



AGENDA

IALR Board of Trustees APPLIED RESEARCH COMMITTEE

Friday, May 2, 2025 - 9:00–10:30 am – IALR Conference Room 203

- | | |
|--|------------------|
| I. Convening of Meeting | Dr. Guru Ghosh |
| 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. Guru Ghosh |
| III. Approval of Minutes (Vote Required) | Dr. Guru Ghosh |
| A. January 28, 2025 | |
| IV. Research Report | Dr. Scott Lowman |
| V. Open Discussion of Concerns, Issues, and Observations | Group |
| VI. Adjournment | Dr. Guru Ghosh |

Reference material included: “Research-Related Updates”

Future Committee Meetings

Applied Research

Committee Members

Dr. Guru Ghosh, *Chair*

Ms. Emma Kozlowski

Mr. Charles Majors

Ms. Leslie Mantiply

Mr. Don Merricks, *Ex Officio*

Mr. Kunal Patel

Future Plenary/BOT Meetings

May 15, 2025

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, January 28, 2025 – 9:00 a.m. – IALR Conference Room 203

<u>Members Present</u> Dr. Guru Ghosh, <i>Chair, via Zoom</i> Mr. Charles Majors Ms. Leslie Mantiply Mr. Don Merricks, <i>Ex Officio</i> Mr. Kunal Patel, <i>via Zoom</i>	<u>IALR Staff Present</u> Mr. Telly Tucker, President, IALR Dr. John Hughes, EVP, Operations Dr. Scott Lowman, Vice President of Applied Research Ms. Pam Patterson, BOT Secretary & Executive Assistant
<u>Members unable to attend</u> Ms. Emma Kozlowski	<u>IALR Staff unable to attend</u> None
	<u>Guests</u> None

Call to Order / Quorum / Changes to Agenda

Dr. Guru Ghosh (via Zoom) called the meeting to order at 9:00 a.m. on Tuesday, January 28, 2025. A quorum was present. There were no changes to the agenda.

Attendance of Committee Member(s) by Electronic Communication Means

Dr. Ghosh and Mr. Kunal Patel joined the meeting remotely due to their workplace commitments. The committee voted to approve their participation via Zoom.

Motion: Ms. Leslie Mantiply made a motion to allow Dr. Ghosh and Mr. Patel to attend the meeting via Zoom. Mr. Charles Majors seconded the motion. The motion passed unanimously.

The results of the vote are shown below.

Committee Members Absent	-	1
Committee Votes For	-	3
Committee Votes Against	-	0
Committee Abstentions	-	0

Approval of Minutes

- **Motion** – Mr. Charles Majors made a motion to accept the minutes for the October 29, 2024 meeting. Ms. Leslie Mantiply seconded the motion. The motion passed unanimously.

Applied Research and Business Development Update

Dr. Scott Lowman presented the Applied Research Report (Exhibit A). He provided updates on CEA Center activities, including the start of two new Ph.D. students in the spring, new research partnerships, and workforce development initiatives. He commented on the successful CEA Summit East, which had 225 attendees from 30 states and three countries, with the keynote address given by Governor Glenn Youngkin, who recognized the Virginia Tech/IALR Controlled Environment Agriculture (CEA) Center as the leading hub for CEA activities in the U.S. The Virginia Department of Agriculture and Consumer Services (VDACS) sponsored the event with participation from all major Virginia CEA companies.

A hands-on, five-day workshop titled Fermentation: Science, Technology, and Engineering was held at IALR from January 13 to 17, 2025, with 18 participants.

Dr. Lowman participated in the Tobacco Commission's Strategic Plan input session, where biomanufacturing and CEA were identified as potential key focus areas. The Tobacco Commission approved an extension of the CEA Center Grant and collaboration to align the CEA Center with a new entrepreneurial initiative across the Virginia Tobacco Region Revitalization Commission (TRRC) footprint.

