



## AGENDA

### IALR Board of Trustees APPLIED RESEARCH COMMITTEE

Thursday, July 30, 2026 - 9:00–10:30 am – IALR Conference Room 203

- |                                                                                                |                    |
|------------------------------------------------------------------------------------------------|--------------------|
| I. <b>Convening of Meeting</b>                                                                 | Dr. Mario Ferruzzi |
| A. Welcome                                                                                     |                    |
| B. Call to Order and Confirmation of Quorum                                                    |                    |
| C. Call for Changes to Agenda                                                                  |                    |
| II. <b>Attendance of Committee Member(s) by Electronic Communication Means</b> (Vote Required) | Dr. Mario Ferruzzi |
| III. <b>Approval of Minutes</b> (Vote Required)                                                | Dr. Mario Ferruzzi |
| A. May 5, 2026                                                                                 |                    |
| IV. <b>Applied Research Report</b>                                                             | Dr. Scott Lowman   |
| V. <b>Open Discussion of Concerns, Issues, and Observations</b>                                | Group              |
| VI. <b>Adjournment</b>                                                                         | Dr. Mario Ferruzzi |

Reference material included: “Research-Related Updates”

#### Future Committee Meetings

##### **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

August 13, 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, May 5, 2026 – 9:00 a.m. – IALR Conference Room 203**

|                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b><u>Members Present</u></b><br/> Dr. Mario Ferruzzi, <i>Chair, via Zoom</i><br/> Mr. Don Gibson, <i>Ex Officio</i><br/> Ms. Emma Kozlowski, <i>via Zoom</i><br/> Mr. Charles Majors, <i>arrived at 9:20 a.m.</i><br/> Mr. Don Merricks<br/> Mr. Kunal Patel, <i>arrived at 9:29 a.m.</i><br/> Dr. Tom Powell</p> <p><b><u>Members unable to attend</u></b><br/> Ms. Leslie Mantiply</p> | <p><b><u>IALR Staff Present</u></b><br/> Mr. Telly Tucker, President, IALR<br/> Dr. John Hughes, EVP, Operations, <i>via Zoom</i><br/> Dr. Scott Lowman, VP of Applied Research<br/> Ms. Pam Patterson, BOT Secretary</p> <p><b><u>IALR Staff unable to attend</u></b></p> <p><b><u>Guests</u></b><br/> None</p> |
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**Call to Order / Quorum / Changes to Agenda**

Dr. Mario Ferruzzi called the meeting to order at 9:00 a.m. on Tuesday, May 5, 2026. No changes were made to the meeting agenda.

**Attendance of Committee Member(s) by Electronic Communication Means**

Dr. Ferruzzi and Ms. Kozlowski participated electronically. Dr. Ferruzzi joined remotely due to professional obligations at Virginia Tech. 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 and Ms. Emma Kozlowski to attend the meeting via Zoom. Dr. Tom Powell seconded the motion, and it passed unanimously.

The results of the vote are shown below.

|                          |   |   |
|--------------------------|---|---|
| Committee Members Absent | - | 1 |
| Committee Votes For      | - | 5 |
| Committee Votes Against  | - | 0 |
| Committee Abstentions    | - | 0 |

### **Approval of Minutes**

**Motion:** Dr. Tom Powell made a motion to accept the minutes for the February 3, 2026, meeting. Mr. Don Gibson seconded the motion. The motion passed unanimously.

### **Applied Research and Business Development Update**

Dr. Scott Lowman presented the Narrative Report (Exhibit A). The report covered recent developments and activities across multiple research areas.

Dr. Lowman provided updates on the Co-Locating Data Centers and Greenhouses feasibility study, which had been paused due to similar projects already being planned in Virginia, and shared details about upcoming greenhouse construction funded by the Tobacco Commission and the Southern Crescent Regional Commission. The report covered ongoing internship programs, grant activities, including a \$350,000 greenhouse expansion, and partnerships with various companies and institutions in biotechnology and controlled-environment agriculture. Discussion also included licensing agreements for endophytes, workforce development initiatives, and potential opportunities in biomanufacturing and precision fermentation, with particular attention to partnerships with Virginia Tech and regional community colleges.

