

NJ Micro Business Hydroponics Network



NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce



Presenters

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NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce

Partner Network

A coordinated pipeline from K–12 exposure to transfer and advanced study.

Community Colleges

- Bergen CC
- UCNJ Union College of Union County, NJ
- Mercer County CC
- Rowan College at Burlington County

K–12 Partners

- Little Ivy Academy
- Cliffside Park HS
- Bogota HS
- Hackensack HS
- Passaic Academy
- Dwight Morrow HS

Four-Year Partners

- Rutgers–Newark Business School
- Rutgers–New Brunswick / School of Environmental & Biological Sciences

Bergen Community College anchors coordination across institutions and partners.



Building a Shared Vision

This initiative builds a sustainable hydroponics and FANH education ecosystem where students can see a clear, achievable pathway from early exposure to college, career, and community impact.

FANH: Food, Agriculture, Natural Resources, and Human Sciences, business



The Project Scopes

Academic Pathways

Credit and non-credit curriculum with aligned outcomes and transfer readiness.

Experiential Learning

Hands-on exposure through labs, farms, hydroponics, food systems, and industry-connected projects.

Faculty Capacity

Professional development, workshops, micro-credentials, and collaborative design time.

Goal: Move beyond lecture-based models toward interactive, applied learning in FANH-related courses.



Goals, Outcome, Impact!

Academic Pathways, Specialized Credentials, and Strategic Regional Alliance



Micro Credentials & Dual Enrollment



Agri-business Cert.(1 YEAR)

2 Biology Courses, 3 Business courses = 16-18 credits



Agri- Nutrition Cert. (1 YEAR)

2 Biology courses, 3 Culinary Arts Courses = 16-18 Credits



Agri- Tech Cert. (1 YEAR)

2 Biology Courses, 3 Engineering Courses = 16-18 Credits

High School Partnership

Students can register for these courses via dual Enrollment pathway.





Internships & Pathways

INTERNSHIPS:

- Greens do Good
- Bergen New Bridge Medical Center Garden
- NJSEA Wetland Restoration
- Rutgers SEBS & Rutgers Newark Business School

MICRO- CREDENTIALS:

-  BCC - Summer High School ELP (non-credit)
-  Rutgers SEBS ELP (credit)

Curriculum Development

Strengthening transfer and articulation pathways through collaborative design.

Academic Alignment

Joint development across 2-year and 4-year institutions ensures learning outcomes match professional standards and transfer requirements.

Program Expansion

Non-credit and bridge programming creates flexible entry points for diverse student populations across the network.



Experiential learning pathway

Hands-on student engagement from exposure to applied projects.

1

Explore

4-H garden, soil science, plant propagation, pest management, harvesting

2

Build

Hydroponic and aquaponic prototypes; system operations and sustainability tests

3

Apply

Farm, food bank, restaurant, food market, and hydroponic facility experiences

4

Present

Findings, business plans, menus, harvest shares, and capstone outcomes





Bergen Community College Experiential Learning Program (BCC ELP)

2024 – Present



Bergen-Rutgers Partnership

- 3-week residential program (students gain Experiential Learning Credits)
- Expanded cohort with 11 students
- 3 Field Trips (Marucci, Snyder, RU Gardens)
- Sessions on Study Abroad, Horticultural Therapy, Plant Breeding and more!



Experiential Learning at Rutgers SEBS

Through experiential learning, students:

- Gain hands on experience in their area of interest
- Build technical and interpersonal skills
- Establish a strong network of peers and leaders

Students can gain hands on experience in their area of interest at different sites such as:

- On campus research labs, greenhouses and farms (e.g., Floriculture Greenhouse – Poinsettia Project)
- Industry Organizations (e.g., Berjé)
- Government agencies (e.g., NJ Dept of Agriculture)

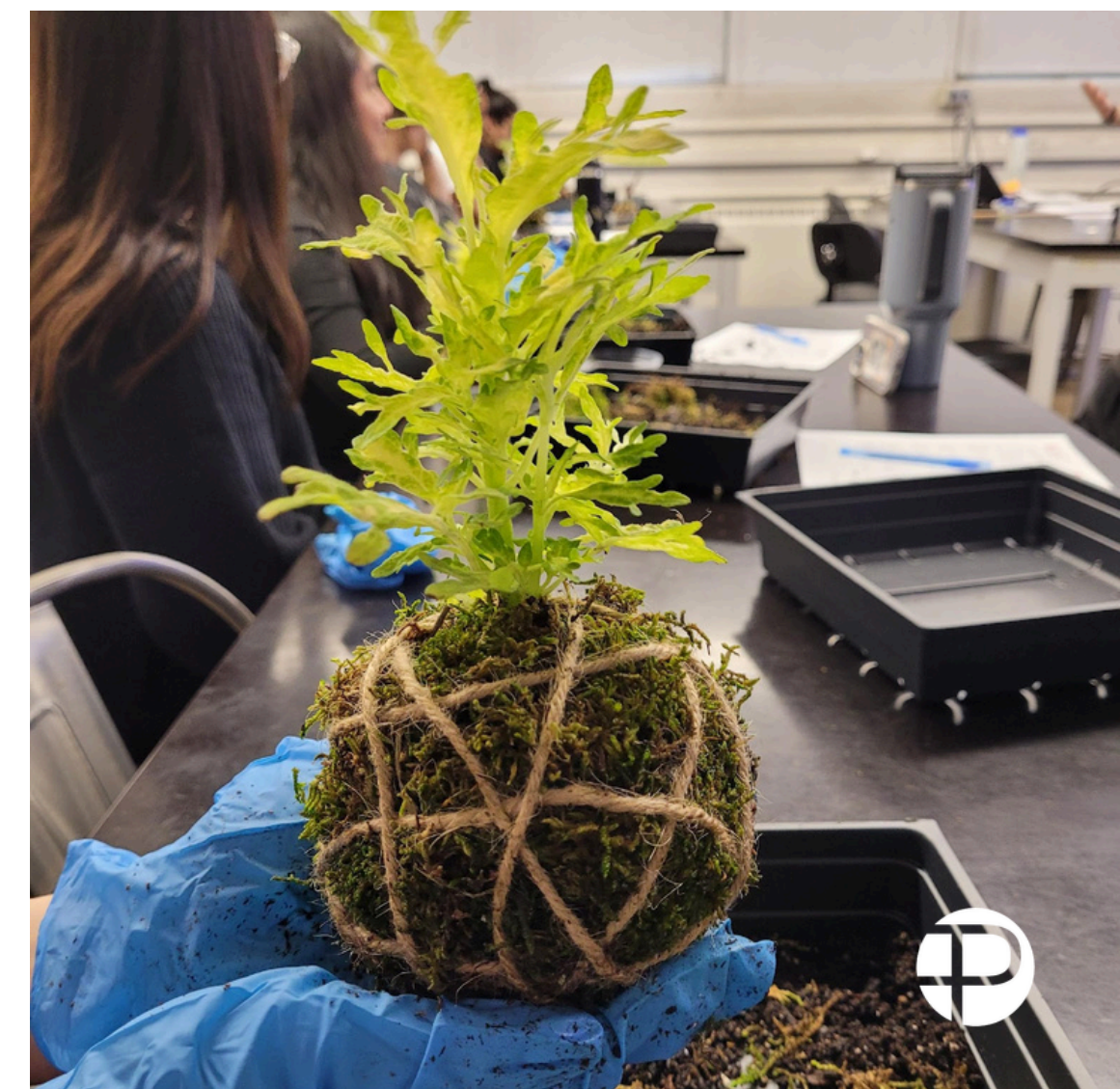


Horticultural Therapy & Student Wellness

Horticultural Therapy Program:



The Rutgers Horticultural Therapy certificate program coursework is approved and accredited by the [American Horticultural Therapy Association \(AHTA\)](#).



USDA Summer Experiential Learning Program

Build resume skills, clarify career paths, and improve graduate school applications, internship at Rutgers New Brunswick farm (JUNE 22- JULY 10)

Important Details

- ✓ Eligibility: GPA > 2.5, 20- 30 credits earn. Application deadline Feb 1, 2026
- ✓ 3- Week Internship from June 22 to July 10 in the Rutgers- New Brunswick.
- ✓ Students will experience the opportunity to live- on campus . All expenses will be paid.

