

New Jersey Agricultural Experiment Station
2020 | ANNUAL REPORT

WE **R** HERE
WHEN YOU NEED **US**

A Year Like No Other



RUTGERS

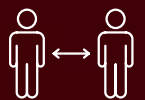
New Jersey Agricultural
Experiment Station



20 SECONDS



FACE MASK



6 FEET



Laura J. Lawson

Interim Executive Dean of Agriculture and Natural Resources

Our NJAES/SEBS community faced the challenges of a tumultuous year head-on and became stronger as a result. We started 2020 with programs in place, plans for a busy spring and summer of in-person activities, and research underway, only to have to quickly pivot to remote modes of work and engagement, because not serving our state was not an option. We pressed forward, providing critical resources to learners young and old, fishermen and farmers, businesses, and our institutional partners in our cities and counties. We were reminded of the grand purpose of the experiment station—to provide science-based knowledge and resources to the people and businesses of New Jersey so that they can thrive.

While we recognized the vital importance of in-person activities, we also acknowledged that many of our virtual programs actually reached more people than ever before. In weekly 'listening' meetings, I regularly heard how people learned to engage with new technologies, formed collaborative clusters for mutual support, and adjusted their outreach based on feedback. 2020 taught us to be responsive, compassionate, and tenacious.

So what is next? As you read these pages, I hope you see that each story highlights a program that serves the present and prepares us for a stronger future. We continue to invest in the experiment station to assure continued excellence in our research, education, and extension activities.

On behalf of the entire NJAES community, I extend our gratitude to Dr. Robert M. Goodman, former executive dean and executive director, and Dr. Bradley I. Hillman, former director of research, for their years of service and leadership of the experiment station.

Sincerely,
Laura J. Lawson

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NJAES is a vital economic engine for the state through supporting the growth of viable and sustainable businesses and communities. NJAES is strengthening its leadership in building a more resilient New Jersey—from public health and climate change adaptation to economic development—with the launch of Vision 2025. This is a strategic investment initiative to enhance the capabilities of experiment station programs, farms, stations, and centers, to make them more responsive, innovative, and inclusive, and in addition, serve as national models to effectively address major challenges of the state and broader society.



Wendie Cohick

Senior Associate Director, NJAES

Director of Research

A key component of NJAES research is identifying and solving existing problems while envisioning what we need for a resilient and healthy future. This begins with basic discovery and ends with practical applications that inform public policy, drive economic innovation, and improve the daily lives of our residents. Exciting new initiatives in our key strategic areas of agriculture, food systems and the environment, global change and biodiversity, and health and wellness will benefit the citizens of New Jersey and extend our global reach.



Brian Schilling

Senior Associate Director, NJAES

Director, Cooperative Extension

The COVID-19 health crisis continues to present daunting challenges and raise new stresses for families, businesses, and communities across New Jersey. Rutgers Cooperative Extension faculty and staff are meeting them with resolve. We are finding new ways of connecting people with the resources and expertise of NJAES and the broader university. Whether supporting heightened interest in home gardening, addressing concerns about personal wellness, supporting the needs of families working and learning at home, or ensuring continued access to local farm products, **We R Here When You Need Us.**



Douglas H. Fisher

New Jersey Secretary of Agriculture

Rutgers' support of the agricultural community is a crucial element and so integral to ensuring that agriculture continues to thrive and grow in the Garden State. The research and extension expertise is indispensable and critical to the success of these multi-faceted enterprises. The insight and work from such a talented and dedicated staff are highly appreciated by farmers here and around the globe. Together we look forward to even greater progress now and into the future.

Jonathan Holloway
President,
Rutgers, The State University of New Jersey

In my first year at Rutgers, I witnessed the remarkable talents of this beloved community put to the test by an unexpected and devastating virus. I saw the resolve and creativity of Rutgers people spread across New Jersey, including NJAES faculty and staff who gracefully and competently shifted their efforts online—and reached whole new audiences in the process. With hope for a return to in-person programs as soon as possible, I know we will learn and grow from the shared experience of serving the people of New Jersey in 2020.



Christopher J. Molloy
Chancellor,
Rutgers, University–New Brunswick

As a proud New Jersey resident and alumnus of Rutgers, I know firsthand the pivotal role that NJAES plays in supporting major sectors of our economy and society. Rooted in the excellence embodied by Rutgers–New Brunswick, the experiment station has delivered on its historical promise of providing real-world solutions to the residents of our Garden State. In spite of the extraordinary hardships of 2020, NJAES research, extension, and education programs remained as impactful as ever, from supporting aquaculture and protecting our natural resources to growing businesses and fostering strong experiential learning opportunities for youth and communities.



WE **R** HERE WHEN YOU NEED US



WHEN YOU NEED **US**



March 2020 was the month the World Health Organization declared COVID-19 a pandemic and America declared a national emergency with cases and deaths skyrocketing.

March saw the shutdown of schools, sports, and entertainment, along with the grounding of air travel and the beginning of lockdowns and quarantines.

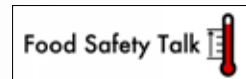
Like the rest of the country, life at the Rutgers New Jersey Agricultural Experiment Station changed. Our key information delivery approaches such as face-to-face programs and in-person classes conducted throughout the state ground to a halt. Research activities stopped and faculty raced to save years worth of data. Faculty and staff had to quickly pivot to find new ways to continue to serve the people of New Jersey during these catastrophic times.

These are the stories of how we at the Rutgers New Jersey Agricultural Experiment Station carried our more than 140-year-old mission to continue helping the people of New Jersey and how we are planning and working towards a brighter future.



A Voice of Reason During Troubled Times

Don Schaffner, professor and extension specialist in food science, has been thinking about the risks posed by microorganisms for more than 30 years. About 20 years ago, he became very interested in studying the science of hand washing and quantifying microbial cross-contamination, so it was no surprise when he turned his attention to COVID-19.



foodsci.rutgers.edu/faculty/schaffner

Since the start of the pandemic he's answered questions about the benefits of hand sanitizers versus washing your hands (it turns out both are very effective at reducing risk of COVID-19), whether it's necessary to spray down your takeout and delivery with Lysol (no, it's not), whether you should wash your fresh produce with soap (no), whether you need to sanitize your groceries after you get them home from the store (also no), as well as a variety of questions about how long SARS-CoV-2 (the virus that causes COVID-19) can last on surfaces, or whether the virus can be spread by food or food packaging (the answer appears to be no, at least for now).

Schaffner has provided answers to these questions and many others while he's been interviewed by multiple national publications like the *The New York Times*, *The Washington Post*, *Wall Street Journal*, and *Atlantic* magazine as well as a whole host of radio and TV stations across the country. He uses his Twitter account [@bugcounter](#) to post threads discussing these issues for his enthusiastic followers. COVID-19 and SARS-CoV-2 are also frequent topics on his two podcasts, *Food Safety Talk*, [foodsafetytalk.com](#) and *Risky or Not*, [riskyornot.co](#).

His interest in providing advice to the food industry, ranging from small restaurants to large multinational corporations, led him to partner with colleagues at North Carolina State University and elsewhere to create *FoodCoVNET*, [FoodCoV.net](#), which is now supported by the Foundational and Applied Science Program of Agriculture from the USDA National Institute of Food and Agriculture.

The *FoodCoVNET* team is cataloging, collating, reviewing, and then rapidly disseminating existing scientific data on SARS-CoV-2 extracted from the plethora of published material as well as identifying COVID-19 management strategies to fill the gaps for the food industry. Schaffner is also part of a team that will be conducting laboratory research with harmless viruses to see whether they can be used to predict SARS-CoV-2 virus survival and spread.

The New York Times

WALL STREET JOURNAL

The Washington Post

Bloomberg



Newsweek



SUSTAINING NEW JERSEY

Rutgers Water Resources Program

Earth Day Every Day

Lower Raritan Pathogen
Water Quality Monitoring

Growing and Learning in the Garden



Rutgers Water Resources Program Making a Difference

The Rutgers Cooperative Extension (RCE) Water Resources Program team started 2020 with great aspirations. In January, the team started its second year of Green Infrastructure Champions training—a collaboration of the Water Resources Program and the Green Infrastructure Subcommittee of Jersey Water Works—which was fully enrolled with 40 participants signed up for each of the 10 sessions at Duke Farms. The team also designed rain gardens with the intent of working with communities to install 50 such gardens this year in honor of the 50th anniversary of Earth Day. In addition, they prepared green infrastructure plans for municipalities across the state with the goal of presenting plans to towns and helping them jump-start implementing green infrastructure projects.

Then COVID hit. Everything was shut down, and everyone started working remotely. The team could no longer deliver face-to-face educational programs or run its summer undergraduate student intern program.

The Water Resources Program team adapted. The Green Infrastructure Champions training became a series of online courses, enabling attendance to grow from 40 participants per session to 140. More Green Infrastructure Champions were certified this year than last year! Though the Water Resources Program could not hire students for its summer intern program, this loss of labor did not stop the team from achieving their rain garden goal. They partnered with the New Jersey Tree Foundation, hired local contractors, and worked more closely with local departments of public works. They worked with communities to install more than 60 rain gardens this year, exceeding their goal of 50. The team also completed green infrastructure plans for more than 25 municipalities without the help of student interns, and presented the plans virtually to stakeholders.