Dr. Lowman discussed recent developments in greenhouse projects, including a new \$350,000 greenhouse expansion approved by the Tobacco Commission and additional funding from the Southern Crescent Regional Commission. He mentioned potential collaborations with Dutch greenhouse companies and TC Control Group, Inc., for workforce development curricula.

Dr. Lowman outlined plans for seven summer internships, including positions in biotechnology, the CEA Center, and computer vision robotics, highlighting a promising study on plant movement and health detection. He noted that there is no systematic tracking mechanism in place for Governor's School students. Additionally, he discussed a new engineering design program being developed for the Governor's School and the research team's recent publications.

Dr. Lowman reported delays in RFP processing and notice-to-award timelines, expecting a fiscal year-end surge in submissions. He discussed the CEA Center's activities, highlighting Dr. Mike Evans' increased contributions following his departure from the role of director of the School of Plant and Environmental Sciences at Virginia Tech (VT). Discussion included efforts in ag tech and life sciences manufacturing, noting a \$1 billion federal investment in biomanufacturing and \$12 billion in new biopharmaceutical factory construction in Virginia. Dr. Lowman described a successful week-long workshop with Virginia Tech and Virginia Western Community College, which positioned the region for upcoming biotechnology opportunities, including a potential \$120 million state investment in community college biotechnology programs.

Dr. Ferruzzi discussed public-private partnerships at the university, including opportunities in data centers and intellectual property development with companies such as Google.

Dr. Lowman shared details about the endophyte licensing program, explaining that they have licensed approximately 65 different endophytes with a tiered pricing structure ranging from \$1,000 to \$10,000 upfront fees, plus 1.5% of net sales.

Dr. Ferruzzi suggested that IALR learn from North Carolina State University's (NCSU) successful economic development partnerships and recommended connecting with Ms. Celeste Brogdon, the new Assistant Dean of Advancement at VT, to explore opportunities for collaboration.

Dr. Lowman provided updates on several biotech initiatives, including a successful ribbon-cutting event for Agrospheres, a \$40 million production facility in Charlottesville, Virginia. The discussion covered the department's ongoing partnership with Bonumose, Inc., on a rare sugar product nearing FDA approval, made from agricultural waste using cell-free biomanufacturing. Additionally, Dr. Lowman mentioned the recent fermentation workshop's success and a new collaboration involving a National Quantum Nanotechnology Infrastructure Grant application with Matthew Hall from ICTAC Matter Labs.

Dr. Lowman discussed the status of BioMADE, a biomanufacturing initiative funded by the Department of Defense (DoD), which has been defunded and will not proceed with plans for a facility in North Carolina. He noted that while the DoD has allocated funds for biomanufacturing, including the creation of an Office of Biotechnology Management, there are concerns about relying too heavily on federal funding given its unpredictability. Dr. Ferruzzi emphasized the importance of building capacity in biomanufacturing and precision fermentation, suggesting it could benefit both government and private sector interests. The committee decided that a more detailed review of the current funding portfolio and future pipeline is needed to ensure a strategic project mix and sustainability.

### **Open Discussion of Concerns, Issues, and Observations**

There was no further discussion.

### **Action Item(s)**

- Summarize the history and development of the licensing agreement structure and pricing for endophytes, including steps taken and rationale, for review at the next meeting.
- Update and present a detailed summary of all grants received (including dollar amounts and sources) and the financial portfolio (including licensing, rent, and contract research revenue) for the committee at the next meeting.
- Put together and update the list of companies that have come through IALR, including outcomes and current status, for future discussion.

### **Adjournment**

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

- **Motion:** Mr. Don Gibson made a motion to adjourn the meeting. Mr. Charles Majors seconded the motion, and it passed unanimously. The meeting adjourned at 10:19 a.m.