Graduation Mandate

All Rutgers School of Environmental and Biological Sciences undergraduates must complete an active hands- on educational track:

- ✓ **3- credit Minimum:**
Students must earn at least 3 approved, hands-on learning prior to graduation.
- ✓ **“Learn by doing”:**
The curriculum is structured to integrate rigorous academic courses with the outer-world application.

Career- Ready Pathways

Undergraduate can meet their 3- credit requirements with an expansive of customizable learning opportunities.

- ✓ **Versatile Opportunities:**
Earn Credits through state of the art research hubs, global study abroad programs, or approved internships.
- ✓ **Measurable Benefits:**
Gain field skill, strengthen resume portfolios, clarify long-term career aspirations, and refine veterinary applications. Livestock handling, biomedical research, sustainable agriculture, wildlife field trips, and career development.

Bergen-Rutgers HIS Food and Agricultural, Systems Career and Education Pathways Project

Critical Foundation Knowledge and Skills Identified by Employers

Problem Solving - Ethics Critical Thinking - Integrity Bergen-Rutgers Teamwork - Technology Application Safety, Health, & Environment Organizational & Global Systems Leadership - Cultural Competence Lifelong Learning - Creativity Communications - Innovation

Pathway Guiding Topic

Start	Food Products and Processing Systems	Plant Systems	Agribusiness Systems	Natural Resources Systems	Biotechnology	Animal Systems	Environmental Services and Systems	Power, Structural and Technical Systems
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Pathway Description (Introduction)

 Pathway Introduction	<p>Pathway Description Discover new food sources, analyze food content, develop ways to process, prepare, preserve, package or store food, create new food products, inspect food processing areas, run or own a restaurant or food establishment. (Food Processing and preserving, Packaging, Distribution, Government monitoring & regulation)</p>	<p>Pathway Description Study plants and their growth, use genetic engineering to improve crops, develop ways to improve seeds. (Agronomic, Horticulture, Forestry, Turf, Viticulture, Soils, etc.)</p>	<p>Pathway Description Coordinate activities that contribute to the production, processing and distribution of agricultural commodities and resources, promote agricultural products, and help manage agricultural businesses. (Sales, Service, Farm and Ranch Management, Entrepreneurship, Economics, etc.)</p>	<p>Pathway Description Protect natural resources, develop, maintain and manage forests and rangelands, catch and trap marine life, work on recreational sites, provide habitats for wildlife. (Habitat Conservation, Forest Products, Parks and Recreation, Mining, Environmental Services, Fisheries, Soil Conservation, etc.)</p>	<p>Pathway Description Make use of a range of tools, including breeding techniques, to make or modify products or organisms, improve plants or animals, or develop microorganisms for specific agricultural uses. (Scientific, Laboratory Technicians, Engineers, Process Technicians, Maintenance and Instrumentation Technicians, Corporate Scientific Professionals, Health and Wellness)</p>	<p>Pathway Description Develop new ways of producing and processing meat, poultry, egg and dairy products, study genetics, nutrition, reproduction, growth and development of domesticated farm animals, inspect and grade livestock food products, purchase livestock, work in technical sales or marketing of livestock. (Large animals, small animals, wildlife animals, and research animals)</p>	<p>Pathway Description Manage recycling operations, control water and air pollution, and dispose of waste to address public health issues, develop regulations to prevent environmental mishaps, analyze and research environmental projects. (Pollution Prevention, Water & Air Quality, Hazardous Materials, Solid Waste Management, Health & Safety Sanitation, Health and Wellness, etc.)</p>	<p>Pathway Description Apply engineering, hydraulics, pneumatics, electronics, power structures and controls to farming, design agricultural structures, design machinery and equipment, conserve soil and water for farms and improve processing of agricultural products. (Power, Structures, Controls, Geospatial Technology, Computer Systems, Electronics, Hydraulics, Pneumatics, etc.)</p>
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Academic Pursuit Themes - Internship Pursuits

 Academic Pursuit Themes - Internships	<ul style="list-style-type: none"> Culinary Arts / Food Science Hospitality Management Data Management Accounting / Finance Food Processing Safety Food Service Management Quality Control / Quality Assurance 	<ul style="list-style-type: none"> Agronomy Plant Science / Genetics Commodity Marketing Grounds Management Horticulture / Green House Management Landscape Design / Construction / Technology 	<ul style="list-style-type: none"> Agricultural Science Law / Regulation / Compliance Agribusiness Management Agricultural Education Sales / Marketing Accounting / Finance / Insurance 	<ul style="list-style-type: none"> Forestry Wildlife Ecology Urban Forestry Land Surveying / Geospatial Analysis Forestry / Natural Resources Natural Resources Law Enforcement 	<ul style="list-style-type: none"> Biofuels Genetics Physics Life Science / Evolutionary Biology Biology and Biotechnology Ecology Human Ecology 	<ul style="list-style-type: none"> Animal Medicine Equine Science Animal Science Biology Aquaculture Dairy / Lamb / Poultry / Swine Management 	<ul style="list-style-type: none"> Hydrology Soil Science Meteorology Environmental Science Law / Regulation / Compliance Aquatic Biology Health and Wellness 	<ul style="list-style-type: none"> Robotics / UAS / UAV Technology Power Systems / Wind and Solar Energy Welding and Fabrication Applied Engineering / Drafting Precision Agriculture / GIS / GPS Diesel / Heavy Equipment Mechanics
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Bergen CC Degree Options (Select Degree Pursuit); see BCC Certification Options+

 Bergen CC	AAS.BT.HR.HOSP AAS.BUS.ACCT+ AAS.BUS.BANK+ AS.PS.BUS.ADM+ AS.PS.BUS.ADM.COL+ A.A.L.ECON+	AAS.ST.HORT AAS.ST.LAND AS.NSM.BIO AS.NSM.BIOTECH	AAS.BUS.ACCT AS.PS.BUS.ADM A.A.L.ECON AS.NSM.GEN	AAS.ST.LAND AS.NSM.BIO AS.NSM.BIOTECH AS.NSM.CHEM AS.NSM.GEN	AS.NSM.BIO AS.NSM.BIOTECH AS.NSM.CHEM AS.NSM.PHYSC	AAS.SHP.VET AS.NSM.BIO AS.NSM.BIOTECH AS.NSM.CHEM AS.NSM.GEN	AAS.ST.LAND AS.NSM.BIO AS.NSM.BIOTECH AS.NSM.CHEM AS.NSM.GEN	AS.NSM.MATH AAS.BT.INFO.SYS AAS.IT.CYBER AAS.IT.DB AAS.IT.NET AAS.SD.GAME.PGMG
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Bergen CC Certificates (in addition to AA Degree)

CERT.BAKE.PSTRY CERT.CULN.ARTS CERT.EVENT.PLAN.MGT CERT.HOSP.MGMT COA.BAKING COA.PROF.COOK	CERT.FLORAL CERT.GRND.MGT CERT.LAND COA.BIOTECH COA.CANN	COA.BIOTECH COA.CANN	CERT.GRND.MGT CERT.LAND COA.BIOTECH COA.CANN	COA.BIOTECH COA.CANN	COA.BIOTECH COA.CANN	CERT.GRND.MGT CERT.LAND COA.BIOTECH	CERT.COMP.SUPPORT CERT.DB CERT.OFF.TECH COA.NET.SECURITY CERT.CAD COA.CNC.PROG COA.MACH.TOOL COA.MFG.PROENG COA.WELD
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Bergen 4-H Program Training/Certificates (in addition to AA Degree)

TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
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Rutgers Undergraduate Degree Options; transition from BCC to the following Major options:

