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New Jersey Agricultural
Experiment Station

New Jersey Agricultural Experiment Station

Vision 2025

***A SYSTEM OF RESPONSIVE, INNOVATIVE and
INCLUSIVE
PROGRAMS, FARMS, STATIONS AND CENTERS***



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Vision 2025

NJAES programs, farms, stations and centers will be national models of responsive, innovative and inclusive research, education and outreach that can address grand challenges of the state and broader society, and known for sustainable management of the land and natural resources they encompass.

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Embracing the Vision

- Given the broad diversity of NJAES in terms of programs and expertise, we need to create a common harmony – *“One team, one dream”* in order to accomplish our goal.
- Re-imagine NJAES programs and operations of farms, centers and research stations so that by 2025 they are models for NJAES/RCE program delivery.
- Research and Extension working closely together and with stakeholders in planning and implementation.
- **Impact** - *NJAES Vision 2025* strategic investments and engagement with the university community, will build the capacity and capabilities of NJAES to address current and future needs of New Jersey and broader society.



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Vision 25 FY 21-22 Program Priorities

Targeted FY 21 and FY22 22 investments in infrastructure, IT, and equipment designed to enable the expansion/development of cutting-edge programs

- **Climate Resilience and Adaptation**—identify climate risk for agriculture, marine, and other resource industries, environmental resources and communities, and demonstrate/evaluate climate management practices and resiliency preparedness responses.
- **Future of Agriculture** - catalyze economic development through programs such as new/emerging technologies, development of value-added products, breeding new crop varieties, invasive species detection and control, and resource conservation/ stewardship practices; support the development of the next generation of farmers - business succession and intergenerational transfer of farm assets, agricultural incubation programs, and cultural diversification.
- **Community Health and Wellness through Urban Extension**—expand RCE program delivery in urban/suburban communities - public health, nutrition access, wellness programs, urban food production, and delivery of positive youth development programs through 4-H programs, 4-H camp, and at-risk youth education and support program, with an expanded focus on STEM education

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Vision 2025 Infrastructure Priorities

- **FY21**
 - Cream Ridge
 - HF3
 - Marine Programs
- This is a proposed timeline.
- Subject to change as priorities shift
- **FY22**
 - HF1
 - Equine Science Center
 - Snyder Farm
- It is anticipated that the planning and implementation will be complete/near complete (based on budgetary constraints) by the end of the designated fiscal year.
- **FY23**
 - On-campus animal farm
 - Marucci
 - RAREC
- **FY24**
 - Adelpia
 - Auxiliary units
- **FY25**
 - FIC N and S
 - EcoComplex

Evaluating our Assets

- **Programs** – are our programs relevant today and positioned to address grand challenges of the state and broader society? are they inclusive and recognizing the diversity of the stakeholders they serve? do some existing programs need to be sunsetted/redesigned to meet current needs? where do we need to expand beyond traditional programs/services?
- **People** – do we have the skills/expertise in-house to deliver new/expanded programs? is diversity/inclusion represented/considered? how do we build needed skills/expertise –partnering with broader university, building external resource networks, new hiring, redeploying existing expertise?
- **Infrastructure, IT, equipment** – is our *infrastructure* sufficient and of the quality necessary to carry out program objectives? are our farms/stations practicing sustainable management of the land and natural resources they encompass? are *IT* capabilities at on and off-campus farms and stations in place and up to date (speed, connectivity, access to advanced computing) to deploy cutting edge program delivery; do our scientists have the *equipment* needed to conduct cutting-edge research and to be competitive for federal funding?

Horticultural Farm III, New Brunswick



Hort Farm III

Overview

- Currently used for hazelnut, vegetable (tomatoes, peppers), and small fruit trials.
- Tom Molnar, Faculty Director, Joe Florentine, Farm Manager
- Closed for last 2 years for soil remediation, irrigation improvements, structure removal, and construction.
- **Re-Opening in Spring 2021!**

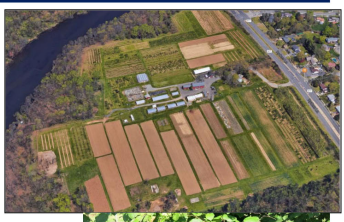
Immediate Action Items

- Re-start conservation planning
- Invest in remaining infrastructure: Deer fencing, bathroom facilities, equipment
- Create programs for local community; greater engagement by RCE and faculty researchers; Hazelnut Center – educational post-harvest/crop processing demo center



Hort Farm 3: Hazelnut Research and Extension

- Provides information statewide on all aspects of hazelnut production
- Proposed training center focused on hazelnut production and processing
- Envisioned as resource for growers from New Jersey and the Northeast
- Opportunity for NJAES research and extension to establish a new crop for NJ agriculture