**Minutes Recorded By:**

**Minutes Approved By:**

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Ms. Pam Patterson  
BOT Secretary

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Dr. Mario Ferruzzi  
Chair, Applied Research Committee

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Date

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Date

**Attachments Included as Official Part of Minutes**

Exhibit A – Applied Research Narrative Report, May 5, 2026

Exhibit B - Applied Research - Discovering Breakthroughs Report, May 5, 2026



## **Applied Research Committee Report**

**Dr. Scott Lowman**

July, 2026

**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) 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.
  - VT collaboration update
  - Richmond project
  - Harrisonburg project
  - Local interest
  - VDOE Data Center Waste Heat Work Group
    - (Established pursuant to Virginia Acts of Assembly 2026 Session, Chapter 591), Del Rip Sullivan
    - Re: The Southern Virginia Data Center–Controlled Environment Agriculture (CEA) Greenhouse Colocation Opportunity as a Public Policy Model for Competitive Business Investment, Job Creation, and Accelerated Data Center Waste Heat Use
      - Introduction - This white paper is submitted in connection with the Department of Energy's study, mandated by Chapter 591 of the 2026 Acts of Assembly, to accelerate the use of waste heat from data centers across the Commonwealth. Mr. David participates in the associated work group as a representative of a specific, well-documented colocation opportunity in Southern Virginia and offers this submission to place that opportunity and the public policy case for it into the Department's record ahead of its September 1, 2026 report to the General Assembly. The case is made from a public policy perspective, grounded in objective data from an independent feasibility study. Co-locating data centers with controlled-environment agriculture (CEA) greenhouses advances several of the Commonwealth's public policy objectives, foremost among them creating a competitive environment for business investment and job creation at the local, regional, and state levels.

This white paper offers one proposed public policy framework for accelerating the beneficial use of data center waste heat, and the Department's work group process is well suited to surface other approaches and perspectives that may exist alongside it.

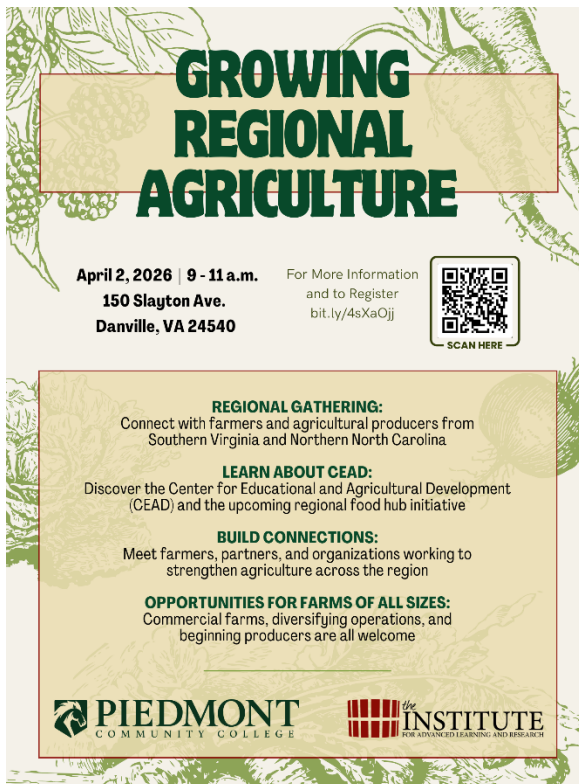
- Secretary of Agriculture and VEDP involvement
- b. Research has six internships this year. Two are focused on biotechnology, three will be in CEA, and one will be in robotics.
- c. Dr. Lowman is working with the Governor's school to develop a parallel path to their traditional senior research project focused on the engineering design process. This will enable students to more easily coordinate with and utilize divisions across campus and give students interested in engineering an option to gain real world experience.
- d. Contracted with VP Strategy Consulting LLC to conduct feasibility study related to the creation of a CEA Association focused on Va or the Mid-Atlantic.