The successes of the Water Resources Program during 2020 proves that, even during a pandemic of this magnitude, environmental stewardship is still vital to communities and can make a difference through persistence, strong partnerships, and hard work.

water.rutgers.edu

Photography by Richard Alomar.



Earth Day Every Day Webinar Series

In April, as New Jersey residents were contending with the reality of adapting to living with COVID-19, RCE faculty and staff were creating online content to provide learning experiences for those in lockdown at home. To mark the 50th anniversary of Earth Day, the global environmental action that is celebrated each year on April 22, RCE launched its “Earth Day Every Day” weekly webinar series. This innovative online series, first conceived as “Earth Day at Home,” was developed by a team of county agents that included Michele Bakacs (Middlesex and Union), Sal Mangiafico (Cumberland and Salem), Amy Rowe (Essex and Passaic), and Steve Yergeau (Atlantic and Ocean).

Focused on steps that individuals could take at home to protect the environment, the webinars covered actions that make home landscapes more sustainable, from environmentally friendly lawn care to reducing plastic waste and energy, and even a special Halloween wildlife edition. The spring and fall series spanned a total of 18 weeks, with a different topic presented for each session. Participants were left with a list of small actions that, together, would

“

This is a fantastic series. I suspect that the statistics in this presentation would be really shocking to most consumers...so glad this presentation will be available for me to share with others!

”



reduce negative impacts on the environment. For those unable to participate, sessions are available online as archived recordings.

envirostewards.rutgers.edu/Earth-Day.html

The series was a success, reaching more than 2,900 individuals representing all 21 New Jersey counties, as well as participants from 30 other U.S. states and several international participants. Results from the spring series show that 76% of the survey respondents planned to implement some of the actions that they learned from the webinar. These include eradicating invasive plants from their home landscapes, installing beneficial habitat for wildlife, adapting to coastal flooding, testing soil prior to lawn renovations, initiating an energy audit for their home, and reducing food waste, to name a few.

The “Earth Day Every Day” series generated five media interviews and garnered overwhelmingly positive feedback from webinar participants.

“This is really helpful - I'll appreciate all the more detailed tips we can get afterwards, on things like better food storage and composting.”

“The info provided was eye opening. I never knew any of this was happening. I am changing my ways.”

“I've been composting for just under two years and now understand many of my mistakes and how to correct them. I've learned a lot!”

Lower Raritan Pathogen Water Quality Monitoring

2020 marked the second year in which RCE of Middlesex County completed pathogen monitoring on the Lower Raritan River in collaboration with the Lower Raritan Watershed Partnership. Pathogen sampling included testing for Enterococci bacteria, which live in the intestinal tracts of warm-blooded animals, including humans, and indicate possible contamination of streams and rivers by fecal waste.

The program, which began in 2019, involved data collection by scores of volunteers. In 2020, COVID-19 restrictions limited volunteer sampling, even as recreational use of the river appeared to have increased with the closure of public pools during the summer. Despite its widespread use, little information has been available about the safety of recreating on the Lower Raritan River. In contrast, public bathing beaches at lakes and at the shore are regularly monitored for pathogen levels with results posted on state websites.

Even though there was limited use of volunteers to collect data this year, this collaborative water monitoring project generated results for the Raritan River that were posted on Fridays during the peak season. Residents wishing to use the river over the weekend were able to check for timely information to determine whether the water was safe. Results were posted on the Rutgers Raritan Hydrological Observatory online map. tessera.rutgers.edu/rrho





Growing and Learning in the Garden

Rutgers Home Gardeners School

For more than 40 years, the Rutgers Home Gardeners School (HGS), conducted by the Office of Continuing Professional Education, has provided expert instruction in the most innovative gardening and landscaping subjects available. Each year, up to 800 people attend the in-person event held on the George H. Cook campus in New Brunswick in the spring.

The 2020 HGS was presented as a virtual event, HGS@Home, which featured one-hour courses taught by leading horticulture experts on topics like composting, maintaining healthy soils, fall vegetable gardening, pruning timing/techniques, and plants native to New Jersey.

Among those who took advantage of HGS@Home online offerings was the Alpha School, which provides educational, therapeutic, and support services to students in Jackson, NJ. Special education teacher Sarah Martin attended half a dozen courses to gain practical knowledge of the design process in order to help her 60 students with disabilities build a school garden with multiple raised beds.

As Martin explained, in addition to learning the practical side—what to plant when, where to plant, and what works best when planted together—gardening is also a sensory experience that served her students well. Thanks to HGS@Home, the first growing season of the learning gardening project was a success as the students planted, tended, and harvested carrots, peas, gourds, radishes, lettuce, and even some flowers, once the Alpha School resumed in-person sessions in July.

go.rutgers.edu/fjl97k9d

GROWING NEW JERSEY AGRICULTURE

Fruit IPM in the
Age of COVID-19

Connecting During COVID-19:
Getting the Facts



Fruit IPM in the Age of COVID-19

The NJAES Fruit Integrated Pest Management (IPM) Program delivered timely pest management updates, scouting information, and recommendations to more than 80 farm businesses that produce \$140 million of annual crop value statewide. Pivoting to online and social distancing protocols, field scouts were interviewed, hired, and trained online; in-person grower interactions and indoor meetings were suspended; scouts recorded pest and disease incidence on smartphones; and reports were relayed to growers via phone calls, texts, emails, online newsletters, webinars, and web articles.

The beneficiaries of this comprehensive NJAES outreach were blueberry growers, who are responsible for 75% of New Jersey's production; tree fruit growers, who produce 80% of New Jersey's tree fruit crop; and an additional eight vineyards that are part of a pilot grape IPM program. More than 1,500 IPM reports were sent out, most notably documenting the early identification of Blueberry Scorch Virus (BIScV) in New Jersey, providing blueberry growers with best practices to prevent a viral outbreak. Orchardists following NJAES IPM recommendations also reduced their insecticide usage by an average of 50%.

The expansion of commercial fruit production demonstration projects, monitoring and mapping of major invasive pest outbreaks, and the Honeybee Health Initiative also continued.

go.rutgers.edu/8ummoz2v



Connecting During COVID-19: Getting the Facts

While the COVID-19 pandemic led to the suspension of traditional delivery of extension programming across the country, NJAES faculty and staff pivoted to utilizing online platforms and adopting electronic technologies to best serve New Jersey's agricultural industry. Extension offices were closed and farm visits were suspended, but extension was in full swing. During the early stages of the rapidly evolving pandemic, getting the facts out to our constituents was critical. A weekly webinar series, "Ask the Ag Agent," was launched to remotely engage with agricultural professionals by providing an open forum for farmers and opportunities to engage in virtual consultations, in addition to relaying key insights pertaining to almost daily executive orders issued by state government.

Growers were engaged in various topics within crop production, marketing, and health and safety issues related to both day-to-day agriculture as well as specific pandemic-related concerns. The new Rutgers nursery agents in Cumberland and Monmouth counties cooperated with the New Jersey Nursery and Landscape Association through weekly webinars aimed at getting vital information to our green industry stakeholders. During these meetings involving ornamental producers, landscape professionals, and other green industry stakeholders, critical pandemic-related updates were discussed in addition to timely mitigation facts pertaining to seasonal pests and emerging diseases.

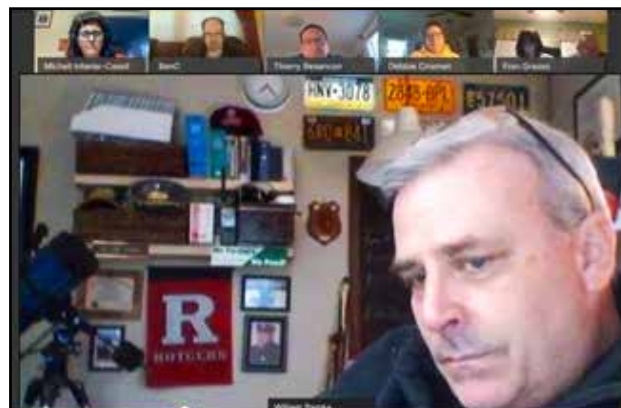
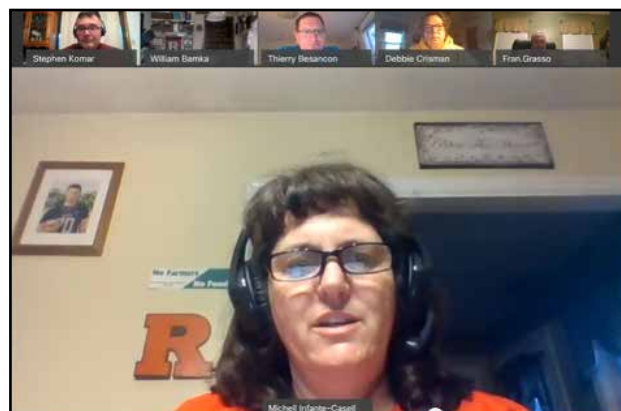
The silver lining of the pandemic became evident. Through virtual engagements, RCE was able to quickly and effectively reach a greater number of its stakeholders.

