

RUTGERS

New Jersey Agricultural
Experiment Station

WE HAVE THE STATE COVERED

The New Jersey Agricultural Experiment Station



WHO WE ARE AND WHAT WE DO

Rutgers, The State University of New Jersey, is the state's largest institution of higher education and its only land-grant institution. Beyond the campus-based academics, there is a large component of Rutgers that is solely dedicated to serving the needs of New Jersey residents through research and outreach. Known as the Rutgers New Jersey Agricultural Experiment Station (NJAES), with units of Cooperative Extension and Research, it has been addressing the needs of New Jersey residents, communities, and businesses for over a century.

NJAES and its mission—as did experiment stations across the U.S.—had their origins in three historic federal acts:

- Morrill Act of 1862 that established land-grant universities.
- Hatch Act of 1887 that established agricultural experiment stations.
- Smith-Lever Act of 1914 that established the cooperative extension service.

The Morrill Act provided funding for states to establish colleges in sciences “for the benefit of agriculture and the mechanic arts.” Rutgers Professor of Chemistry George H. Cook successfully lobbied the New Jersey Legislature for Rutgers to become New Jersey's land-grant college in 1864, leading to the establishment of the Rutgers Scientific School. A 100-acre farm on the outskirts of New Brunswick was purchased to serve as the school's experimental farm. That land is now the heart of the George H. Cook campus and the Rutgers School of Environmental and Biological Sciences. Following the passage of the Hatch Act, the state agricultural experiment station was established to conduct research and development projects to support New Jersey agriculture. With the Smith-Lever Act, the establishment of Cooperative Extension placed Rutgers faculty in each of the counties in New Jersey.

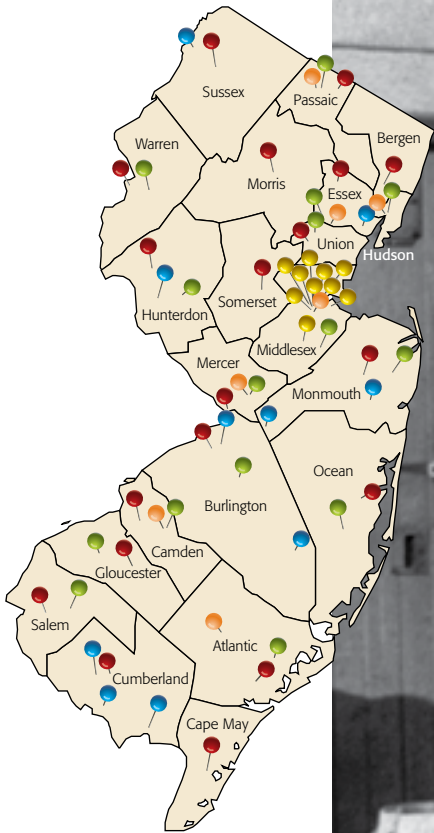
Our land-grant mission integrates campus-based academic programs with experiment station research that is disseminated to the public by the county cooperative extension agents and staff. In turn, extension agents communicate the needs of the residents to the extension specialists at Rutgers NJAES, continuing an unbroken line of research and outreach to meet the needs of New Jersey residents. Today, in order to serve the most urban state in the U.S., the experiment station in New Jersey supports more than the agricultural community, expanding its mission to include a wide range of issues like air quality, natural resources, fisheries, nutrition, urban gardens, land-use planning, small business development, and youth-at risk programs. Rutgers NJAES' programs and outreach have remained relevant to the needs of the state and its residents.

WE'VE GOT THE STATE COVERED

NJAES has got the state covered in more ways than one. From High Point to Cape May, from the Jersey Shore to the Delaware River, Rutgers Cooperative Extension has a presence in all 21 counties, from urban programs in our largest cities to research activities in ten off-campus centers and stations, and weather and insect monitoring stations throughout New Jersey, to name a few. From the soil below to the air above, and from our inland waters to our coastal waters, we've got the state covered.



- *Pest control guidance at Repps Orchard in Glassboro, NJ, circa 1910s.*
- *Demonstrating asparagus harvester, South Jersey, circa 1960s.*
- *Workshop on reducing pesticide spray drift helps improve farm safety.*
- *Rutgers students sorting apples for shipping to New York, circa 1920s.*



- County Offices
- Centers and Institutes
- Off-Campus Stations
- Supplemental Nutrition Assistance Program - Education (SNAP-Ed) Offices
- Expanded Food and Nutrition Education Program (EFNEP) Offices



COOPERATIVE EXTENSION

Rutgers Cooperative Extension (RCE) maintains a presence in each of the 21 counties of New Jersey. County offices consist of faculty and staff engaged in statewide programs as well as outreach efforts tailored to the individual needs of the county. RCE comprises three departments: 4-H Youth Development, Agricultural and Resource Management Agents, and Family & Community Health Sciences.