## **2) Entrepreneurship support**

- a. The RISE Collaborative received funding from TRRC to launch the RISE Accelerator and are in early talks with the folks from RBTC/RAMP about partnering to bring their RAMP accelerator model to SOVA. They are particularly interested in the AgTech sector. Having the CEA Innovation Center be part of this would be essential.
  - Dr. Lowman has been invited to participate in advising the first group
- b. 2025 Partnership for Innovation (PIN) Regional Leaders cohort
  - As part of this cohort, the DOEDT will lead the development of the Danville Entrepreneurial Ecosystem Pipeline, an initiative designed to strengthen the region's small business community. Over the next year, the team will focus on formalizing systems that expand resources and support local entrepreneurs.

## **3) Conferences and Events**

- a. Mitchell Doss, IALR's Value Chain Coordinator, led a workshop focused on regional food system development in partnership with Piedmont Community College.



- Approximately 30 attendees learned about the local food SEAD Initiative in NC
- Food hub participation
- Local possibilities
- TRRC interest

#### 4) Grants

- a. Application with University of Georgia focused on understanding the mechanisms of endophytic bacterial yield increases.
- b. Applying for - AI-Ready America (NSF AI-Ready America) "Virginia Coordination Hub: Growing an AI-Ready Commonwealth Through Sector-Driven Workforce Development and Community Deployment" with a VT team.
- c. Awarded - TRRC, \$350,000 for greenhouse expansion
- d. Submitted - Transforming Hydroponic Leafy Greens Systems Through Integrated, Innovative Pest, Pathogen, and Shelf-Life Management, Program: USDA-NIFA Agriculture and Food Research Initiative (AFRI) – Strengthening Agricultural Systems (SAS)

Lead Institution: University of Arkansas (PI: Dr. Kristen Gibson)

IALR Budget: \$47,250 over 5 years

- Overview: This multi-institutional project aims to develop sustainable, integrated strategies to manage pests and pathogens in hydroponic leafy greens while improving post-harvest shelf life and food safety. The proposal also includes a strong workforce development and outreach component.
- IALR & Partner Roles: IALR's Amy Turner and Dr. Sajeewa Amaradasa, along with Virginia Tech's Dr. Kaylee South and University of Georgia's Dr. Ruchika Kashyap, will lead the pathogen-management objective. Activities include evaluating disease-control strategies and contributing to training and outreach deliverables.

- e. Submitted - SHIELD-CEA: Systems-based Holistic Integrated Early-warning, Learning, and Disease Management Platform for Gray Mold in CEA, Program: USDA-NIFA Agriculture and Food Research Initiative (AFRI) – Strengthening Agricultural Systems (SAS)  
Lead Institution: Virginia Tech (PI: Dr. Kaylee South)  
IALR Budget: \$67,640 over 5 years
- Overview: This project focuses on developing an improved, systems-based management framework for gray mold (*Botrytis cinerea*) in controlled-environment agriculture. The work includes evaluating commercial and novel biocontrol agents, UV-based disinfection tools, and cultural practices, and integrating the most effective approaches into a comprehensive disease-management platform. Workforce training and outreach are also major components.
  - IALR & Partner Roles: Dr. Amaradasa (5% effort) and Amy Turner (15% effort) will contribute to pathogen biology, disease-management trials, and integration of biological and physical control tools during the first four years of the project.
- f. Submitted - A Novel, Integrated Approach to High Tunnel Farming for Enhanced Nutrient Use Efficiency and Timely Decision-Making, Program: USDA-NIFA Specialty Crop Research Initiative (SCRI)  
Lead Institution: University of Florida (PI: Dr. Uttara Samarakoon)  
IALR Budget: TBD
- Overview: This proposal aims to improve high-tunnel specialty crop production by integrating nutrient-use efficiency tools, decision-support systems, and disease-reduction strategies. The project will evaluate biostimulants and other biological inputs to enhance fertilizer efficiency and reduce disease pressure.
  - IALR & Partner Roles: IALR's Dr. Sajeewa Amaradasa, Dr. Chuansheng Mei, and Rob Chretien, together with Virginia Tech's Dr. Kaylee South, will lead the evaluation of biostimulants for improved nutrient uptake and disease suppression. Budget development is ongoing.
- g. 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.
- h. 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.