Social media efforts were reenergized, including the On-Farm Food Safety platform on Facebook, thereby facilitating grower understanding, implementation, and compliance with executive orders related to agribusiness continuance, farm labor housing, and direct marketing restrictions for farmers' markets. The *Plant and Pest Advisory*, the main commercial agriculture blog for NJAES, greatly expanded its posts and audiences, with the Landscape, Ornamental, Nursery, and Turf section being particularly active.

RCE agents and specialists provided updates on timely pest and disease recommendations as well as insights into the effects of executive orders from multiple states that pertained to both food crop and ornamental agriculture production, distribution, and brick and mortar sales. A virtual monthly nursery twilight series was initiated for nursery and ornamental producers, which served as an excellent opportunity to develop contemporary educational content and provide pesticide recertification credits through newly developed methods for this important sector of New Jersey agriculture.

Throughout RCE, fact sheets were generated to assist growers with social distancing plans for on-farm markets along with printable signage, tips for accepting sales and payments through online platforms, and food safety training compliance. Centralized online outreach for commercial livestock producers and small flock enthusiasts provided by RCE continues to see audiences grow via the NJAES YouTube channel.





HEALTH AND WELLNESS DURING THE PANDEMIC

Feeding Vulnerable Seniors at Home

FCHS Serving the Public in New Ways

Back to Our Roots

Wellness Wednesdays
with FCHS





Feeding Vulnerable Seniors at Home

Congregate Meals

The Union County Congregate Nutrition Program provides senior residents with meals at 25 community sites, offering good nutrition and opportunities for socialization. COVID-19 restrictions necessitated shifting to home-delivery for the program. Kathleen Malkiewicz, senior meals project program coordinator with the Union County Division on Aging, accomplished the move while addressing multiple challenges, including food procurement, preparation, and delivery, limited kitchen volunteers, lack of staff support due to fear of the pandemic, and working under daily new rules from the Governor's office.

Family and Community Health Sciences (FCHS) educator Karen Enslie facilitated the 2020 grant that funded the senior meals program coordinator position and enabled ongoing collaboration with the Union County Division on Aging. As the program coordinator, Malkiewicz worked seamlessly with the director of aging and the Union County Meals-on-Wheels central kitchen to move the 700 seniors from the community sites plus another 300 vulnerable seniors to "home-delivered" meals, increasing the total served to 1,000.

Ongoing COVID-19 restrictions meant that seniors in Union County continued to be fed at home through the remainder of 2020, a reality that impacted all USDA-funded nutrition feeding programs across the U.S. and will likely result in new policies and procedures being developed in 2021.

njaes.rutgers.edu/fchs



FCHS Serving the Public in New Ways

At times, adversity provides inspiration. When educators from the Department of Family and Community Health Sciences (FCHS), Somerset County, needed to move to virtual education in March, they decided to provide bi-weekly Facebook Live demonstrations of family friendly recipes. The result was exponential growth of views on its Facebook page, with hundreds of new viewers tuning into the innovative online programming either live or to watch archived recordings. FCHS educators provided short 'Tasty Tuesday' and 'Family Friday' cooking demonstrations, including recipes for Buddha bowls, apple ring donuts, pasta primavera, watermelon salsa, corn tortillas, and herb sauces.

Cross-marketing with other RCE Somerset County social media has also broadened outreach to the public. For instance, the Somerset County Family and Community Health Sciences Facebook page [facebook.com/SCNJFCHS](https://www.facebook.com/SCNJFCHS) started with 18 hours of video viewing and 30 followers in April that grew to 37 hours of video viewing and 530 followers by September.

FCHS also offered a five-part Hispanic Heritage Month series during September and October that was taught in Spanish. Each part averaged about 120 views with overwhelmingly positive comments for the overall series. The short visual format of the Facebook Live events resulted in an expanded extension audience that may have visited for the cooking and the videos but also came away with links to upcoming events and other timely information while browsing the FCHS Facebook page.



Salmon Burgers and Sweet Potato Oven Fries

Ingredients:

Sweet Potato Oven Fries:

4 large sweet potatoes (yams)
1½ Tbsp canola oil

Salmon Burgers:

1 can 14.75-ounce pink or red salmon
2 green onions, chopped
½ cup chopped red bell pepper
8 crackers, unsalted tops (saltine-like), crushed
2 tsp lemon juice
2 egg whites, whisked
2 Tbsp plain low-fat yogurt
¼ tsp ground black pepper
1 tablespoon lemon pepper seasoning blend

Directions:

1. Place oven rack in center, heat oven to 425°F.
2. Wash sweet potatoes, slice into wedges, length-wise.
3. In a large bowl, toss potato wedges with canola oil and seasoning.
4. Spread on cookie sheet. Roast in the oven, turning occasionally, until tender and golden brown, about 30-40 minutes.
5. While potatoes are roasting, prepare salmon burgers. Drain salmon; place in a medium mixing bowl and flake.
6. Fold in green onions, red pepper, crushed crackers, lemon juice, egg whites, and yogurt.
7. Shape into 4 patties.
8. Coat large nonstick skillet lightly with cooking spray; heat.
9. Cook salmon burgers until golden brown, turn, and continue cooking until other side is golden brown.
10. Serve burgers with sliced tomatoes and lettuce, and sweet potato oven fries.

Wellness Wednesdays with FCHS

FCHS “Wellness Wednesdays” webinars, conducted between May and November 2020, attracted close to 1,800 attendees. The weekly series, presented by expert FCHS faculty and staff, focused on a variety of topics related to food, nutrition, and healthy lifestyles. Whether the topic covered the new nutrition facts label or the power of cancer prevention, each webinar provided participants with the motivation and tools to make small changes in their everyday activities that could ultimately have a big impact on their overall health.

Participants, many of whom attended multiple webinars, overwhelmingly reported that they were happy to have a virtual space to learn and grow during the COVID-19 pandemic and that they were instituting various healthy tips that they gleaned from the online sessions.

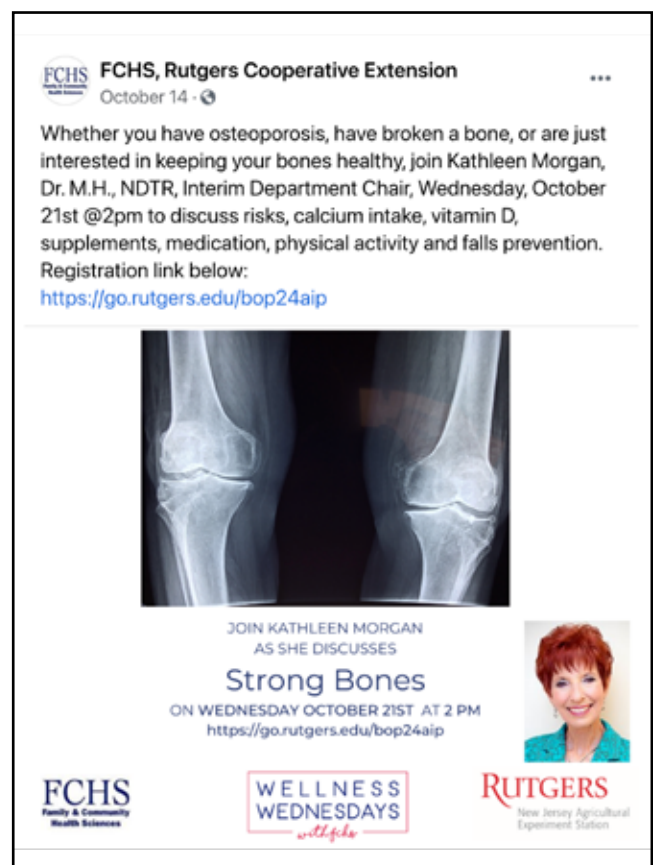
“Wellness Wednesdays” attracted many first-time FCHS program participants, resulting in the department kicking off a winter edition of the series in January 2021. New Jersey residents who could not attend the webinars during their live broadcast are able to access the webinar recordings alongside presentation resources archived on the FCHS “Wellness Wednesdays” webpage.

njaes.rutgers.edu/online-event-series/wellness-wednesdays.php



“ The Wellness Wednesdays series has been a true blessing. Just having a real connection even though it is virtual helps me to be able to have a goal for each day. I cannot say enough about the positive outcomes in my cooking, eating, and moving which are all proving to make me more happy and healthy. ”

-Marylynn Orchard of Warren County





Back to Our Roots

Home Food Preservation is Up

More time at home, more gardening, and more visits to local farm markets have meant increased need to preserve fresh produce. For centuries, families preserved their garden harvest by canning and dehydrating, and later, by freezing food. Over the years, these practices were used less frequently as food processing and mass distribution took hold.