Hazelnut Breeder Tom Molnar



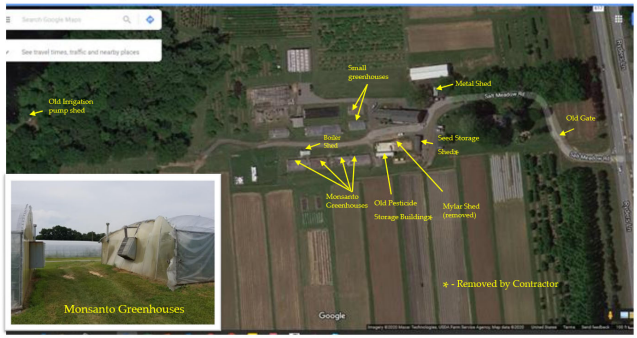
May 2017 - NJAES takes over management of HF3



The farm was operated for the 2017 and 2018 seasons, but it was quickly realized that the infrastructure was in such poor condition that it needed to be closed.



Ten of the twelve obsolete greenhouses and buildings were removed by NJAES staff.



The remaining buildings were cleaned out, organized and repairs made where needed.





Field Reclamation

Soil testing, pH correction, cover crop planting and months of hard work to improve fields



Over 5,500 feet of irrigation pipe installed in July & August 2020 by Farm Staff; Irrigation system mapped with GPS coordinates



Headers for drip irrigation tape



Site Preparation for Pole Barn



Erosion Control



RUTGERS **New Equipment**



RUTGERS **New Sign Installed**



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Rutgers Fruit and Ornamental Research and Extension Center, Cream Ridge

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Fruit and Ornamental Research Extension Center Cream Ridge

Overview

- Acquired in 1963
- Currently dedicated to breeding new fruit varieties, hazelnut trials, and pollinator studies
- Facility shared cooperatively with national IR4 Project for specialty crop pest management
- Central location makes it an excellent facility for program delivery

Immediate Action Items

- **Facility**
 - Re-initiate dam repairs
 - Install deer fencing
 - Evaluate soil management
 - Form advisory committee
- **Programs**
 - Pollinator Center
 - Beginning Farmer Program

Pollinator Center at Cream Ridge

- Honeybees pollinate \$300 million of NJ crops
 - NJ blueberries valued @ \$85 million (2019)
- Severe colony decline associated w/ pollination
 - Beekeepers losing > \$1 million/yr
 - Hives are stressed from mites, nutrition, pesticides
 - Hive rental becoming more expensive
- Entomology lab at Cream Ridge has been refurbished.



Investment Needed:

- Acreage for forage crops to maintain colonies.
- Laboratory upgrades for toxicity and physiology work.
- Tunnels and other field supplies for behavioral work; Hive/honey storage facilities.

Pollinator Center Research and Outreach

Research

- Beehives (7-10) were established in 2019 along with 3 acres of clover forage.
- Behavior studies studying bee attractiveness to fungicides to start 2021.
- Testing alternative Varroa mite management practices.
- Screening the use and safety of new biological fungicides and plant activators

Outreach

- Provide educational opportunities for the Dept of Entomology, and OCPE beekeeping courses.
- Network with the 2,000 member NJ Beekeeping Association and provide meeting space and educational opportunities.
- Provide update opportunities for commercial beekeepers and meeting opportunities to help address ongoing honeybee health issues.



Rutgers Aquaculture Innovation Center, Cape May

Aquaculture Innovation Center

Overview

- Goal: Overcome limitations to marine aquaculture in NJ
- Investigate mari-culture technology
- Serve as business incubator, proof-of-concept
- Produce shellfish seed/ fingerling fish needed for expanding industry

Immediate Action Items

- Coordination of marine programs - CRAFT
- New aquaculture species outreach/education programs
- Complete AIC tank replacement swale installation
- Expand habitat restoration through living shorelines, conservation of horseshoe crabs and shorebirds
- Identify additional revenue streams

Rutgers Collaborative for Coastal Research, Aquaculture, Fisheries and Technology

- Integrated network to enhance the capacity of the SEBS/NJAES to address real world challenges associated with complex coastal and estuarine management issues
- Areas of focus: climate change, episodic events such as storms, increasing human migration to the coast and pressures placed on use of our coastal and estuarine resources.
- Haskin Laboratory
 - Bivalve Laboratory
 - Cape Shore Laboratory
 - Aquaculture Innovation Center at Cape May
 - Delaware Avenue Facility
- Jacques Cousteau National Estuarine Research Reserve
 - Cousteau Center at Tuckerton
 - Cooperative Ecosystem Study Unit at Sandy Hook
 - Coastal Exploration Center at Tuckerton
- Marine Field Station at Tuckerton

Infrastructure Improvements to Date

- Two 80,000 gallon/ea, steel raw seawater settling tanks required demolition after a catastrophic failure in late spring 2019.
- 4 smaller fiberglass tanks replace old system.
- A new seawater delivery system was designed.
- Other mechanical issues addressed while construction crew was on site.
- Two projects need to be completed:
 - Repair or replacement of the treated seawater tank, essential to the facility operation
 - Remediation and mitigation of erosion within the creek that supports effluent seawater from the facility.