Rutgers Newark (RBS)								
Supply Chain Management Leadership and Management (Entrepreneurship) Accounting Finance Marketing	Supply Chain Management	Supply Chain Management Leadership and Management (Entrepreneurship) Accounting Finance Marketing	Supply Chain Management Leadership and Management (Entrepreneurship) Accounting Finance Marketing	Supply Chain Management	Supply Chain Management	Supply Chain Management	Supply Chain Management	Supply Chain Management Leadership and Management (Entrepreneurship) Business Analytics and Information Technology
Rutgers Newark (SAS)								
Economics Biology (Plant Science) Economics Geoscience (Geology)	Biology (Plant Science) Economics Geoscience (Geology)	Economics Biology (Plant Science) Earth and Environmental Science Geoscience (Geology)	Biology (Plant Science) Earth and Environmental Science Geoscience (Geology)	Chemistry Earth and Environmental Science Mathematics Physics	Biology (Cellular, Molecular, Ecology or Evolution) Biology (Neurobiology)	Biology (Plant Science) Earth and Environmental Science Geoscience (Geology) Physics Political Science	Mathematics Physics	Computer Science
Rutgers Newark (SAS) Minor (options):								
Disability Studies Spanish	Disability Studies Spanish	Disability Studies Spanish	Disability Studies Spanish	Disability Studies Spanish	Disability Studies Spanish	Disability Studies Spanish	Disability Studies Spanish	Disability Studies Legal Studies Spanish

Rutgers SEBS Academics (R-SEBS)

Nutritional Sciences Agriculture and Food Systems (SEBS) Food Science	Plant Science Agriculture and Food Systems (SEBS) Landscape Architecture	Environmental and Business Economics Agriculture and Food Systems (SEBS) Meteorology	Agriculture and Food Systems (SEBS) Ecology, Evolution, and Natural Resources Entomology Biological Sciences Environmental Engineering Biotechnology Environmental Planning Environmental Policy, Institutions, and Behavior Landscape Architecture Meteorology Public Health	Biochemistry Biological Sciences Biotechnology Ecology, Evolution, and Natural Resources Environmental Engineering Microbiology Environmental Planning Environmental Policy, Institutions, and Behavior Landscape Architecture Meteorology Public Health	Animal Science Entomology Biological Sciences Biotechnology Ecology, Evolution, and Natural Resources Environmental Engineering Marine Sciences Meteorology Microbiology Public Health	Environmental Sciences Biological Sciences Biotechnology Ecology, Evolution, and Natural Resources Environmental Engineering Landscape Architecture Marine Sciences Meteorology Microbiology Public Health	Environmental Engineering
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SEBS Minors (See Restrictions)

Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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SEBS Certification Options

Food Systems Education and Administration Environmental Planning Food Systems Education and Administration Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Planning Food Systems Education and Administration Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Planning Food Systems Education and Administration Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Geomatics Environmental Planning Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Geomatics Environmental Planning Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Geomatics Environmental Planning Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Geomatics Environmental Planning Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry	Environmental Geomatics Environmental Planning Horticultural Therapy Medicinal and Economic Botany Plant Biosecurity Turfgrass Science Urban/Community Forestry
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4-H - Rutgers Cooperative Extension of Essex County - Agriculture and Natural Resources (Educational Services) Training/Certificates

To Do: Work with 4-H Essex to determine which programs fit each Pathway or are all 4-H programs appropriate for all Pathways

The Agriculture and Natural Resources program provides educational services regarding agriculture, horticulture, forestry, plant sciences, soils, water conservation, leaf composting, organic gardening, trees & shrubs, vegetables, fruit, landscaping, and related topics to county citizens.

Educational programs include training and supervising volunteer Rutgers Master Gardeners; entomology; professional and home grounds horticulture; backyard and municipal leaf composting; and water conservation.

Rutgers Master Gardener

Rutgers Environmental Stewards

Careers (Sample Only)

Executive Chef - \$86,000 - \$150,000 Pastry Chef - \$72,828 and \$93,066 Sous Chef - \$57,970 and \$75,476 Grain Production Supervisor - \$40,000 - \$86,000 Grain Facility Maintenance Mechanic - \$55,000 - \$75,000 Food Process Engineer - \$111,000 - \$145,000 Quality Assurance Specialist - \$70,000 - \$92,000 Poultry Plant / Grain Operations Manager - \$55,000 - \$85,000	Agricultural Field Service Technician - \$55,000 - \$62,000 Pilot Plant Technologist - \$92,000 - \$145,000 Groundskeeper - \$40,000 - \$55,000 Agricultural Equipment Operator - \$52,000 - \$68,000	Product Demonstrator - \$40,000 - \$52,000 Application Support Specialist - \$60,000 - \$82,000 Agronomy Location Manager - \$70,000 - \$105,000 Service Coordinator / Customer Service Manager - \$62,000 - \$83,000 Marketing/Product Manager - \$120,000 - \$172,000	Environmental Maintenance Technician - \$61,000 - \$73,000 Conservation Technician - \$42,000 - \$58,000 Land Surveyor - \$65,000 - \$95,000 Parks Construction Supervisor - \$75,000 - \$97,000 Environmental Coordinator - \$85,000 - \$119,000	Chief System Operator - \$99,000 - \$130,000 Lab Animal Technician - \$58,000 - \$78,000 (Poultry, Swine, Dairy) Animal Research Technician - \$50,000 - \$65,000 Wet Chemical Analyst / Lab Technician - \$46,000 - \$63,000 Chemical Plant Operator - \$51,000 - \$65,000	Veterinarian - \$90,000 - \$113,000 Animal Caretaker - \$42,000 - \$51,000 Small Animal Technician - \$52,000 - \$67,000 Animal Breeding Technician - \$48,000 - \$70,000 Lab Animal Technician - \$60,000 - \$71,000	Environmental Waste Chemist - \$55,000 - \$71,000 Water Treatment Technician - \$45,000 - \$65,000 Environmental Engineer - \$93,000 - \$133,000 Environmental Regulatory Compliance Specialist - \$88,000 - \$119,000 Managers of Agricultural Construction Services - \$97,000 - \$123,000	Plant Maintenance Technician - \$40,000 - \$75,000 Quality Assurance Technician - \$48,000 - \$60,000 Nuclear Interface Transmission Coordinator - \$61,000 - \$85,000 Wind Turbine Technician - \$56,000 - \$80,000 Wind/Solar Collections Engineer - \$108,000 - \$129,000
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The median advertised salary in New Jersey for food system occupations is about \$77,000. The median advertised salary in New Jersey for plant system occupations is about \$73,000. The median advertised salary in New Jersey for agribusiness occupations is about \$92,000. The median advertised salary in New Jersey for natural resource system occupations is about \$86,000. The median advertised salary in New Jersey for biotechnology system occupations is about \$86,000. The median advertised salary in New Jersey for animal system occupations is about \$74,000. The median advertised salary in New Jersey for environmental service system occupations is about \$107,000. The median advertised salary in New Jersey for power, structural, and technical system occupations is about \$87,000.