The extent to which this might be attributed to the pandemic is unknown but as evidenced by the more than 700 individuals who took part in 11 home food preservation webinars or watched the videos produced by the Department of Family and Community Health Sciences (FCHS), there was a resurgence in interest in the number of individuals who wished to preserve, prepare, and eat food grown by their own hands.

According to FCHS educator Sandra Greci, co-leader of the Master Food Preserver program, the goal of the program was to ensure a safe product while maximizing flavor and texture, using scientifically tested recipes.

FCHS Educator Daryl Minch also served as co-leader of the program and underscored the need for home food preservation classes like the FCHS program that saw such high attendance and





engagement from the public. “We hear stories of people using unsafe methods all the time. People also regularly seek information using the internet, which unfortunately provides a lot of inaccurate food preservation methods. This is especially true for a process like canning which, if not done correctly, could result in serious illness.”

“Thank you for hosting the ‘Canning in Glass Jars’ seminar - it was very, very informative. Although I have been canning since the 1970s, I think it very important to keep informed about new developments and best practices in home canning,” declared one webinar participant.

Grenci, who co-led the program, shared the feeling that was common among the participants. “They couldn’t wait to complete the hands-on sessions and begin teaching others.”

Information is available on the NJAES Home Food preservation page njaes.rutgers.edu/food-safety/home-food-preservation and the Home, Lawn and Garden page at njaes.rutgers.edu/home-lawn-garden/harvest-cook-preserve.php.

CONNECTING WITH NEW JERSEY YOUTH

Victory Gardens

Home Away From
Home at Home

Online Learning

Career Detectives

Minecraft Brings 2020
Morris County 4-H Fair
to Life Virtually

Victory Gardens

4-H Youth Learn a Life Skill

During WWII, 4-Hers played an important role in Victory Garden projects, growing an estimated 141,261 acres of gardens and vegetables. With social distancing rules in place during the pandemic, Rutgers 4-H created a virtual Victory Garden Club, which was led by Marissa Staffen, 4-H agent for Essex County, and Jim Nichnadowicz, 4-H agent for Union County.

The club started in April with youth learning how to prepare containers for the planting of tomatoes, peppers, and basil. In addition to providing instruction, Staffen and Nichnadowicz provided seeds for the 4-Hers to get started and encouraged the young gardeners to share photographs of their maturing gardens. The virtual sessions proved to be highly interactive, with youth attending the weekly sessions armed with questions.

The virtual gardening program was intended to end in late May. However, because of the enthusiasm from both youth and their families, the club continued meeting throughout the summer. The intention is to continue the 4-H Victory Garden Club when in-person gatherings resume, and several activities for club members have been discussed, including a tour of RCE research centers, a visit to Rutgers Gardens, and learning more advanced horticulture techniques.



"I think the way you encouraged kids to plant and garden independently was awesome! My daughter also did the PowerPoint entirely by herself, with no involvement from me. As a parent this is a really big deal to watch your kid take something they learned at home earlier and be able to teach it to others and translate it into a digital format."

- A 4-H parent

essex.njaes.rutgers.edu/4h
unioncountynj4h.weebly.com





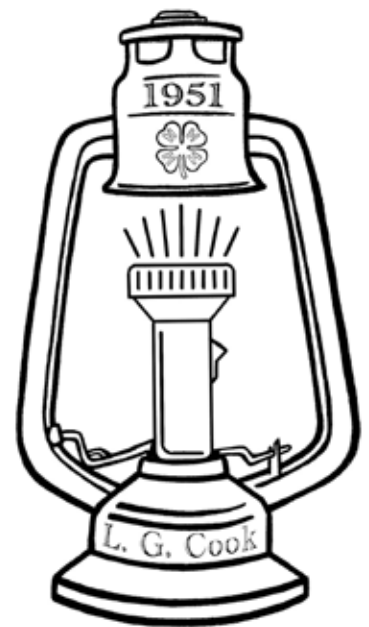
Home Away from Home at home

In its 70-year history, Lindley G. Cook 4-H Camp has never missed a summer of welcoming youth to its camp. Thanks to the creativity of counselor staff, the summer of 2020 was no exception as 4-H Camp, “Home Away from Home At Home,” was conducted during the month of July.

One hundred and thirty campers and 50 counselors still got together to laugh, create new friendships, build on old relationships, and have a summer of celebrating the 4-H Camp community, the exception being that the traditional ‘tech-free’ experience became a ‘tech-full’ camp program with the pivot to virtual programming.

Modeled on traditional in-person, hands-on 4-H Camp, each component of the virtual program was designed for maximum interaction. Campers were assigned to a ‘cabin’ with a group of a dozen others, and were able to attend meetings on Zoom and enjoy a choice of 50 different recreational games, lessons, and crafts. Campers learned about each other and shared about themselves—the foundation of new friendships and the quintessential 4-H Camp experience.

nj4hcamp.rutgers.edu



“You made it possible for camp to happen, even when the world was in crisis. I can’t thank you enough.”



24 Volunteer junior counselors

45 Volunteer staff members

133 Campers

Including **30** new campers to 4-H Camp

5 Weeks of training

227 Zoom sessions

5 Weeks of camp

10 Virtual cabins

Instead of gathering in person around Lake Shawanni, campers congregated in virtual cabins to interact, play, learn about each other, share about themselves and form the foundation of new "campy" friendships.

6 ALL-CAMP evening activities

114 Camper-created campfire moments

More Than **50**

Different "Recreation Time" Activities

Including Trivia, Disc Golf, Junkyard Band, Clowning, S'mores, Egg Drop, Fort Building, Scavenger Hunt, Dance Party, and dozens of other 4-H Camp favorites adapted to a virtual world.

5 Sing-alongs

44 Talent show acts

13 Capture the flag battles

"Thank you so much for putting so much time, love, and effort into keeping the magic of camp throughout zoom".

82 Camp mystery theories

"I'm a generally shy person and this was my first year at camp, but my counselors made everything so much fun and made everything seem so inclusive".

30 Hours of camp per camper

1,300 Volunteer hours

-4-H Campers

200 Hours of unique interactive programs created



Online Learning

The Answer for Camden's Rowan Upward Bound Program

The global pandemic precipitated Camden County 4-H and the Rowan Upward Bound program to reach new levels of collaboration in its 10-year partnership. The program provides weekend enrichment during the school year for first-generation, college-bound English language learners. Supported by a federal grant, the summer edition of the program is typically held over the course of six weeks in order to maintain continuity in learning for this high school cohort.

The 2020 Upward Bound Summer Program pivoted to an online collaboration to deliver the required courses, which include English as a Second Language (ESL), Writing, Art, Social and Emotional Health, Music, Math, and Leading Through Adversity.

Camden County 4-H agent Sharon Kinsey, who has more than 15 years of experience in online course design and teaching, partnered with Rowan Upward Bound Program coordinator Margie Olivencia and summer program instructors in ensuring the online delivery of engaging coursework for the teens. Kinsey created the basic course shells for each class and assisted the instructors in preparing for the launch of online instruction on July 7, providing nearly 50 hours of online lessons during the summer to Camden County students enrolled in the Upward Bound Program.

camden.njaes.rutgers.edu/4h





Career Detectives

Exploring Zoology

4-H program associates Amelia Valente and Brittany Rigg—both former zookeepers—were determined to provide 4-H youth the chance to connect with professionals in the field of zoo science. They formed the Career Detectives S.T.E.P. Club, in collaboration with Marissa DeVeau, an instructor at Villa Walsh Academy, to give 4-Hers the ‘inside scoop’ into the careers that can be found in a zoo or aquarium.

COVID-19 restrictions prevented in-person events, so the program provided virtual visits to the zoo for the club members. 4-Hers met online twice a week for the month of July, during which they were introduced to various professionals working in the field of animal science. Additional professions, such as working in an environmental center or for an environmental protection agency, were also explored to give 4-Hers the opportunity to see the other available careers related to the core subject.

The program was set up detective-style, with participants completing various interactive cases in each meeting. A capstone project highlighting a specific career of interest to the participant was held presentation-style at the final meeting.

The club venture proved to be such a success that Valente and Rigg developed a fall program focused on careers in theatre.

nj4h.rutgers.edu

“This was such a creative way to learn about careers,” 4-H member Claire messaged with enthusiasm at the conclusion of the program, “I loved each class very much and I learned a lot!”



MINECRAFT



Minecraft Brings 2020 Morris County 4-H Fair to Life Virtually

The cancellation of the Morris County 4-H Fair created a vacuum for the 4-Hers who spend all year preparing to showcase their skills and clubs at the annual event. So much so that they came up with the idea of recreating the fair using Minecraft, a video game platform that would allow anyone to attend the fair through game play, YouTube videos, and in-game live tours.

More than 40 youth members representing a dozen 4-H clubs along with 10 adult volunteers formed a new short-term club focused on showcasing a finished product for public view on July 16, the original opening day of the Morris County 4-H Fair. Server space to host the fair was donated by MCPProHosting. Club members poured more than 800 hours into building a scale replica of the fair and the surrounding town, including creative details only possible in a virtual world, hidden mazes for players to explore, and walk-through tours for YouTube.