**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. A new work group has been formed that includes VT Biochemistry, Virginia Western Community College, and IALR. The focus of the group is to support the rapidly growing biomanufacturing industry in the state. The next meeting will be held at the end of July.

## 3) Grants/Funding

- a. New UGA Grant co-application
- b. A grant application is underway to address off flavor compounds in bio manufactured food. The team includes Sable Fermentation, Ferment Systems, University of Arkansas, IALR, and VT
- c. A new grant is being applied for with Dr. Matthew Hull, Director of ICTAS Matter Labs, focused on expanding the partnership with the AI-QUANTAM NQNI Site Led by Virginia Tech. IALR Applied Research along with Jason Wells from AM plan to participate in this NSF National Quantum Nanotechnology Infrastructure (NQNI) project aimed at increasing support for regional businesses.
- d. **Received** – TRRC Greenhouse expansion to support entrepreneurs.
- e. **Received** – USDA Specialty Crop Block Grant, \$67,000 to study new crops for CEA production
- f. Received – Southern Crescent Regional Commission, \$500,000 for construction of a new greenhouse
- g. **Received** – GoVa Region 3 - “The Synergistic Co-location of Data Centers and Controlled Environment Agriculture Greenhouses to Boost Competitiveness”
- h. **Received** – VT College of Agriculture and Life Sciences Internal Seed Grants – Va State Needs Assessment
- i. **Received** – Virginia Cooperative Extension – Controlled Environment Agriculture Certificate Program
- j. **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)
- k. **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)
- l. **Received** – USDA Specialty Crop Block Grant “Biostimulants to Improve Indoor Strawberry Production” (\$54,000)

- m. **Received** – USDA Specialty Crop Block Grant “Biotechnology to Improve Indoor Strawberry Production and Disease Control”
- n. **Received** - Agrospheres is funding a new employee for 2 years (\$110,000)
- o. **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)
- p. **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**
- h. **Ferment Systems (New)**