Agricultural Sales Agricultural Communications Specialists Agricultural Educators Food Scientists Meat Processors-Toxicologists Biochemists-Nutritionists-Dietitians Food Breakers/Food Inspectors Meat Cutters-Meat Grinders Meat Science Researchers Food Meal Supervisors Cheese Makers Microbiologists Produce Buyers Bacteriologists Food & Drug Inspectors Bioengineers Biochemists Food & Fiber Engineers Food Processors Storage Supervisors Fieldman Quality Control Specialists	Bioinformatics Specialists Plant Breeders and Geneticists Biotechnology Lab Technician Soil & Water Specialists Crop Farm Managers Agricultural Educators Plant Pathologists Aqua culturalists Sales Representatives Botanists Tree Surgeons Education & Extension Specialists Agricultural Journalists Commodity Marketing Specialists Grain Operations Superintendents Custom Hay/Storage Operators Forest Geneticists Golf Course Superintendents Greenhouse Managers Growers Farmers Ranchers	Salesperson Sales Manager Banker/Loan Officer Field Representative for Bank, Insurance Company or Government Program Agricultural Commodity Broker Agricultural Economist Farmer /Rancher/Feedlot Operator Farm Manager Livestock Rancher / Breeder Dairy Herd Supervisor (DHA) Agricultural Products Buyer Animal Health Products Distributor Livestock Seller Feed and Supply Store Manager Produce Commission Agent Ag Lenders Agricultural Chemical Dealer Field Service Representative Chemical Sales Representative Agricultural Educator	Cartographers Wildlife Managers Range Technicians Ecologists Park Managers Environmental Interpreters Fish and Game Officers Loggers Forest Technicians Log Graders Pulp and Paper Manager Soil Geology Technician Geologists Mining Engineers Fisheries Technicians Water Monitoring Technician Hydrologists Fish Hatchery Manager Commercial Fisherman Fishing Vessel Operators Vessel Crew Agricultural Educator	Clinical technician Chemical operator Biomedical equipment technician Microbiologist DNA analyst Business development manager Pharmaceutical manufacturer Scientist Biomedical engineer Process engineer Product manager Bioprocess engineer Environmental health and safety officer Pharmaceutical consultant Animal Nutritionist Biostatistician Animal research associate Assay analyst Biotech consultant Biotechnology professor Clinical research manager Epidemiologist Facilities manager Forensic science technician Geneticist Plant breeder	Agricultural Educators Livestock producers AI Technicians-Aquaculturalists Animal Caretakers-Poultry Managers Equine Managers-Veterinarians Veterinary Assistants-Feedlot Specialists Animal Scientists Embryo Technologists Livestock Buyers Feed Sales Representatives Vivarian Technicians Wildlife Biologists Livestock Geneticists Animal Nutritionists Dairy Producers Livestock Inspectors Feed Sales Specialists Animal Health Salespersons Meat Science Researchers Reproductive Physiologists Embryo Transfer Technicians Pet Shop Operators USDA Inspectors	Pollution Prevention and Control Managers Pollution Prevention and Control Technicians Environmental Sampling and Analysis Scientists/Technicians Health and Safety Sanitarians Environmental Compliance Assurance Managers Hazardous Materials Handlers Hazardous Materials Technicians / Managers Water Environment Managers Water Quality Managers Wastewater Managers Toxicologists Solid Waste Disposers / Recyclers Livestock Technician Solid Waste Managers Solid Waste Specialists Agricultural Educator	Machine Operators Electronics Systems Technicians Agricultural Engineers Agricultural Extension Engineering Specialists Heavy Equipment Maintenance Technicians Recycling Technicians Wastewater Treatment Plant Operators Equipment/Parts Managers Welders Machinists Communication Technicians Agricultural Applications Software Developers/Programmers Database Administrators Computer Service Technical Support Technicians Information Lab Specialists GPS Technicians Remote Sensing Specialist Agricultural Educator
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To Do/Additional Concepts:

Confirm Academic Pathways with Schools/Programs (confirm with Rutgers School Academic Deans, etc.)							
Review NJ Transfer Link: https://www.njtransfer.org/							
AAS vs AS designations/verification for Rutgers academic transfers into various Schools and academic majors							
Identify Specific 4-H Programs for Each Pathway							
Include MicroCredentialed Opportunities							
Include MicroBadging Opportunities							
Add Locations to Company Organization Listings (Time Permitting)							
Green Economy - Green Jobs Input (add green *asterisk to existing career opportunities)							
Include Links throughout mapping document (although they may become expired)							
Design a Factsheet version of the Map (simplify for Executive or C-Suite Presentations or Student Viewing)							
Design an interactive Student web version (Time Permitting)							

Companies w/Career Pathway Opportunities (5-Year Trend 2018-2023 and 2023-2028 Forecast): To Do: Add Locations or Regions												
Animal Production Companies	Biotech & Pharmaceuticals Companies	Consumer Product Manufacturing Companies	Crop Production Companies	Farm Support Companies	Fishery Companies	Food & Beverage Manufacturing Companies	Food & Beverage Manufacturing Companies	Food & Beverage Manufacturing Companies	Food & Beverage Manufacturing Companies	Food & Beverage Manufacturing Companies	Food & Beverage Manufacturing Companies	Food & Beverage Manufacturing Companies
Seaboard Foods	Pioneer	Allcor	Oppy	Corveo Agriscience	Chevron's Charters: GD REA Employer	Hermes Landscaping	ADM	The Davey Tree Expert Company	Delaval	Grimway Enterprises	Stora Enso	
Avigen	Ceva Animal Health	S & M Brands, Inc.	LSI AgCenter	Nutren	Alaskan Observers	Costa Farms	J&A/Free	SouAltee	Colepar	Jewett-Cameron Trading	Kodan	
The Smithfield Packing Co	Johnson & Johnson	NKE	Nemas	CHS Inc	Chevron's Charters: GD REA Employer	Moon Valley Nursery	Perdue	Ardco	Johnson Controls	Glumora Companies	UPM-Kymmene	
ABE Global	Thermo Fisher Scientific	Procter & Gamble	BrightFarms	UPL	Alaskan Observers	Plant Essentials	Atta Foods	Interfor	John Deere	Farming Technology	Weyerhaeuser	
Five Rivers - Cattle Feeding	IQVIA	Sherwin-Williams	DOF Group	The Andersons	Solwater	Acres Group	Trinchero Family Estates	Barlett Tree Experts	Storley Back & Decker	GTI Marketing	PCA	
Rose Acre Farms	Pfizer	L'Oréal	Green Acres Nursery & Supply	Altech	North Pacific Seafoods	Methuna Greenhouses	Sears Almaros	Royole	Rockwell Automation	Muler Trading	American Woodmark	
Terra Nova Genetics	GSX	Unilever	Lakeside Foods	GROWMARK	Westward Seafoods	Getens Family of Businesses	Sodia	Barforest Alliance	Parker Hannifin	The Nurtes Company	Geil	
Morning	Merck	Hollister Co.	NaturesSweet	Novus International	Hog Island Oyster	Teleflora	Son Miguel	Serra Pacific Industries	Serra Technologies	J & J Wholesale Florist	Bench Craft Company	
The Maschoffs	Santitas	3M	Trouw Nutrition	IMAC AGRO International	Jones Lake Management	Sakata Seed America	Cooper Farms	Hampton Lumber	International Paper	US Foods	West Fraser Timber	
PC	Novartis	Stiles Labels Companies	Sumner Company	IWS Group	DFP	Chadler Landscaping and Nursery	Wise Acre Farms	Wright Tree Service	Berry Global	Southern Ocean Wine & Spirits	Aducci	
West Select Farms	Bayer	Georgia-Pacific	Castle Wellness	SDF Group	Innovision Systems	SageHorticulture	Reckon	NatuChem	Sironco (SC)	Custom Food Service Service Alimentaire Gordon	UP Building Solutions	
M&M Food Market	Genentech	Kimberly-Clark	Cargill	Farm Fresh To You & Caplan Organic	HEI Quality Seafood Markets	Kaw Valley Greenhouses	Pacific Coast Producers	DanSeed	Danisco International	Republic National Distributing Company	Green Bay Packaging	
Purely Poultry	Baxter	DuPont	Singenta	Beck's Hybrids	Midwest Pipe Coating	Green Dynamix	PerisCo	UPM-Kymmene	Salem	Shree Solutions	Roaming Forest Products	
National Pork Board	Ashland	Health Purosa U.S.	Louis Dreyfus Company	SANMAM	Dixson Peace	Elle Flower	The Coca-Cola Company	Wright Tree Service	Bean Bid	K&H Distribution	Tree Company	
United Cooperative	Amgen	Reckitt	J.R. Simplot Company	Produce Pay	Red Chamber Co.	Kalamazoo Garden Solutions	Heale	NatuChem	Komatsu	ShoOne Landscaping Supply	Canfor	
King Ranch	Bristol Myers Squibb	M.A.C. Cosmetics	Olam	Alliance One	Clearwater Seafoods	Tagawa Greenhouse Enterprises	Kroff Heinz Company	DanSeed		Bennhoff	Metrie	
Biomn	AbbVie	Colgate-Palmolive	Danco's	Viterra	Leader Creek Fisheries	Vancey Landscaping	General Mills	Ever-Green Tree Care			Woodgrain	
Select Genetics	PPD	Newell Brands	Plenty Farms	Height Pest Solutions	Naspet	American Meadows	Main	Lucas Tree Experts			Stelo Jones	
Pete and Gerry's Organics	Purcell	Louis Vuitton	Apert Sciences	Ryan Lawn and Tree	Wild Type	Bergen's Greenhouses	Mondelle International	Green Diamond Resource Company			EGGER Group	
Agri Star Meat & Poultry	BI Lilly and Company	Avon	COB Enterprises	ALCIVIA	Beacon Fisheries	Spring Meadow Nursery	Anheuser-Busch InBev	Toko			American Buildings	
Leif Nutrition Group	Baxter	The Clorox Company	Wibau-Bills	MFA Incorporated	Philips Foods	Family Tree Nursery	Kellonova	Plato & Associates			Stora Enso	
Big Dutchman	Takeda Pharmaceuticals		Fresh Del Monte Produce	Ag Processing	Alto Gamma Seafood Group	Green Valley Greenhouse	Tyson Foods	HCX			BBB Millwork	
Sugana Foods	SCN		Dole Food Company	Full Circle	Man PacCare	Cavichio Greenhouses, Inc.	Red Bull	Komatsu			Creative Office Pavilion	
Sevensh Nutrition	Qibed Sciences		BP	Sound Agriculture	Loc du Rombieu fibre	A's Garden Center (Oregon)	Heale USA	Integrity Tree Services			DUCHANEAU	
AquaChile	Nestle	McCLUGGE	MCCLAUGHEE	F.C.J. Fishery Co.	Natural Beauty Grocers	Natural Beauty Grocers	E. & J. Gallo Winery	Swinge Lawn, Tree & Landscaping Care			Ben	
4-ii	Sunoco Health		Mrs. Fields Famous Brands	Nularm	Crocker & Minor	Neal Landscaping and Irrigation	ALM	Tree-Jenny Group			PaperDirect Industries	
Universities and Colleges	Boehringer Ingelheim		Gotham Greens	Dallas North Aquarium	Send & Smith	Conagra Brands	REEL, LLC	Wastevault			Wood Industries	
Extensions	Regeneron		Purina Animal Nutrition		Progra Pathness	The Henken Company	Wastevault	A Plus Tree			Carl Bamboe	
Public Health	Agilent Technologies		Udde Seafoods		Bill Doran	J&S	Anheuser-Busch	Falgoras Restoration			Kodan	
Health and Wellness	Bogen		Boysce Thompson Institute				Molton Coors Beverage Company	AntorWorks			Board & Brush	
	Cancora		Anyika LifeScience				Diageo	isap			Universal Forest Products Eastern Division	
							Coca-Cola Consolidated	Mowbray's Tree Service			Isaho Forest Group	
							Compbell's	Holmen			Cyde Companies	
							Danone	Louisiana Department of Agriculture & Forestry			ICAD	
							The J.M. Smucker Co.	Timber Automation			MFS Supply	
							Bushlan Brands	Harcord Lumber			NEH	
							Land O'Lakes	Tennessee Department of Agriculture			Duro Supreme Cabinetry	
							Relco Pak	Arnsfeld Tree Company			Balchized Body	
							Constellation Brands				Star Supply	
							McCormick & Company				Pac-Yan	
							Ingration					
							Hornell					
							Coca-Cola Bottling Company United					
							Danone North America					
							The HEINEN Company					
							Coca-Cola FEMSA					
							Ferrero					
							Schreiber Foods					
							Lindt & Sprungli					
							Tapatio					
							Mencher's					
							Grupo Bimbo					
							Reckitt					
							The Boston Beer Company					
							Brown Forman					
							Rowen Foods					
							Penold Ricard					
							J&T Corporation					
							Ocean Spray					
							Shamrock Foods Company					
							Kroff Heinz Company					
							General Mills					