The Applied Research team engaged in multiple projects, including partnerships with North Carolina State University (NC State). Several new contract research collaborations were established to drive key initiatives forward. A partnership with Intrinsyx will focus on PCB remediation, while a collaboration with Jeneil Zonix aims to test biopesticides and accelerate their approval process. Another initiative with a plant tissue culture company will explore indoor strawberry propagation, supporting the industry's goal of producing clean tissue culture plants for outdoor cultivation, primarily in Canada. Additionally, a partnership with VT Applied Research Corporation will advance biomanufacturing efforts.

Grants/Funding

- a. **Received** – GoVa Region 3 - “The Synergistic Co-location of Data Centers and Controlled Environment Agriculture Greenhouses to Boost Competitiveness”
- b. **Received** – VT College of Agriculture and Life Sciences Internal Seed Grants – Va State Needs Assessment
- c. **Received** – Virginia Cooperative Extension – Controlled Environment Agriculture Certificate Program
- d. **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)

- e. **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)
- f. **Received** – USDA Specialty Crop Block Grant “Biostimulants to Improve Indoor Strawberry Production” (\$54,000)
- g. **Received** – USDA Specialty Crop Block Grant “Biotechnology to Improve Indoor Strawberry Production and Disease Control”
- h. **Received** - Agrospheres is funding a new employee for 2 years (\$110,000)
- i. **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)
- j. **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

- MicroEndo agreed to locate at IALR in the spring
- Lester Polymer Insights
- Scale Holdings
- TerraSafe Materials
- PlantSustain
- Canon
- Mosaic

The meeting concluded with a discussion about the renewal of the master agreement between the Institute and Virginia Tech and potential research opportunities on available farmland in Roanoke County, VA.

Dr. Ghosh thanked Dr. Lowman for the exemplary report.

Open Forum of Concerns, Issues, and Observations

- **Federal Funding Situation Discussion**
Discussion included the recent announcement that President Trump's administration was freezing federal grants and loans. Mr. Tucker and Dr. Lowman provided an update on the Institute's exposure.

Adjournment

Dr. Ghosh adjourned the meeting at 10:05 a.m.

Signatures and Exhibits are shown on the following page.

Minutes Recorded By:

Minutes Approved By:

Ms. Pam Patterson
BOT Secretary

Dr. Guru Ghosh
Chair, Applied Research Committee

Date

Date

Attachments Included as Official Part of Minutes
Exhibit A – Applied Research Narrative Report, October 2024



Applied Research Committee Report

Dr. Scott Lowman

May 2025

Name of Program or Initiative: Building Virginia's Controlled Environment Agriculture (CEA) Industry Through Targeted Research, Workforce, and Economic Development Initiatives

Current Activities by the IALR/VT team

1) CEA Research

- a. A new research partnership was established with a company integrating sensors across multiple platforms. The sensor system has been designed and ordered. A challenge in CEA production is that various companies make different types of wireless sensors.
- b. Virginia Tech College of Agriculture and Life Sciences 2024 Internal Seeds Grant Greenhouse Needs Assessment Survey awarded.
- c. I2GROW Grant is proceeding with Dr. South submitting three mini-grants on CO2 recycling
- d. The research team is working with seven Governor's School students to help with their research projects.
 - Projects range from plant science, biotechnology, chemistry, and data science

2) Meetings, Tours, and Events

- a. Dr. Lowman shared the stage as a keynote speaker with Matt Lohr, Virginia's Secretary of Agriculture and Forestry at the first Agripalooza event held in Roanoke at Virginia Western Community College.
 - Approximately 80 people attended the daylong event to highlight advances in agriculture as well as opportunities for entrepreneurs
 - Twenty students and professors from Virginia Western Community College also visited IALR and the VT IALR Controlled Environment Agriculture Center as part of a National Science Foundation (NSF) grant focused on developing AgTech curricula for community colleges. IALR is a partner in the grant and curricula development
- b. The VT IALR Controlled Environment Agriculture Team attended Indoor Ag-Con in Las Vegas again this year. Drs. South and Evans represented the Center, and many new collaboration opportunities were established. Secretary Lohr, along with representatives from the Virginia Economic Development Partnership (VEDP), also attended.
- c. The research team hosted a tour with 45 Governor's School students to learn about opportunities to work with scientists and internship opportunities.