## Applied Research Income Report

7-14-26



ANALYTICAL CHEMISTRY



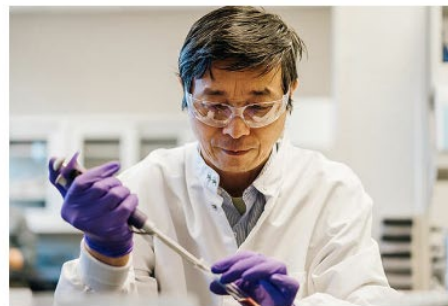
CONTROLLED ENVIRONMENT AGRICULTURE



FERMENTATION TRAINING



ROBOTIC IMAGING



BIOTECHNOLOGY

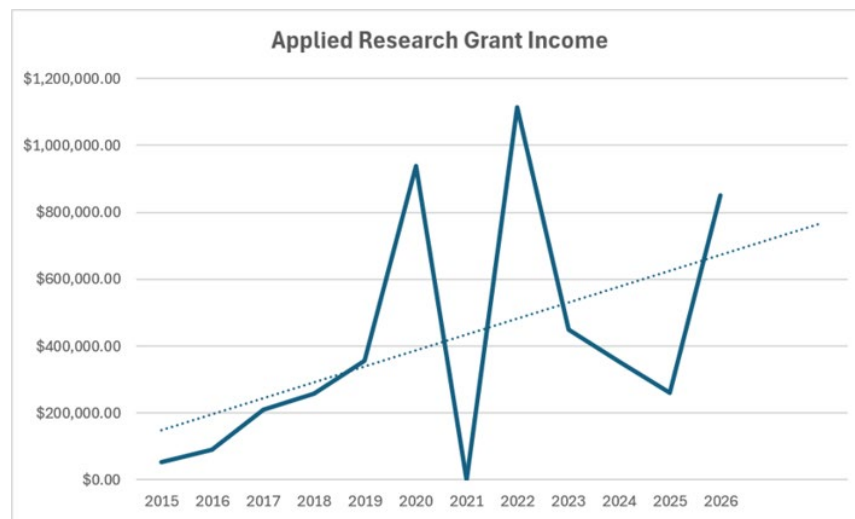
## **Background and Methodology**

After seeking input from individuals experienced with ROI in applied research, consensus was that ROI should be divided into two primary categories, internal and external. This report seeks to address the internal ROI and to demonstrate how, over the last several years, the research department has pragmatically sought strategic grant funding to build human capital, intellectual capital, equipment, and infrastructure to support larger partnerships and initiatives to drive economic transformation in the region. External ROI will be addressed briefly at the end of the report, but more development is needed.

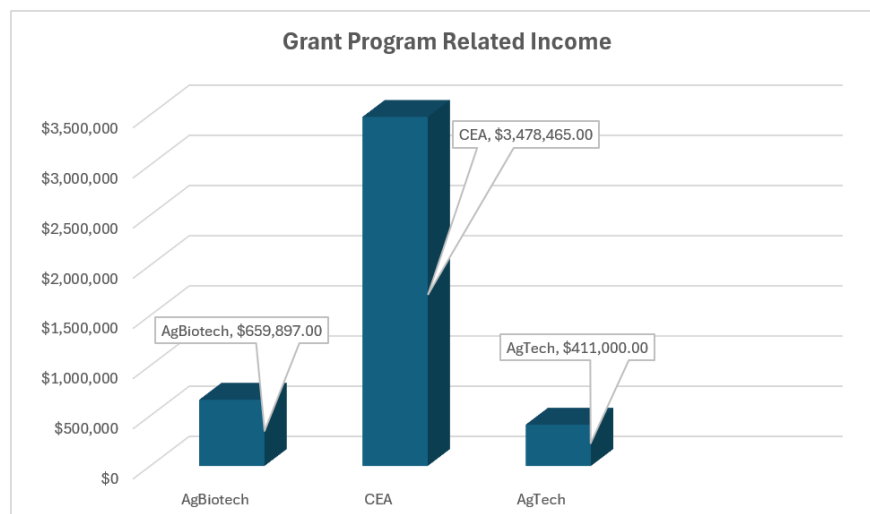
**A) Summary of income including grants, rental, testing services, equipment match, and licensing (2018 – present) \$6,374,784**