Orientation Days for the
**NJ PATHWAY UCNJ
 AGRIBUSINESS
 INTERNSHIP**
Summer of 2026

UCNJ  **GROWING KNOWLEDGE.
 CULTIVATING LEADERS.
 HARVESTING FUTURES.**

LEARN. GROW. LEAD.

We will have 3 Orientation Days to prepare you for an amazing experience!

DAY 1	MAY 19 10:45 AM – 12:00 PM Room SD 226	Please arrive earlier, around 10:30 AM, to be seated.
DAY 2	MAY 20 9:00 AM – 12:00 PM Room N-4	Breakfast will be provided.
DAY 3	MAY 21 9:00 AM – 12:30 PM Seminars A & B	Lunch will be provided.

We will have sessions on the project's expectations, guidelines, and instructions, as well as answering your questions and signing the documentation.

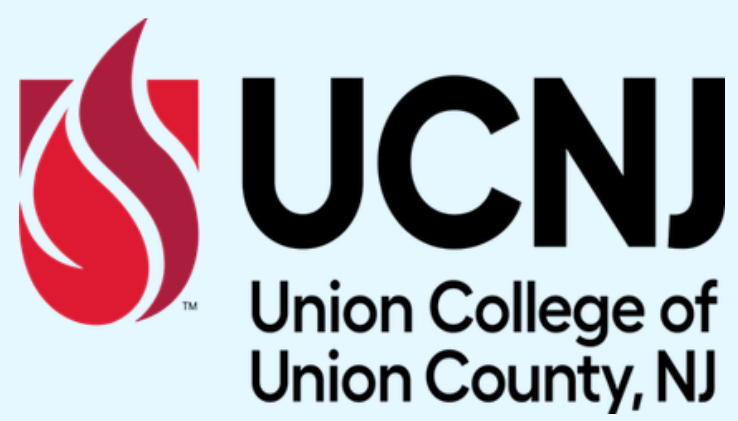
THIS PROJECT WILL SPAN 6 DISCIPLINES ACROSS THE COLLEGE:

Engineering Health Science Psychology Business Computer Science Biology

26 STUDENTS WILL PARTICIPATE ONE COLLABORATIVE EXPERIENCE. COUNTLESS OPPORTUNITIES.

If you have any questions, please email me at: mohamed.mohamed@ucc.edu

AGRIBUSINESS
The future of food



STUDENTS' ORIENTATION DAYS AND WORKSHOPS ON 19, 20, AND 21 MAY 2026



Statistics:
6 teams, 4 plant types per team, 50 transplanted for each type, with 3 harvests.
Total: 6 teams x 4 plants x 50 transplanted x 3 harvests = 3600 plants.

WORKSHOP FOR STUDENTS ABOUT BUSINESS & MARKETING PLANS



PROFESSIONAL WORKSHOP FOR FACULTY AND STAFF FROM LAB TO TABLE – START YOUR HYDROPONIC LEAFY KITCHEN MAY 19, 2026



FIRST: STUDENTS LEARN



Cilantro/Coriander	(5.0 - 6.5)	(12 - 16 hrs)	Continuous)
Mint (various types)	OPTIMAL pH (5.5 - 6.5)	DAILY LIGHT HOURS (12 - 16 hrs)	HARVEST METHOD Continuous)
Lettuce (Leafy Types)	OPTIMAL pH (6.0 - 7.0)	DAILY LIGHT HOURS (12 - 16 hrs)	HARVEST METHOD Cooler temp (65-75F)

SECTION 2 2. ESSENTIAL CARE TIPS			
A. NUTRIENTS & WATER	B. PUMP/AERATION	C. MONITORING	D. LIGHT SPECTRUM
Use specified hydroponic solution. Check levels daily.	Ensure regular flow. Prevent stagnant water.	Check pH & EC weekly. Calibrate equipment.	Full-spectrum grow lights (Blue/Red dominant). 12-16 hrs/day.
SECTION 3. ADVANCED HARVEST & FLOWERING TIPS			

COMING WEEKS ACTIVITIES

- **ONSITE VISIT TO HYDROPONIC COMPANY.**
- **HIGH SCHOOL STUDENTS WILL VISIT US TO LEARN MORE ABOUT OUR PROJECT.**
- **BUILDING A DIGITAL PLATFORM TO PROVIDE FREE TEACHING RESOURCES AS (O.S.L).**

SECOND: STUDENTS DO



THEN, STUDENTS SHARE KNOWLEDGE AND FOOD WITH COMMUNITY



Key Hydroponics Initiatives at RCBC

- **Student Research Opportunities** focused on hydroponics and controlled environment agriculture, providing students with hands-on experience in sustainable growing practices, emerging agricultural technologies, and applied research.
- **Career-Connected Learning Experiences** through microinternships, experiential learning projects, and industry partnerships that help students develop workforce-ready skills and expand their professional networks.
- **Industry Exposure and Site Visits**, including a planned June visit to **Urban Ponics**, a nonprofit organization dedicated to advancing sustainable agriculture and community engagement through hydroponic growing systems.
- **Workforce Development and Academic Pathways**, including the exploration and development of courses, certificates, and training programs in hydroponics and related fields to meet regional workforce needs.
- **Curriculum Collaboration with Bergen**, focused on creating a seamless **non-credit to credit pathway** that expands access to educational and career opportunities in controlled environment agriculture.
- **Community Engagement and Outreach**, including a hydroponics-focused event designed to connect students, faculty, industry partners, and community members while promoting awareness of sustainable agriculture practices.
- **Fall Campus Showcase**, currently under discussion, to highlight hydroponics initiatives, student involvement, and career opportunities in controlled environment agriculture for the broader community.