The result was an in-depth fair experience where visitors enjoyed familiar as well as new virtual activities created for the occasion. The Minecraft fair exceeded expectations and was a creative showcase for the hard work of 4-H members and volunteers who were able to connect the public in a meaningful way, even while physically separated.

morris.njaes.rutgers.edu/4h



ROLLER COASTER



DUNK TANK



LIVESTOCK TENT

“This was the most relaxing Fair experience! I loved seeing the kids’ creative take on a well-loved Fair.”
– A 4-Her

“I got to build with 4-Hers of all different ages and from different clubs. We had fun building together and now I feel like I have a whole new group of friends.”
– A 4-Her



INNOVATING THROUGH CHALLENGING TIMES

Rutgers EcoComplex: An Economic Engine for New Jersey During COVID-19

Food Innovation Center: A Vital Resource for a Safe Food Supply Chain Amidst a Global Pandemic



Rutgers EcoComplex: An Economic Engine for New Jersey During COVID-19

The Rutgers EcoComplex has continued to serve as an economic development engine for the state during the COVID-19 pandemic through its business incubation, research, and outreach activities.

The Business Incubation program is going strong, with the EcoComplex labs/offices now fully occupied. The increased demand for incubation space is being seen at incubators across the state, a reflection of the unemployment created by the pandemic and many pivoting to create their own businesses. In addition, the EcoComplex received funding from the NJ Economic Development Authority to offer a program called Ecolgnite, which provides financial support to start-up companies to offset the cost of rent and for the center staff to organize meetings that facilitate networking and access to business resources. This has been highly successful in assisting EcoComplex tenants.

The EcoComplex team provided tenants with information on state and federal programs designed to help small businesses during the pandemic, and most have received some financial assistance. To make this information more broadly available to clean energy entrepreneurs throughout the state, EcoComplex director Serpil Guran co-chaired a conference titled, “Opportunities for New Jersey’s Innovation Economy During COVID-19.” The conference was attended by more than 200 start-up participants, and New Jersey Governor Phil Murphy was the keynote speaker. A diverse group of clean technology entrepreneurs were represented on numerous panels highlighting business challenges during the pandemic, and government representatives shared information on programs to provide businesses with much needed support.

The EcoComplex team continued to successfully compete for state and federal grant funding during the COVID-19 crisis, much of which targeted commercialization of new clean energy technologies. This research will result in new business opportunities for clean tech companies.

In addition, the design of the EcoComplex space with individual labs, rather than shared workspaces, has enabled clients to have safe access throughout the pandemic. This resulted in no business interruptions for center tenants. Improvements were also made to the labs to make the spaces more usable for a wider variety of clean tech start-ups. As of March 2020, five new companies leased lab space while two new virtual tenants joined the EcoComplex business incubation program.

The EcoComplex will continue to offer a wide range of programs for clean tech entrepreneurs, generating economic growth for the state during a time when it is most needed and contributing to New Jersey’s clean energy goals.

ecocomplex.rutgers.edu





“ As demand has risen for indulgent, nostalgic, feel-good comfort foods throughout the pandemic, we are so relieved to be producing our hand-crafted fennome Hungarian pastries under the direction of such a talented team of food safety, food science, and operational experts. ”

Diane Holtaway, CEO and Founder - Heirzoom Bakery and Rutgers University DC'81

Food Innovation Center: A Vital Resource for a Safe Food Supply Chain Amidst a Global Pandemic

As New Jersey declared a state of emergency to contain the spread of COVID-19, the food industry had to quickly adjust its go-to-market strategies and just about every aspect of its operations. Fortunately, the Food Innovation Center (FIC), a NJAES food business incubator and USDA and FDA food and beverage processing facility, was designated an essential facility and remained open—thus enabling the staff to continue working with food companies to address the challenges of the pandemic. The FIC team supported its dozens of specialty food businesses and entrepreneurs, and thanks to such expert assistance, not a single FIC client went out of business during this time.

The center developed policies and production requirements that allowed manufacturing to continue, providing a critical pipeline of food and beverage products headed for grocery store shelves and e-commerce distribution, eventually landing in home kitchens. While a few businesses stalled slightly in the early stages of the pandemic, they were able to regain their market. Others experienced an uptick in orders, resulting in increased manufacturing production.

FIC team members provided critical support to the food industry in the area of food safety, including creating a comprehensive informational section to its website to assist food businesses through this challenging period. Current information from the FDA, USDA, and other federal and state agencies was posted and continually updated. The site was highlighted on the New Jersey Food Processors website as a go-to resource on food safety for companies during the pandemic.

The center also had to rapidly adjust the way in which it delivered its education programs. All on-site training was moved to a virtual format, serving more than 700 participants since April 2020. Both center locations in Piscataway and Bridgeton are at capacity and have continued to mentor start-up and established food businesses with marketing, training, R&D, manufacturing, and sales support. This nationally recognized program is a stellar example of how NJAES provides practical support and resources that contribute to the health, safety, and economic growth of the state, even during the most challenging of times.

foodinnovation.rutgers.edu



BLUEPRINT FOR THE FUTURE

NJAES Vision 2025

Improving NJAES Farm Assets to
Support New Jersey Agriculture

2025
2024
2023
2022
2021

NJAES Vision 2025

One Team *One dream*

NJAES Vision 2025 is a comprehensive, strategic initiative with a goal for NJAES programs, farms, stations, and centers to become national models that are sustainable, responsive, innovative, and inclusive and can address grand challenges of the state and broader society. Given its presence in every county in the state, NJAES is a critical resource for responding to pressing challenges caused by the COVID-19 pandemic. Targeted investments in infrastructure, information technology, and equipment are designed to enable the expansion/development of cutting-edge facilities and programs and generate even greater impacts to the state.

Current areas of priority investment include:

- **Climate Resilience and Adaptation:** identify climate risk for communities and resource-based industries and demonstrate/evaluate climate management practices, resiliency preparedness responses, and clean energy technologies.
- **Future of Agriculture:** catalyze economic development in the agricultural and food sectors through innovation and entrepreneurship, new crop development, and diversity, support business succession and intergenerational transfer of farm assets, and support new farmers through agricultural incubation programs.
- **Community Health and Wellness Through Urban Extension:** expand Rutgers Cooperative Extension engagement and program delivery in urban and suburban communities that center on access, diversity, equity, and inclusion.

NJAES Vision 2025 will re-imagine experiment station programs and operations of farms, centers, and research stations so that by 2025 they are models for NJAES/RCE program delivery. Given the broad diversity of the experiment station in terms of programs and expertise, we will work to create a common theme—"One team, one dream"—in order to accomplish our goal. Research and Extension will work closely together, along with external and internal stakeholders, in planning and implementation. Strategic investments and expanded engagement will provide a platform for NJAES faculty to be more innovative and more competitive for external funding. The result will be greater capacity and capabilities at the experiment station to address current and future needs of New Jersey and broader society.

njaes.rutgers.edu/vision2025



Improving NJAES Farm Assets to Support New Jersey Agriculture

NJAES has significant land assets to support its plant research activities and deliver critical programs to the agricultural community. With eight off-campus research farms located throughout the state, the experiment station is unique in its ability to serve a diverse range of agricultural sectors—from cranberries to turf to vegetables.

One of these farms is Horticultural Farm III (Hort Farm 3), located about a mile from the George H. Cook campus in New Brunswick. The farm is used for hazelnut, vegetables like tomatoes and peppers, and small fruit trials. It is approximately 60 acres and consists of field plots for testing new plant varieties, greenhouses, and barns. The farm was closed for the last two years to make needed capital and soil improvements. These included removal of obsolete greenhouses and buildings; construction of a new barn; field reclamation involving pH correction and cover crop planting; installation of more than 5,500 feet of irrigation pipe; and installation of electrical upgrades to increase energy efficiency and eliminate the need for diesel pumps. A major improvement to protect the research plots was the repair and installation of deer fencing. Erosion control was also addressed through the installation of a swale to better manage water flow on the farm. In addition, new equipment such as tractors and implements were purchased.

Hort Farm 3 will reopen in Spring 2021 as a top-quality research NJAES farm that will serve as an outstanding resource for plant breeding faculty and as a unique location to deliver programs for the agricultural community.

Starting with Hort Farm 3, the experiment station is collaborating with the USDA Natural Resources Conservation Service to install and demonstrate soil and water management programs on all its farms. The goal is for these farms to serve as models for sustainable management of land and water resources.

