - USDA Organic Research Initiative, Organic Hydroponic Production (led by Yun Yin at VT).
- g. Received - Virginia Tech College of Agriculture and Life Sciences 2024 Internal Seed Grant Greenhouse Needs Assessment Survey awarded.
- h. **Received** – GoVa Region 3 - “The Synergistic Co-location of Data Centers and Controlled Environment Agriculture Greenhouses to Boost Competitiveness.”
- i. **Received** – VT College of Agriculture and Life Sciences Internal Seed Grants – Va State Needs Assessment
- j. **Received** – Virginia Cooperative Extension – Controlled Environment Agriculture Certificate Program
- k. **Received** - Tobacco Region Revitalization Commission (TRRC) grant titled “Building a Regional Food System Through the Creation of a Value Chain Coordinator” (\$104,452 request + \$100,000 external match)



- l. **Received** - Tobacco Region Revitalization Commission grant in partnership with Virginia Tech titled “Supporting Controlled Environment Agriculture (CEA) Growth in Southern Virginia”, (\$145,841 request + \$150,000 external match)
- m. **Received** – USDA Specialty Crop Block Grant “Biostimulants to Improve Indoor Strawberry Production” (\$54,000)
- n. **Received** – USDA Specialty Crop Block Grant “Biotechnology to Improve Indoor Strawberry Production and Disease Control”
- o. **Received** - Agrospheres is funding a new employee for 2 years (\$110,000)
- p. **Received** – The applied research team along with Virginia Tech and Cornell University submitted a grant titled “Empowering Greenhouse Resiliency with an Optimized Workforce (E-GROW)” focused on introducing controlled environment agriculture to K-12. (\$149,119 subaward)
- q. **Received** - A grant partnership with Virginia Western Community College focused on AgTech robotics and vegetable production resulted in an NSF grant award to develop an in-depth program for workforce training in community colleges. Dr. Lowman will serve on the advisory board.

Economic / Business Development – Companies Utilizing Space at IALR

- a. **MicroEndo has agreed to locate at IALR later this spring**
- b. **Lester Polymer Insights (added two employees)**
- c. **Scale Holdings**
- d. **PlantSustain**
- e. **Canon**
- f. **Mosaic**
- g. **Axxor**