The Department of 4-H Youth Development provides educational outreach programming for youth in grades K-13, via 4-H clubs, special interest programs, school enrichment, afterschool child care education programs, and overnight camping experiences. Whether it's a lesson in science, healthy living, or citizenship, 4-H uses a learn-by-doing approach to teach youth responsibility, community awareness, and character development. A dedicated cadre of volunteers supports the work of RCE faculty and staff.

The Department of Agricultural and Resource Management Agents (ARMA) serves commercial businesses; government agencies; agribusinesses; and communities, providing information, field research, and consultation on a wide range of topics including agriculture, the environment, fisheries and aquaculture, and natural resources management. ARMA agents deliver programs like Integrated Pest Management, Rutgers Master Gardeners, and Environmental Stewards; rain barrel and rain garden workshops; pesticide applicator recertification; horticultural therapy; plus extension bulletins and fact sheets, which are among our most popular and subscribed efforts.

The Department of Family and Community Health Sciences (FCHS) is committed to promoting the wellbeing of state residents, helping them to stay healthy, be active, and enjoy quality of life. FCHS programs are designed to address many of today's prevalent health problems—obesity, heart disease, diabetes, and cancer—that are linked to nutrition and lifestyle. Through FCHS, residents of all ages are exposed to programming designed to help them make personal choices to improve health and wellbeing through healthy eating, healthy finances, and physical fitness.

RESEARCH

New Jersey residents generally interact with Rutgers NJAES through the outreach programs offered by county extension offices. However, much of the RCE programming available in local communities is guided by research conducted by experiment station faculty in Rutgers on-campus and off-campus research facilities and stations.

From research in agriculture; plant breeding; fisheries and aquaculture, to water quality; food systems; and nutrition, NJAES faculty and specialists conduct cutting-edge research to benefit the entire state. For example, researchers are developing ways to keep New Jersey's cranberry and blueberry industries thriving while reducing the impact on the Pinelands environment. Researchers are investigating what people are really eating at home and how it affects our health; the decline in water quality in the Barnegat Bay; the best varieties of peaches that grow under New Jersey's climatic conditions; and novel ways to introduce fresh local produce into school meals. These are among the many investigations that Rutgers researchers undertake to help improve the quality of life and the environment for residents and businesses of New Jersey.



- *Integrated Pest Management for blueberries reduces pesticide use.*
- *Cape May Master Gardeners on a garden tour.*
- *Equine Science Center research measures vital signs during exercise.*
- *Water quality research in Barnegat Bay supported fertilizer use legislation.*



PROGRAMS THAT MAKE A DIFFERENCE

As agricultural experiment stations and Cooperative Extensions across the country have expanded their focus to adapt to and serve the changing needs of the people of their respective states, few have done more so than New Jersey and Rutgers NJAES. New Jersey is a microcosm of the U.S., and its small size belies its biodiversity and geographical variability and their accompanying challenges and opportunities. In response, Rutgers NJAES continues to serve residents and businesses alike in several key program areas:

Commercial Agriculture

New Jersey agriculture is faced with the unique challenges of operating in a densely populated, highly-regulated, high land-value state. Rutgers NJAES is committed to investigating novel ways to support commercial growers while striving for economic and environmental sustainability. From the development of cultivars and varieties that do well under New Jersey climate and pest pressure, the implementation of integrated pest management, and providing timely pest advisories, to expanding new markets and getting certified, Rutgers NJAES stays on the cutting edge to help grow agriculture in the Garden State. Visit njaes.rutgers.edu/ag.

Environment & Natural Resources

New Jersey may be geographically small but it supports an abundant natural environment that provides countless benefits to society. Its urban, suburban, and rural landscapes coexist with forests, rivers, streams, beaches, wetlands, estuaries, bays, and the ocean in a dynamic relationship shaped by use. Rutgers NJAES scientists and specialists devise an array of programs designed to sustainably manage the state's natural resources. From environmental remediation and conducting ecological assessment and research to conserving and protecting our environment, NJAES collaborates with businesses, government agencies, and residents to improve air and water quality, build rain gardens, restore riparian buffers to streams, monitor climate indicators, and implement best management practices for land use. Visit njaes.rutgers.edu/environment.