There are also plans to establish a Hazelnut Center at Hort Farm 3. This center will be an educational post-harvest and crop processing demonstration facility that will be a resource for growers from New Jersey and the Northeast, house a training center focused on hazelnut production, and provide opportunities to work with growers to establish a new crop for New Jersey agriculture based on the research efforts of NJAES faculty.

njaes.rutgers.edu/vision2025





NJAES RESEARCH DRIVING NEW JERSEY FORWARD

Impact of the Microbiome on
Health and Wellness

Impact of Global Climate
Change on Biodiversity

Agriculture, Food Systems,
and the Environment

NJAES Varietal Releases

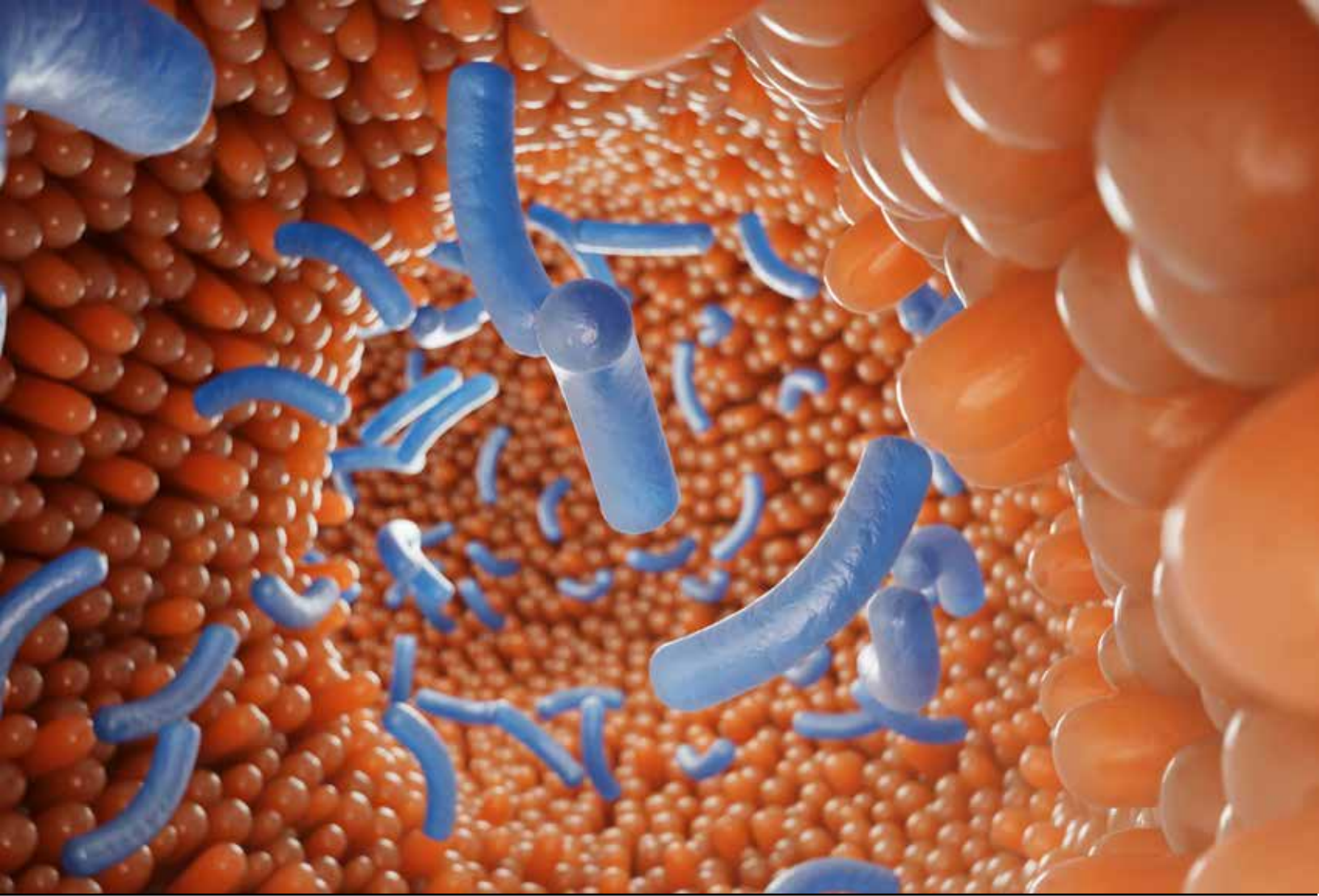
Low-Impact Inputs for Nursery
and Ornamentals





A key component of NJAES research is identifying and solving existing problems and envisioning what we need for a resilient and healthy future. Our research begins with basic discovery and ends with practical applications that affect everyday lives of New Jersey residents. The work of the experiment station is highly interdisciplinary, drawing upon expertise within the School of Environmental and Biological Sciences (SEBS) and across Rutgers, and frequently involving collaboration with multiple university and institutional partners. Such broad-based expertise informs how NJAES translates its research into meaningful programs and activities. In 2020, the experiment station identified key areas of research in which to make strategic investments for the future.

sebsnjaesresearch.rutgers.edu



Impact of the Microbiome on Health and Wellness

We now know that the microbiome is a major microbial ecosystem living within each of us that impacts our individual health and wellness. The composition of the populations comprising the microbiome may be a determining factor in many diseases. Through collaborations across NJAES, SEBS, and the New Jersey Institute for Food, Nutrition, and Health, the university is becoming a leader in the study of how nutrition and the microbiome interact to affect our well-being. For example, research is being conducted to determine the factors that drive loss of microbiota diversity as societies become more urban, which microbes disappear, and which functions are lost. Antimicrobials and processed foods are suspected factors behind this phenomenon. This research is relevant since loss of microbes in early life leads to immune malfunctions, resulting in the observation that as societies become more industrialized, a marked increase in the risk of immune and metabolic diseases occurs.

“An apple a day keeps the doctor away” highlights the fact that daily servings of fresh fruits and vegetables have positive effects on health. One reason is their high content of polyphenols—thousands of diverse organic compounds that plants produce to defend themselves from herbivores and environmental stress. Consumption of polyphenols has been linked to several health benefits,

including reduced risk of cardiometabolic disease. However, identifying the mechanisms behind these benefits has proven challenging for one key reason: polyphenols are not readily absorbed by the human gut into the bloodstream. This raises the question—how are these compounds making a difference?

SEBS and NJAES research on grape polyphenols suggests these compounds exert their positive effects by altering the gut microbiome and its metabolites, which communicate with human cells. Evidence suggests polyphenols can reduce “leaky gut,” where bacterial toxins leak into circulation and lead to chronic inflammation, which impairs glucose metabolism.

Building on successful work in mouse models, our scientists are now looking at these dynamics in humans, through a phase 1 clinical study of grape polyphenol consumption in healthy adults aged 18–35. Their focus is to find correlations between gut bacteria and metabolite compounds in fecal, urine, and blood samples that may correlate to health outcomes. The results so far are promising as certain patterns observed in mice appear reproducible in humans.



Photography by Roy Groething.



Impact of Global Climate Change on Biodiversity

The biodiversity of our earth and oceans is critical to the health of the planet and impacts all of us. As biodiversity declines, the food chain becomes more vulnerable to insects and disease, while the ability of the ocean to adapt to climate is reduced. SEBS and NJAES researchers are developing technology to collect the information that is necessary to model and predict changes in our forests and oceans. NJForestAdapt, a web-based interactive map and visualization tool (njforestadapt.rutgers.edu), provides natural resource managers location-based information to enhance forest management decisions in the face of ongoing land use and climate change. Designed in collaboration with the Northeast Regional Climate Center, the U.S. Forest Service, and the N.J. Forest Service, the tool draws on data from many sources, including a Rutgers dataset on the projection of coastal forest die-back due to accelerating sea level rise, a phenomenon known as “ghost forests.” Sampling and environmental DNA analysis by faculty of the NJAES Center for Vector Biology confirms that these “ghost forests” can serve as breeding habitat for mosquito species more commonly associated with salt marshes.

The hurricane season set records in 2020 for the total number and intensity of storms. In addition to the human toll and property damage incurred, hurricanes directly affect forest ecosystems as well as estuaries and coastal habitats. Despite decades of investment, there has been little improvement in predicting storm intensity at landfall, which is critical to societal planning for these catastrophic events. SEBS and NJAES researchers have improved hurricane forecasting with the development of robotic systems that collect data necessary for new forecasting models. This has grown into a major effort among Rutgers, the National Weather Service, and the U.S. Navy that is focused on developing a new disaster capacity for the northeast U.S. and elsewhere.



ATLANTIC WHITE CEDAR GHOST FORESTS

DENNIS CREEK, CAPE MAY CO. N.J.





Agriculture, Food Systems, and the Environment

Supporting Oyster Farmers and Restoring Habitat

Like many sectors in the global economy, the shellfish aquaculture industry has suffered significant economic decline, especially as shellfish farmers rely on direct sales to restaurants or on wholesale markets that ultimately serve restaurants.

As the COVID-19 pandemic shuttered restaurants across the U.S., a critical link in the shellfish aquaculture supply chain was lost. This disruption in demand not only led to diminished farm revenues, but also created significant disruption in management of oyster stock as oysters that were bound for spring and summer harvests remained on the farm for a longer term than anticipated.

While some farmers have had success establishing alternate markets through shucking houses, online sales, and other direct-to-consumer opportunities, sales have still not rebounded to pre-pandemic levels. Fortunately, oysters hold value beyond the raw bar. They are considered beneficial to the environment by serving as habitat for a number of commercially and recreationally important finfish, improving water quality, and sequestering nitrogen and carbon. These ecosystem services are essential to the health of bay environments and underscore oyster habitat enhancement and restoration as a pressing goal worldwide.