**B) Total External Grants and Matches Received (2018 – present) \$5,664,104**

### **a. By Year**



### **b. By Program**

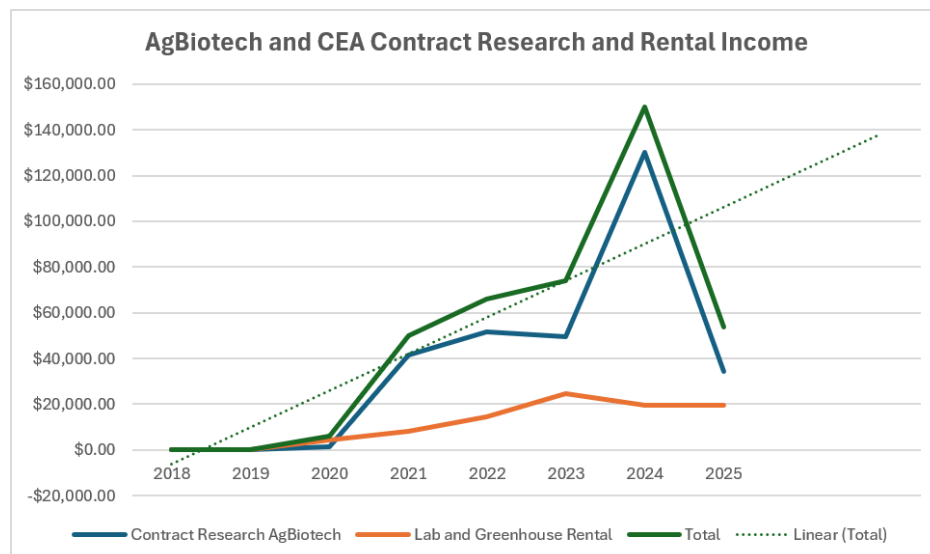


- 2026 Virginia Tobacco Commission: \$350,000.** for greenhouse expansion
- 2025 Southern Crescent Regional Commission \$500,000.** for greenhouse expansion and entrepreneurship support
- 2025 Virginia Department of Agriculture and Consumer Services \$62,000.** The grant is focused on developing new crops for the CEA industry
- 2025 GoVa Region 3 planning grant titled \$78,000.** “The Synergistic Co-location of Data Centers and Controlled Environment Agriculture Greenhouses to Boost Competitiveness”, (\$78,000)
- 2025 VT College of Agriculture and Life Sciences Internal Seed Grants \$20,000.** “A Needs Assessment for Virginia Greenhouse Growers”, (\$20,000)
- 2025 VT Cooperative Extension: \$100,000.** “Developing Badges and Credentials for the CEA Industry”, Mike Evans, (\$100,000)
- 2024 VDACS- USDA Specialty Crop Block Grant: \$54,000.** “Bio stimulants to Improve Indoor Strawberry Production” (\$54,000)
- 2024 USDA-SCRI: \$149,119.** E-Grow (Empowering Greenhouse Resiliency with an Optimized Workforce) grant in collaboration with VT and Cornell University
- 2024 Virginia Tobacco Region Revitalization Commission / Anonymous Donor: \$204,000.** Creating a Value Chain Coordinator Position to Drive Regional Food System Development.
- 2023 VDACS - USDA Specialty Crop Block Grant: \$57,000.** “Biotechnology to Improve Indoor Strawberry Production and Disease Control”
- 2023 Virginia Department of Ag and Consumer Services \$44,000.** Bio stimulants to promote plant growth in hydroponics.
- 2023 Agrospheres: \$110,000.** Fund two full-time positions to support company growth
- 2023 Tobacco Region Revitalization Commission grant in partnership with Virginia Tech: \$295,841.** “Supporting Controlled Environment Agriculture (CEA) Growth in Southern Virginia”, (\$145,841 request + \$150,000 external match)
- 2022 Virginia Tech: \$780,000.** Appointment of a Tenure Track Faculty Member at IALR
- 2022 Cannon Virginia: \$217,000.** Creating an Artificial Intelligence Plant Monitoring System in Controlled Environment Agriculture.
- 2022 GoVa Region 3: \$116,346.** Creation of a Strategy and Roadmap for CEA in Region 3.

- 2020 Virginia Tobacco Region Revitalization Commission / Virginia Tech: \$938,000.** Creation of the VT/IALR Controlled Environment Agriculture Innovation Center.
- 2019 Virginia Tobacco Region Revitalization Commission: \$357,090.** Establishing an ISO Certified Lab for Southern Virginia Agribusiness.
- 2018 Virginia Tobacco Region Revitalization Commission: \$258,000.** Utilizing Beneficial Bacterial Endophytes for Farm Specific Agricultural Solutions in Southern Virginia.
- 2017 Plant Soil Microbial Community Consortium: \$15,000.** Investigating the impact of bacterial endophytes on mycorrhizal fungi, rhizosphere microbiome and plant nutrient acquisition in switchgrass.
- 2017 Virginia Tobacco Region Revitalization Commission: \$194,000.** Precision Agriculture in Southern Virginia.
- 2016 Virginia Tobacco Region Revitalization Commission: \$50,000.** SOVA Grapevine Project January 2016 - January 2019.
- 2016 USDA Specialty Crop Block Grant Program: \$39,798.** Beneficial Bacterial Endophytes Improve Grape Vine Growth and Cold Tolerance to Strengthen the Virginia Wine Industry.
- 2015 Town of Altavista: \$52,000.** PCB Remediation with Switchgrass and Bacterial Endophytes: Contract Research.
- 2011 DOE Plant Feedstock Genomics for Bioenergy: \$734,000.** Development of a Low Input and Sustainable Switchgrass Feedstock Production System Utilizing Beneficial Bacterial Endophytes.