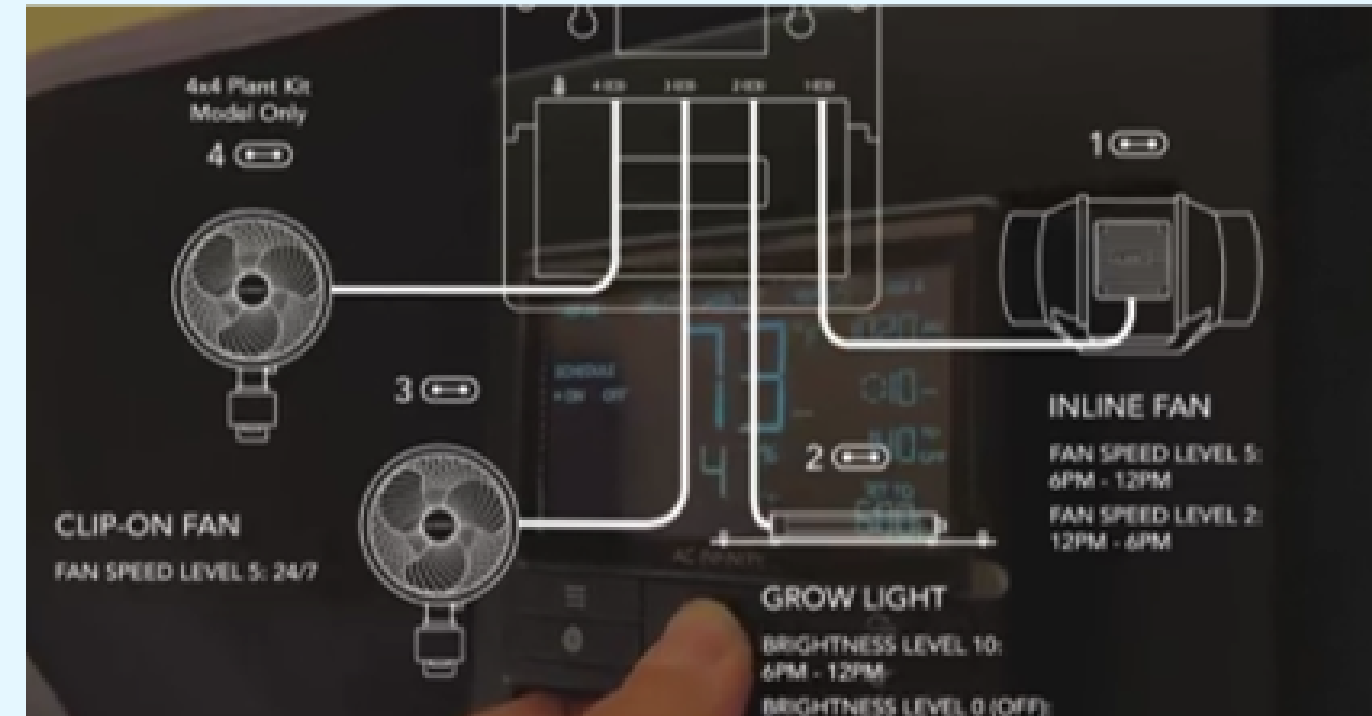
Rowan College
at
BURLINGTON COUNTY

Assembly and Testing of Hydroponic units

Mini hydroponic Unit

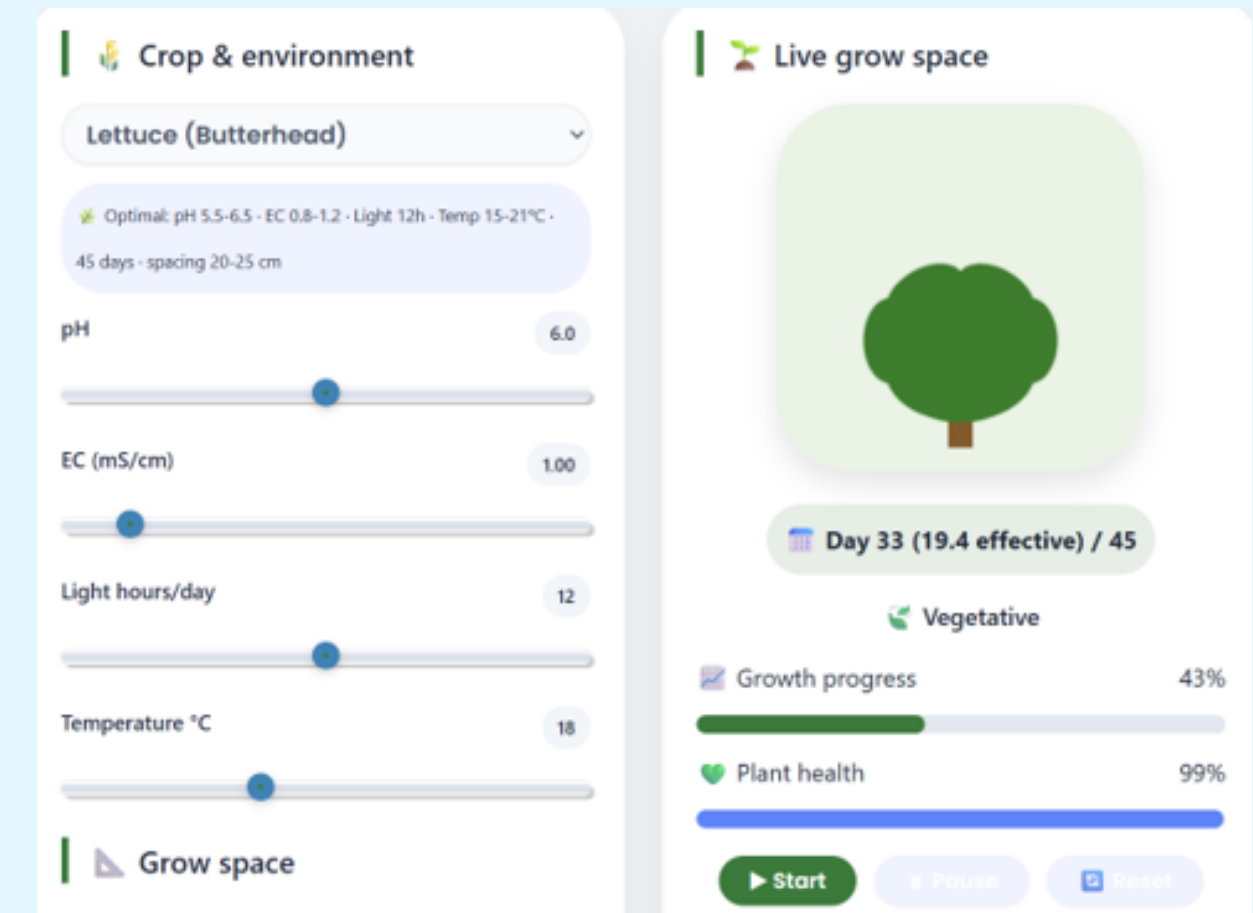


Growth Tent



Simulating Hydroponic-based plants with Grow Simulator

- Varying conditions, e.g. *temp, electrical conductivity, light hours/day, pH, growth space*
- Working with plants, e.g., lettuce, spinach, tomatoes, kale, mint, celery, etc.



Growing Talent through Mercer's Horticulture Program



High School Connection

- Upward Bound summer hydroponics experience
- Growing FFA partnerships
- Establishment of MANRRS chapter



College and Workforce

Credit

- Development of agri-business microcredential

Non-credit

- Industry valued pesticide credential
- Business of horticulture entrepreneur bootcamp



Student Experiences

Parallel pathways tailored to student readiness and learning goals.