In New Jersey, funding from a special NOAA Sea Grant COVID-19 Rapid Response Aquaculture Funding Opportunity allowed for the purchase of 76,000 of these oversized, farm-raised oysters directly from oyster farmers for the purpose of restoring habitats. The grant brought together a collaborative partnership of scientists, extension specialists, state resource managers, environmental non-profits, and shellfish farmers with Rutgers University and New Jersey Sea Grant taking the lead alongside partners that include New Jersey Department of Environmental Protection, Stockton University, the Barnegat Bay Partnership, Partnership for the Delaware Estuary, Pew Charitable Trusts, and the New Jersey Aquaculture Association.

The oysters were transplanted from farms to targeted restoration sites in the Little Egg Harbor and Mullica River in September. The overgrown oysters provide an ecological jump start that might otherwise take years to achieve using traditional oyster restoration practices, which rely on shell recycling and natural recruitment of oysters.

Lisa Calvo, aquaculture program coordinator at Rutgers and New Jersey Sea Grant, led the project, which aims to serve as a model for future efforts. The intent is to establish a shellfish exchange that will serve as a broker to link shellfish farmers and restoration practitioners. This approach provides shellfish farmers with the opportunity to diversify their businesses while supporting a sustainable and healthy future for Bayshore ecosystems and economies.

The New Jersey-based project helped to inspire the Supporting Oyster Aquaculture and Restoration (SOAR) initiative that was created in collaboration with Pew Charitable Trusts, NOAA, and the USDA. SOAR aims to extend \$2 million in payments to oyster farmers over the next two years, support more than 100 shellfish companies, and preserve more than 200 critical jobs in northern New England, the Mid-Atlantic, and the state of Washington.

go.rutgers.edu/15jixs8l





NJAES Varietal Releases

COVID-19 did not slow the progress in varietal trials and releases by NJAES, which increased its competitiveness and market share with new varieties that provided high-quality fruits tailored to local markets and retail outlets throughout the harvest season. In 2020, three new peach varieties were released: 'Anna Rose,' a white-fleshed peach with beautiful skin color and heavy fruit set; 'Felicia,' an early to mid-season, yellow-fleshed semi-freestone peach with market potential for both retailers and large packing houses; and 'September Rose,' a late-season variety with firm flesh and an excellent flavor.

Strawberries are another important crop for many of New Jersey's direct market farmers. Nineteen percent of small fruit growers surveyed by the experiment station attributed 25% or more of their income to strawberries, with the most important attributes being flavor (93.8%); disease resistance (76.4%); yield (73.3%); and fruit size (72.2%). In meeting the needs of this direct-marketing sector, the NJAES breeding program strives to produce better tasting strawberries that are disease-resistant and better adapted to the challenges of Northeast growing conditions. In 2020, patent paperwork was completed for one of the previous experiment station strawberry selections, 'Rutgers D'Light.'

breeding.rutgers.edu



Low-Impact Inputs for Nursery and Ornamentals

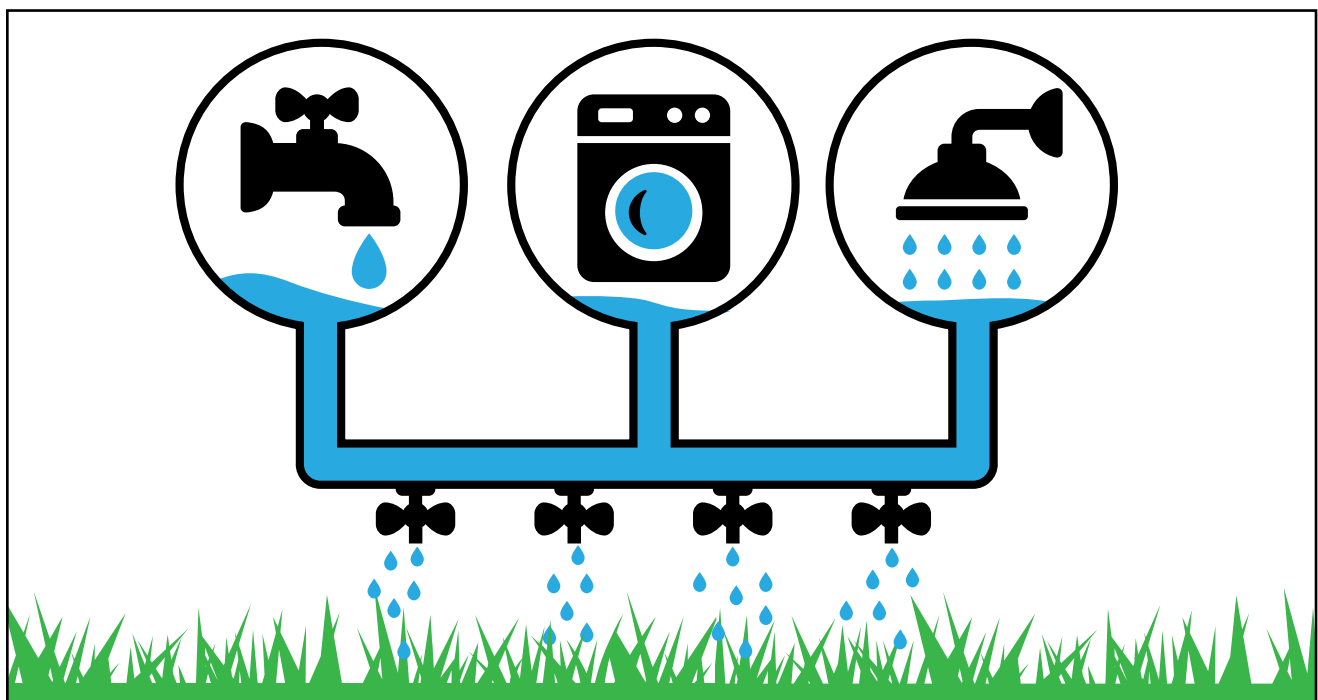
Nursery and greenhouse production represents the largest economic sector of New Jersey agriculture, generating \$950 million in economic impact and supporting more than 10,000 jobs. Among irrigated crops, ornamental commodities that are grown in nurseries and greenhouses—and their management once they are established in urban landscapes—receive the highest inputs of water, fertilizers, and agrichemicals.

Efforts are underway to reassess the use and management of traditional irrigation sources, evaluate alternative sources, and establish the best management practices needed for their proper use in ornamental crop production and sustaining them in urban landscapes. Early results indicate the potential use of residential grey water effluents derived from biodegradable laundry products for short-term home landscape irrigation. The average single, detached U.S. residence produces as much as 20,000 gallons per year, and if diverted for irrigation, could save municipal potable water resources and reduce the volume of wastewater that requires treatment.

Research and outreach also focused on optimal fertilizer use in commercial greenhouse rose production, ornamental production under newly designed 'moveable' high tunnels, nursery and greenhouse crop IPM scouting, and greatly expanding online outreach and bilingual (English and Spanish) educational opportunities for nursery producers and landscape professionals.

go.rutgers.edu/7hsoblrs

Grey Water Systems for your home.



SUPPORTING NJAES

New Jersey Farm Bureau
Fund to Support Ag Agents







New Jersey Farm Bureau Fund to Support Ag Agents

In 2020, a new fund that supports NJAES extension specialists and agricultural agents was launched by the New Jersey Farm Bureau (NJFB) in association with RCE and the Rutgers SEBS and NJAES Office of Philanthropy and Strategic Partnerships.

Named the New Jersey Farm Bureau Production Agriculture Fund, it was created when a member of the agricultural community, who wishes to remain anonymous, challenged RCE and the New Jersey Farm Bureau to raise funds to support the programs of extension specialists and county-based agriculture and natural resource agents who work directly in production agriculture in New Jersey.

The fund, which is supported by an initial \$10,000 donation, will be matched, dollar for dollar, to reach a fundraising goal of \$20,000. It will be managed by the director of Rutgers Cooperative Extension.

“This is one of the first projects I can recall that allows production agriculture farmers to make a financial contribution to support the agents. These men and women through the years have been faithful supporters of farmers and their businesses,” said NJFB president Ryck Suydam, in making the announcement among his members.

Brian Schilling, director of RCE and senior associate director of NJAES, underscored the timeliness of the donor’s challenge. He also praised the initiation of this fundraising campaign to support program development and delivery, coupled as it is with the significant investment the experiment station is making to modernize its research farms to ensure even more meaningful support to sustain the agricultural industry.

“Building on these investments, my commitment is to use the Production Agriculture Fund to support agriculture research and extension work directly aligned with needs in the industry. Honoring all of the donor’s intentions, these resources will support existing programs and catalyze new programs that have direct, near-term, and visible benefits within the state’s farming industry.”

Checks should be made payable to: Rutgers University Foundation. Donations are also accepted online at makeagift.rutgers.edu/production-ag-fund.html.