**C) Ag Biotech and CEA Contract Research (\$308,838) and Rental Income (\$90,900) since 2018**

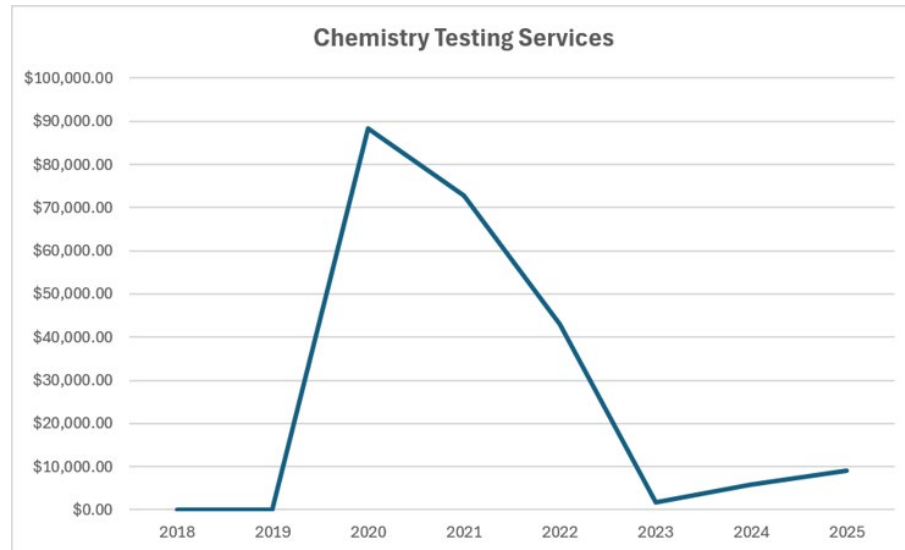
**1) By Year**



- 2) Contract research is a direct opportunity to work with businesses to improve products, processes, and innovation while adding additional intellectual capacity to the IALR Research Department. Much of the capabilities for this contract research are a result of the above capacity building activities and grant awards.

#### **D) Chemistry Testing Services (\$220,942) since 2018**

##### **a. By Year**



#### **External ROI\* (Including Entrepreneurship Support, Industry Support, and Supporting VEDP)**

*External ROI is best assessed with an Economic Impact Study*

##### **Highlights**

- **VEDP recruiting partnerships (Aerofarms, Plenty, Pluck'd, 3 new)**
- **48 Interns trained in the areas of Precision Agriculture, Robotics and Coding, and Biology.**
- **BGF rental of the Advanced Materials lab and office space in SENTEC building.**
- **Facilitating CIRC**
- **Supporting the burgeoning market of Hemp**
- **Provided tours and offered support to two companies looking to locate in the region**
- **Grant initiatives to support 270 farmers across the region including vineyards, hemp, strawberry producers, tobacco farmers and more.**
- **Leading the vineyard expansion program focused on increasing grape supplies in the region**

### **Entrepreneur support**

- Supporting the new RAMP initiative in AgTech in partnership with SOVA innovation hub and RBTC.
- Venture Central from Charlottesville visited to learn more about the entrepreneurial ecosystem being developed at IALR.
- A new project is underway with Agrospheres to leverage IALR's facility and resources to validate the new technology they are developing.
- Applied research has partnered with George Mason University ICAP office to offer agtech and biotech entrepreneurship support to new companies in Va.
- An entrepreneur supporting group RIot, from North Carolina, visited and toured the CEA Innovation Center.
- Big Idea Ventures visited and held their yearly strategic planning session at IALR.
- Dr. Lowman has been selected as a speaker at this year's RISE entrepreneur event on Nov 1st.
- Dr. Lowman will serve as a mentor for AgTech companies partnering with the SoVa Innovation Hub in Farmville Virginia.
- IALR joined the Center for Rural Innovation Network to support program development.

### **Industry Support**

- Number of NDA's - 112