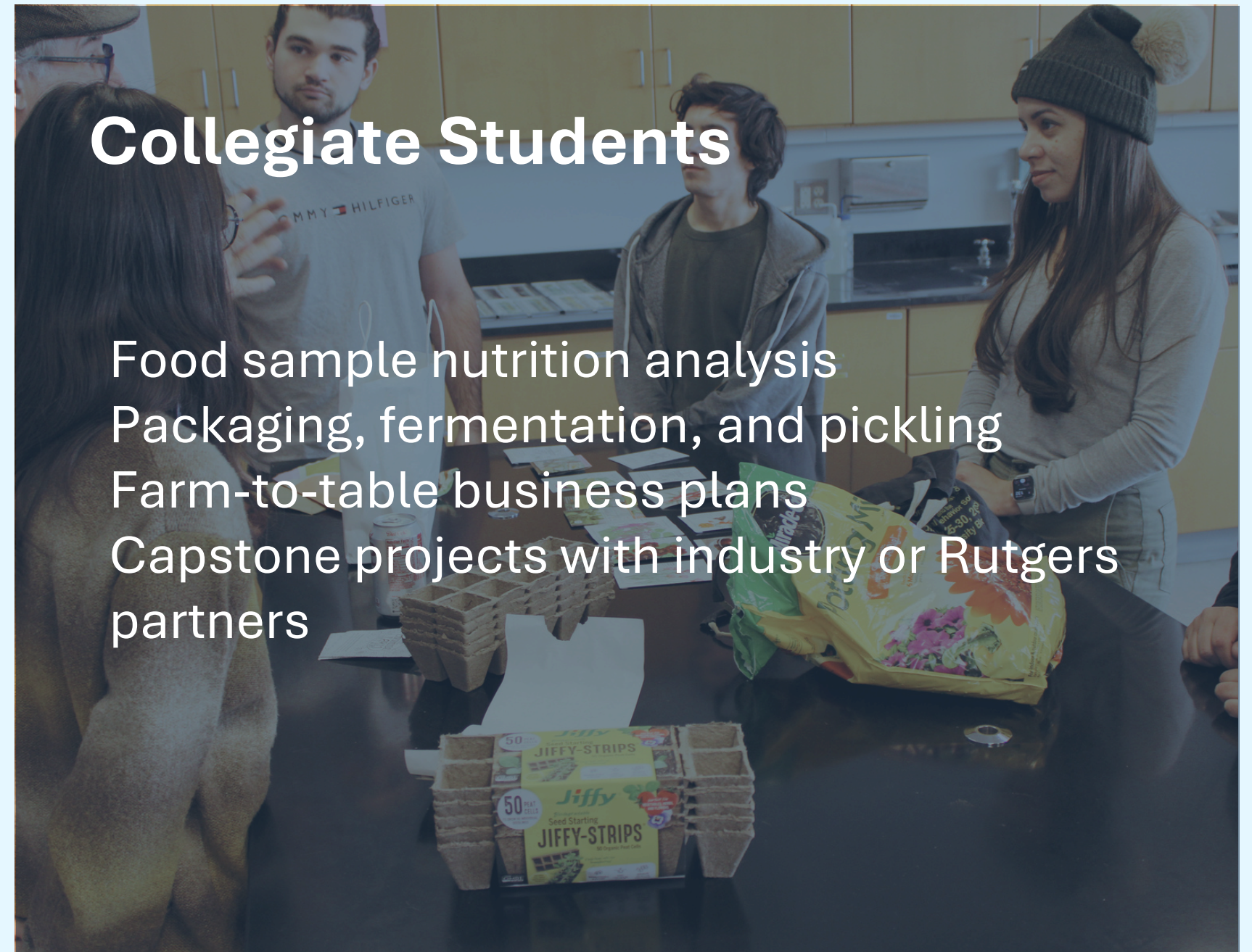
Highschool Students

4-H garden programming
Soil science and plant propagation
Hydroponic/aquaponic team prototypes
Internships and community exposure



Collegiate Students

Food sample nutrition analysis
Packaging, fermentation, and pickling
Farm-to-table business plans
Capstone projects with industry or Rutgers partners



Student Initiatives

Regular touchpoints keep planning, implementation, and troubleshooting aligned.

Jonathan Arroyo

Floating wet lands as a hands-on environmental solution for water quality, habitat support, and sustainability learning.

Luz Emily Mata Hernandez

USDA Summer Experiential Learning Program with activities for High School students involving agriculture, food systems, nutrition and applied STEM.

Estrella Luna

Bodega Project examines local bodegas and small food retailers to better understand community food access, supply chains, and neighborhood needs.

Jensy Jimenez

Heat Map & Data Analysis to visualize patterns, identify priority areas, and support project planning.



Summer Experiential Learning Program

A hands-on summer initiative designed to introduce high school students to agriculture, food systems, nutrition, and STEM through applied learning experiences.

Program Highlights

The program introduces students to FANH-related fields through interactive, hands-on learning experiences in culinary science, hydroponics, nutrition, and agriculture. Students connect classroom concepts to real-world food systems while exploring community needs and applied STEM practices.

Student Outcomes

Students build confidence in college-level learning while developing teamwork, research, and presentation skills. Through the guided literature review and final project, they explore career pathways in agriculture, food, health, and STEM.



Weekly Program Schedule



8:15 AM
Drop-off



9:00 AM
Morning Session



12:00 PM
Lunch



1:00 PM
Afternoon Activity



3:30 PM
Pick-up

WEEK 1

Culinary & Food Science

Morning: Culinary Week with Professor Tomer

Afternoon: Nutrition and wellness with Professor Seda, literature review session

*Rutgers field trip scheduled Thursday

WEEK 2

Hydroponics & Vertical Farming

Morning: Hydroponics with Professor Cichowski

Afternoon: Nutrition and wellness with Professor Seda, literature review session

*Rutgers field trip scheduled Thursday

WEEK 3

Beekeeping

Morning: Beekeeping with Professor Knowlton

Afternoon: Nutrition and wellness with Professor Seda, literature review session

*Rutgers field trip scheduled Thursday

WEEK 4

Fermentation & Soil Science

Morning: Fermentation/Soil Science with Prof. Sontag and Prof. Kennedy

Afternoon: Nutrition and wellness with Professor Seda, literature review session

*Rutgers field trips scheduled Thursday

WEEK 5

Culinary pt. 2

Morning: Culinary Week with Professor Tomer

Afternoon: Nutrition and wellness with Professor Seda, literature review session

*Rutgers field trip scheduled Thursday

WEEK 6

Literature Review Presentation Readiness

Morning: Presentation Rehearsal with Mentors

Afternoon: Nutrition and wellness with Professor Seda

Final presentation / culmination activities



Program Director: Dr. Edward Sanchez
esanchez2@bergen.edu

USDA NextGen | Food Science & Green-Tech Innovation



Floating Wetland

The project explores how plant-based floating systems can help filter pollutants, promote biodiversity, and demonstrate practical environmental restoration methods.

Program Highlights

The Environmental Floating Wetland project introduces students to sustainable water quality solutions through plant-based floating systems. Students explore how wetlands can filter pollutants, support aquatic ecosystems, and connect environmental science concepts to real-world restoration practices.

Student Outcomes

Students develop a stronger understanding of sustainability, ecology, and environmental problem-solving. Through this project, they build research, observation, and presentation skills while learning how nature-based solutions can address community and environmental needs.



Bodega Project

The project highlights how small food retailers serve neighborhoods and identifies challenges, opportunities, and potential improvements in local food distribution systems.