“ This fund is a unique way to say thanks for the unrelenting support and contributions to working New Jersey farms by extension personnel. They have been by our side through the years and are rewarded by the satisfaction of problems solved. For businesses that have prospered, let's show our appreciation by making a donation. It will be well-received. ”

-Ryck Suydam



 New Jersey Farm Bureau

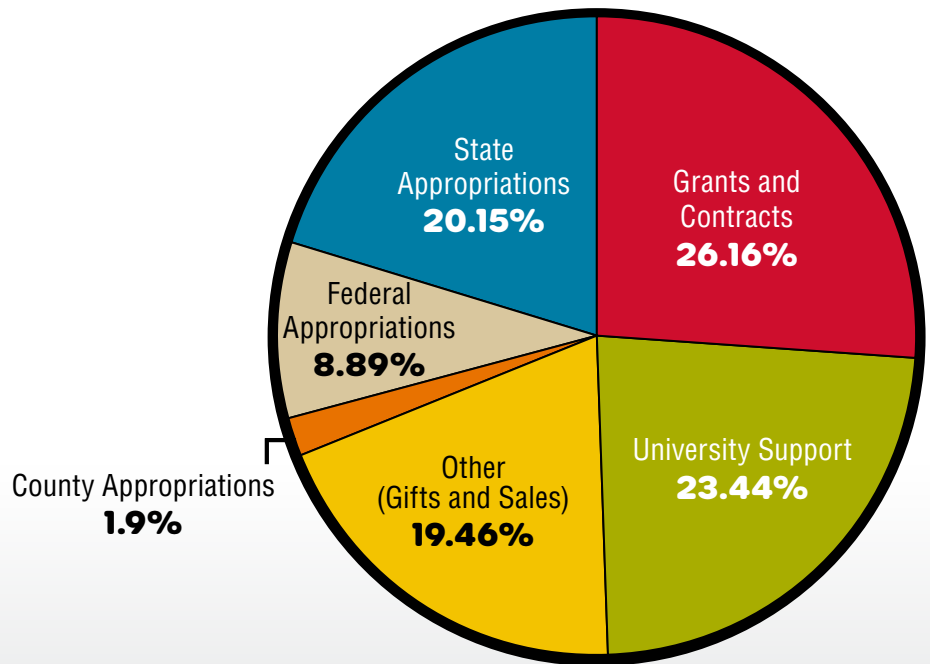
Serving Our Communities



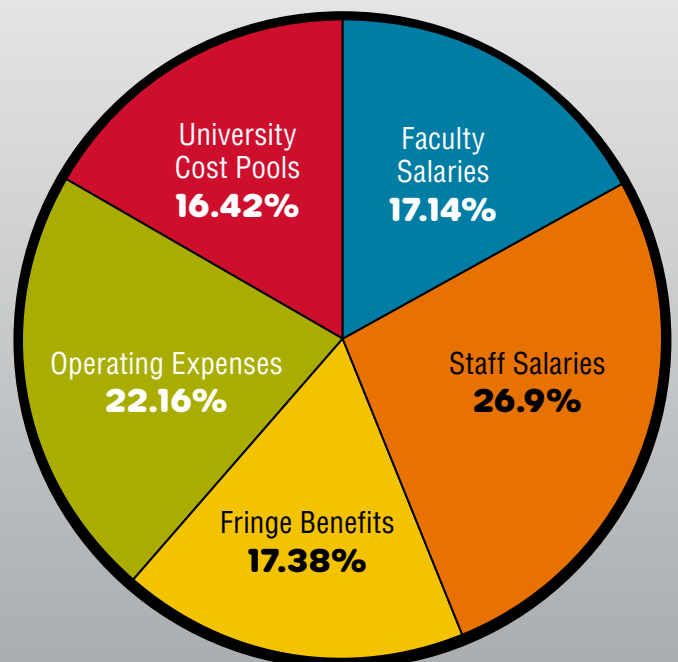
NJAES Financial Summary

NJAES relies on a variety of public and private funding sources to address critical issues in New Jersey. The experiment station received \$94.5 million from grants and contracts; Rutgers University support (fringe and operational); and state, federal, and local government funding; as well as gifts, endowment revenue, income from sales and service activities, and patent and plant licensing revenue.

FUNDING SOURCES



EXPENDITURES



Board of Managers

The New Jersey Agricultural Experiment Station Board of Managers, appointed by the Rutgers Board of Governors, is an advisory group to the executive dean of agriculture and natural resources and executive director of NJAES. The board consists of a representative from each county, nominated by the County Board of Agriculture or Board of Chosen Freeholders, and a statewide advisory committee. The president of Rutgers, the executive director of NJAES, and the state secretary of agriculture serve as *ex officio* members.

Board of Managers Representatives

Atlantic: **Edward (Ned) Gaine**

Bergen: **James Spollen**

Burlington: **Raymond Hlubik**

Camden: **vacant**

Cape May: **Allen Carter, Jr.**

Cumberland: **Keith MacIndoe, Jr.**

Essex: **Frank Yesalavich**

Gloucester: **Ann Dorsett**

Hudson: **vacant**

Hunterdon: **Meredith Peters,
Corresponding Secretary**

Mercer: **Jeff Burd**

Middlesex: **Timothy VonThun**

Monmouth: **Pat Butch, President**

Morris: **Carol Davis**

Ocean: **Jeff Adams**

Passaic: **vacant**

Salem: **David Dolbow**

Somerset: **Kenneth Osterman**

Sussex: **Ben Jorritsma**

Union: **Frederick Schieferstein**

Warren: **Tracy Smith, Vice President**

Statewide Advisory
Committee

Environment: **Gene Huntington**

Food Science: **Pearl Giordano**

Public Policy: **Maurice Sheets**

County Extension Offices

Atlantic: **609-625-0056**

Bergen: **201-336-6781**

Burlington: **609-265-5050**

Camden: **856-216-7130**

Cape May: **609-465-5115**

Cumberland: **856-451-2800**

Essex: **973-228-3179**

Gloucester: **856-224-8040**

Hunterdon: **908-788-1339**

Mercer: **609-989-6830**

Middlesex: **732-398-5262**

Monmouth: **732-431-7260**

Morris: **973-285-8300**

Ocean: **732-349-1152**

Passaic: **973-305-5740**

Salem: **856-769-0090**

Somerset: **908-526-6295**

Sussex: **973-948-3040**

Union: **908-654-9854**

Warren: **908-475-6505**

Centers, Institutes, and Continuing Education

Center for Environmental Prediction
cep.rutgers.edu

Center for Lipid Research
rclr.rutgers.edu

Center for Turfgrass Science
turf.rutgers.edu

**Center for Urban Environmental
Sustainability**
cues.rutgers.edu

Center for Vector Biology
vectorbio.rutgers.edu

Equine Science Center
esc.rutgers.edu

**Grant F. Walton Center for
Remote Sensing and Spatial Analysis**
crssa.rutgers.edu

Hutcheson Memorial Forest Center
hmf.rutgers.edu

**Institute of Earth, Ocean, and
Atmospheric Sciences**
eoas.rutgers.edu

**New Jersey Institute for
Food, Nutrition, and Health**
ifnh.rutgers.edu

**New Jersey Water Resources
Research Institute**
njwrri.rutgers.edu

**Office of Continuing
Professional Education**
cpe.rutgers.edu

Rutgers Climate Institute
climatechange.rutgers.edu

Rutgers Ecological Preserve
ecopreserve.rutgers.edu

Rutgers Energy Institute
rei.rutgers.edu



Off-Campus Centers and Facilities



**Clifford E. and Melda C. Snyder
Research and Extension Farm,
Pittstown**
snyderfarm.rutgers.edu



**Haskin Shellfish Research
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hsrl.rutgers.edu



**Jacques Cousteau National Estuarine
Research Reserve, Tuckerton**
jcner.org



**Lindley G. Cook 4-H Youth Center for
Outdoor Education, Branchville**
nj4hcamp.rutgers.edu



**New Jersey Aquaculture Innovation
Center, Cape May**
aic.rutgers.edu



Pinelands Field Station
njaes.rutgers.edu



**New Jersey Center for Wine Research
and Education, Upper Deerfield**
njvines.rutgers.edu



**Philip E. Marucci Center for Blueberry
and Cranberry Research and Extension,
Chatsworth**
pemaruccicenter.rutgers.edu



Pinelands Field Station, New Lisbon
pinelands.camden.rutgers.edu



**Rutgers Agricultural Research and
Extension Center, Upper Deerfield**
njaes.rutgers.edu/rarec



**Rutgers EcoComplex Clean Energy
Innovation Center, Bordentown**
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**Rutgers Food Innovation Center–South,
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foodinnovation.rutgers.edu



**Rutgers Fruit and Ornamental Research
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njaes.rutgers.edu/cream-ridge



**Rutgers Plant Science Research and
Extension Farm, Adelphia**
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**Rutgers University Marine Field Station,
Tuckerton**
marine.rutgers.edu/rumfs



**YE²S Center–Camden, Newark,
Trenton, and Ocean County**
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