- d. The 2025 CEA Summit East has been announced for September 9th and 10th. Marketing has begun as well.
- e. The CEA Center established a partnership with the RISE Collaborative for their upcoming conference for entrepreneurs at IALR in October.
- f. Drs. Lowman and South attended the I2Grow grant meeting at VT to present on work happening at the CEA Center.

3) Other Items to Support the Above

- a. The VT IALR team received additional funding from Cooperative Extension to further develop 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, providing a pathway to earn badges, credentials, and support apprenticeships.

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

Current Activities

1) Contract Research

- a. A new Intrinsyx partnership was initiated to focus on PCB remediation. A licensing agreement is under development
- b. Syngenta, one of the largest agriculture companies in the world, visited IALR to learn more about the unique bio-stimulant and biocontrol work happening in the Plant Endophyte Research Center. Opportunities for collaboration were discussed throughout the visit.
- c. Multiple projects are underway with Plant Sustain, our new tenant.

2) Meetings and other updates

- a. Applied Research held its first weeklong VT IALR Biomanufacturing Workshop the second week of January.
 - Eighteen attendees from industry, community college, and Virginia Tech participated
 - Activities included hands-on fermentation with two separate bioreactors and classroom activities



- The project was a collaboration with Dr. Biswarup Mukhopadhyay from the Department of Biochemistry
 - Virginia Tech also provided scholarships for students
- b. Applied Research joined the BioMADE consortium, which is focused on growing the biomanufacturing economy in the US.
- Joining will allow access to new grant funds as well as help connect with new partners in industry
 - Projects are focused on both research and workforce development
 - Workforce Committee meetings begin in May
- c. Work on the GO Virginia Region 3 planning grant titled “The Synergistic Co-location of Data Centers and Controlled Environment Agriculture Greenhouses to Boost Competitiveness”, (\$78,000), began with the Resource Innovation Institute (RII).
- d. Plant Sustain, a company located onsite, has hired its first full-time onsite employee.

3) Grants/Funding

- a. Two new Specialty Crop Grants with the USDA were submitted.
- Micro-Tomato production in CEA
 - Disease Management in CEA
- b. Israel Mini Conference Grant was submitted to follow CEA Summit East for Israeli companies
- c. Four Virginia Department of Agriculture and Consumer Services Grants were submitted.
- Meeting education/extension needs of VA CEA (undergrad and Extension focus)
 - Value-added processing of CEA herbs (resubmission)
 - I2GROW spin-off with compost tea application in hydroponics
- d. In Progress - USDA Organic Research Initiative, Organic Hydroponic Production (led by Yun Yin at VT)
- e. **Received** – GoVa Region 3 - “The Synergistic Co-location of Data Centers and Controlled Environment Agriculture Greenhouses to Boost Competitiveness”
- f. **Received** – VT College of Agriculture and Life Sciences Internal Seed Grants – Va State Needs Assessment
- g. **Received** – Virginia Cooperative Extension – Controlled Environment Agriculture Certificate Program
- h. **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)



- i. **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)
- j. **Received** – USDA Specialty Crop Block Grant “Biostimulants to Improve Indoor Strawberry Production” (\$54,000)
- k. **Received** – USDA Specialty Crop Block Grant “Biotechnology to Improve Indoor Strawberry Production and Disease Control”
- l. **Received** - Agrospheres is funding a new employee for 2 years (\$110,000)
- m. **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)
- n. **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**
- c. **Scale Holdings**
- d. **TerraSafe Materials**
- e. **PlantSustain**
- f. **Canon**
- g. **Mosaic**
- h. **BioCloak (New)**