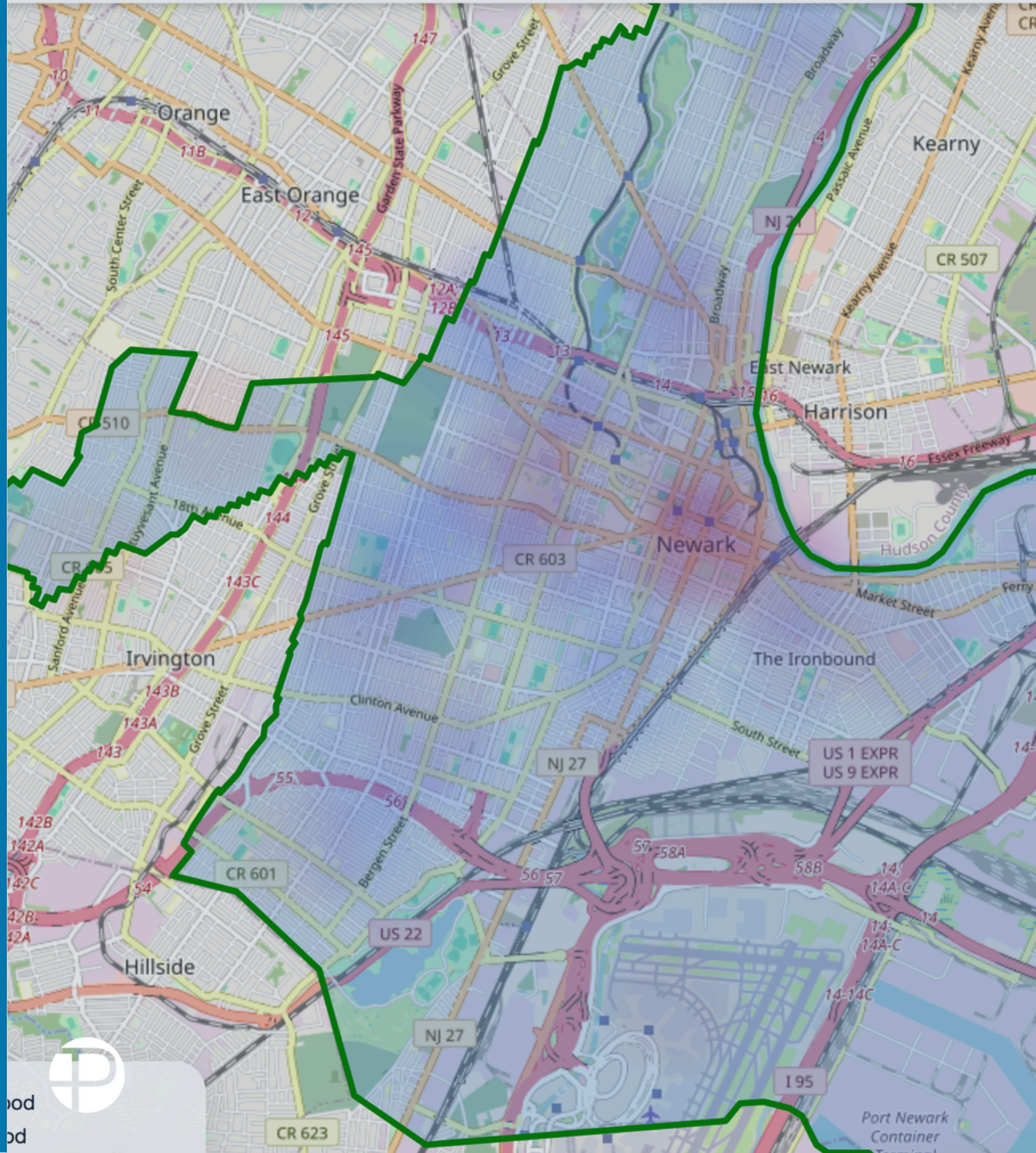
Program Highlights

The Bodega Project explores the role of local bodegas in food access, community health, and neighborhood supply chains. Students examine how small food retailers serve their communities while identifying challenges and opportunities within local food systems.

Student Outcomes

Students strengthen their understanding of food distribution, community-based research, and public health connections. Through data gathering and analysis, they develop critical thinking, communication, and research skills while exploring how local food systems impact everyday life.





Data Analysis & Community Empowerment

Program Highlights

The Heat Map and Data Analysis project helps students understand how data can be used to identify patterns, trends, and areas of need. Students learn how visual tools can support research, decision-making, and clearer communication of complex information.

Student Outcomes

Students build skills in data interpretation, visualization, and evidence-based reasoning. Through this project, they learn how to transform raw information into meaningful insights that can support program planning, community research, and presentations.



The Bodega Project

A decentralized, hyper-local food grid for Newark.

github.io

NJ PATHWAY PARTNERS | BUILDING STRONGER PATHWAYS FOR STUDENTS

NJ Pathway to Career Opportunities

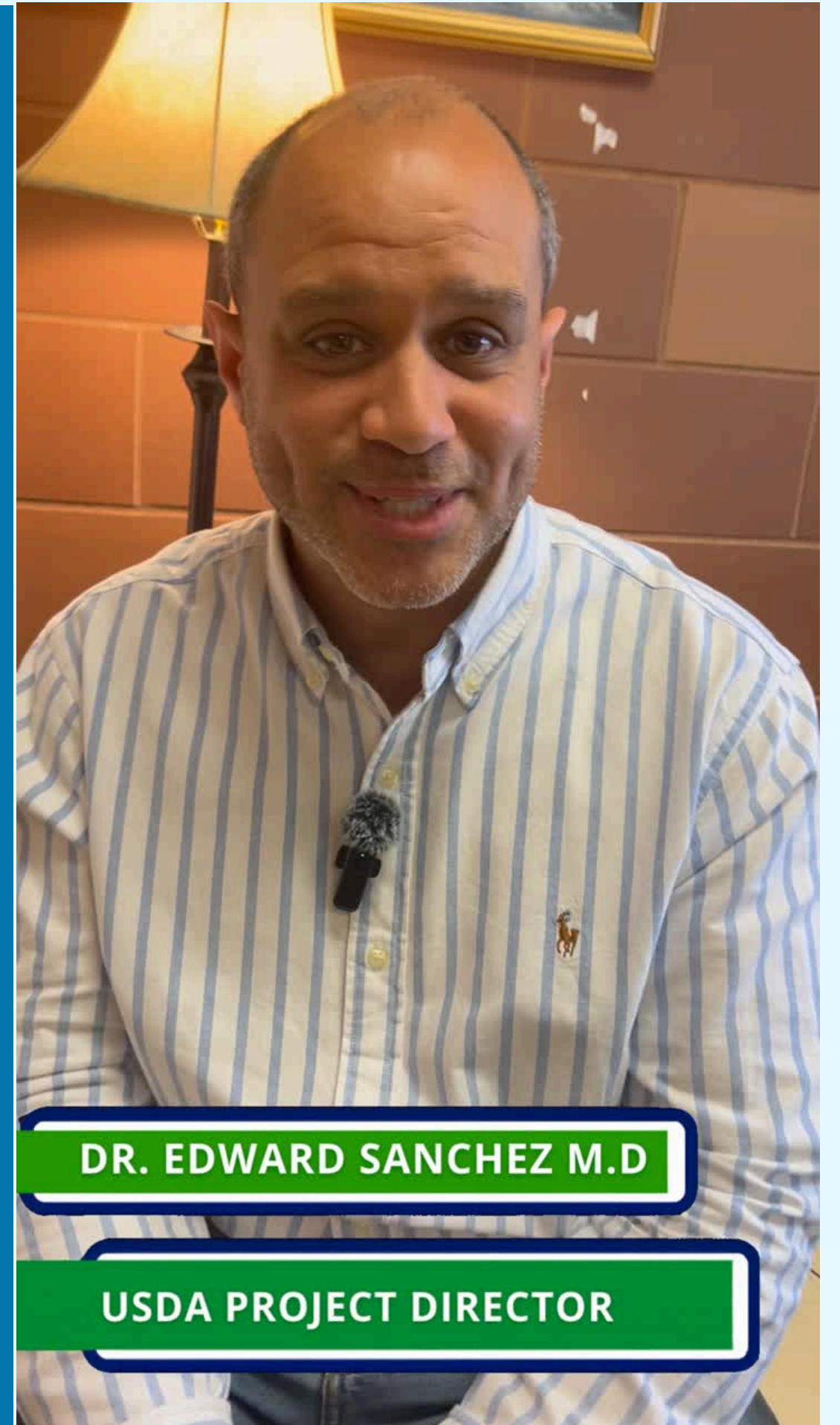
Aligning Education to Build an Innovative Workforce.



NJ PATHWAYS

TO CAREER OPPORTUNITIES

Aligning Education to Build an Innovative Workforce



DR. EDWARD SANCHEZ M.D

USDA PROJECT DIRECTOR



NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce

Thank You!