Actions to Date and Plans for FY21-22

Climate Resilience and Adaptation

Infrastructure

- Tuckerton – dock replacement to be with leveraged investment from Corps of Engineers
- Adaptation of marine stations to rising sea level stations
Cape Shore gabion wall, JCNEER demo living shore-line as a sea level rise resiliency strategy
- Establish programs for demo climate smart ag practices on NJAES farms.

Programs

- **Climate Smart Agriculture** - development of climate-smart ag strategy completed.
 - conduct economic analysis for climate adaptation practices;
 - Survey current state of adoption and implementation of precision ag tech in NJ. Develop training and programming to drive greater uptake.
 - Create a catalog of opportunities to help farmers navigate programs/pool funding
 - Create an ecosystems services database of production lands that can serve as a communications tool demonstrating social and environmental benefits generated by growers.

Future of Agriculture

Infrastructure

- **Horticulture Farm III**—renovation and modernization of physical infrastructure, equipment; initiated soil management planning with NRCS.
FY 21-22 - complete renovations; reinstate collaboration with NRCS and develop/implement soil management plan;
- **Snyder Farm** - *FY21-22* - infrastructure investment in equipment, fencing and pole barn to improve field trial services for new crops such as hemp.
- **Cream Ridge** - *FY 21-22* initiate dam repair and expansion of irrigation capacity; deer fencing installation; pollinator center an beginning farmer equipment, infrastructure

Programs

- **Industrial hemp production trials**— production trials at Snyder and RAREC, product chemistry/analytical work, and economic analysis of production costs.
- **Hazelnut Program** - establishing new hazelnut industry in NJ; began grower engagement.
- **V25 Ag Programs** -
 - Pollinator center
 - Wildlife control
 - Beginning Farmer/Ag incubator
 - Agribusiness center that assists growers with business planning, intergenerational transfer strategies, new market development, etc..

RU Ready to Farm: Getting Rooted in the Garden State

- USDA-NIFA Beginner Farmer and Rancher Development Program grant.
- \$515,464 award over a 3-year funding period.
- PI: William T. Hlubik; Co-PI's: Bill Errickson and Lauren Errickson
 - Gather/develop curriculum and media for short courses
 - Establish farm business incubator sites and on-farm internships to facilitate land and equipment access for select program participants. Target 12 to 20 new farmers.
 - Utilize the NJAES Cream Ridge Experiment Station and the Middlesex County EARTH Center in North Brunswick to focus hands-on training and farm business incubator sites.
 - Training and incubator sites will extend to participating farms and other open space sites

Community Health and Wellness through Urban Extension

- **Infrastructure**
 - **4-h Camp** - installation of yurts for counselor training
 - **Video equipment** for development of video, on-line courses and programming.
- **Programs**
 - On line programming
 - Expanded RCE engagement and program delivery in urban and suburban communities that center on access, diversity, equity and inclusion.
 - FCHS - expanded nutrition and wellness programming.
 - Urban food production
 - Delivery of positive youth development programs across the state through 4-H programs, 4-H camp, and at-risk youth education and support program, with an expanded focus on STEM education

Investment Plan

Funding Sources

- **State Special Funding** - \$3 million FY21
 - Brand as "Vision 2025 Investment Fund" to easily document and communicate expenditures and impacts
- **NJAES Investment**- NJAES leadership will determine level of investment from infrastructure funding resources
- **Capacity Funds** - Align programs/projects with USDA Priority Areas
- **Federal Funds** - Office of Research support to enable increased submissions of projects within target areas.
- **Funding Utilization** - NJAES leadership will determine type, priority, level and timing of investments- approximately \$2-4 million/year combined.

Communications and Marketing

- Presentation of Vision 2025 to the NJAES Board of Managers
- Presentation Plan to key stakeholder groups:
 - NJ Farm Bureau & County Boards of Agriculture
 - NJ Department of Agriculture leadership
 - Others
- Development of NJAES video marketing campaign to increase visibility of experiment station programs and resources
- Legislative outreach