Fisheries & Aquaculture

New Jersey's coastal waterways provide food, recreation, and employment for state residents. The stewardship of our coastal ecosystems to reinvigorate and sustain New Jersey's fin and shell fisheries is a task that takes place from the water's edge to the deep sea. Rutgers NJAES is engaged in educating residents on species and habitats in surrounding waters as well as providing hands-on opportunities to restore shellfish to bay habitats. The experiment station has made strategic investment in the growth and culture of finfish and shellfish as well as training and outreach on species of commercial importance to New Jersey. Its programs designed to develop and enhance aquaculture and healthy fisheries across New Jersey help strengthen our coastal environment and economy. Visit njaes.rutgers.edu/fisheries.



- *Peach breeding develops the best peaches for New Jersey's climate.*
- *New Jersey's weather is documented by the State Climatologist.*
- *4 H students learn wildlife biology during Rutgerscience Saturdays.*
- *Research on high tunnel crops helps farmers extend the growing season.*

Food, Nutrition & Health

Understanding the relationship among our lifestyle, food—what we eat and where it comes from—and even our finances is a key component of good health. Rutgers Cooperative Extension faculty address a wide range of issues related to nutrition and health, from teaching our most vulnerable residents about healthy eating on a budget to promoting the benefits of exercise and improving financial health. The New Jersey Institute of Food, Nutrition, and Health, a key Rutgers initiative, is committed to conducting research on society's pressing challenges in cardio-inflammatory disease, cancer, and obesity. By bringing the best in research and education to respond to the urgent and growing challenges to nutrition and human health, NJAES programs guide New Jersey residents to better health and wealth. Visit njaes.rutgers.edu/health.

Home, Lawn & Garden

Whether in an urban, suburban, or rural landscape, tending the home or garden comes with a number of challenges that involve insects, weeds, trees, shrubs, turf, and critters. New Jersey residents spend significant time and money coping with these challenges—but not alone, thanks to the vast array of services offered by Rutgers NJAES. Cooperative Extension serves homeowners through fact sheets, Rutgers Master Gardener helplines, workshops, and services that test soil and diagnose plant disease. While extension personnel and master gardeners are on the frontlines providing information to residents, Rutgers researchers are working behind the scenes developing plant and turf varieties that are more disease resistant, drought tolerant, or environmentally friendly by requiring less input. Visit njaes.rutgers.edu/garden.

Youth, Community & Economic Development

From helping to build productive futures for youth, supporting families of deployed military personnel, or nurturing the budding performance artist within, Rutgers NJAES Cooperative Extension provides the tools to build community and develop skills. From 4-H youth activities and camps, parenting sessions and workshops, and programming that engages urban youth to guidance for eldercare, the resources of Rutgers Cooperative Extension are available to New Jersey residents. Enhancing the economic wellbeing of the state is a critical goal of the investment strategy of the experiment station. Rutgers NJAES is committed to growing food and agribusinesses, promoting green enterprises, and increasing the economic impact of New Jersey's commercial and recreational fisheries. These needs are served through business incubators, specialized research, and education. Visit njaes.rutgers.edu/youth.



EXTENSION PROGRAM SPOTLIGHTS

4-H Youth Development promotes Science, Engineering, and Technology (SET)

Through 4-H, New Jersey youth from grades K-13 learn how science is part of everyday life. Locally, youth engage in 4-H club projects such as robotics or animal science and participate in out-of-school or school enrichment programs that promote engineering like Design It!, Explore it! As 4-H Environmental Ambassadors, youth learn and share knowledge within their schools and communities. Through statewide programs such as 4-H Rutgerscience Saturdays, the Rutgers 4-H Summer Science Program, and the 4-H Climate and Environmental Change Summit, youth gain sound skills in science, engineering, and technology while connecting with Rutgers scientists. Through participation in these 4-H SET experiences, New Jersey youth are exposed to science-related careers and learn valuable life skills. Visit nj4h.rutgers.edu/set.



- 4 H students on a hunt for bugs.
- The Center for Vector Biology takes the sting out of nuisance pests.
- The Center for Turfgrass Science conducts cutting edge research.
- Family & Community Health Sciences programs encourage family fitness.

Department of Family and Community Health Sciences *Grow Healthy* Program

A number of New Jersey schools are participating in Grow Healthy, a program that combines gardening with nutrition, physical activity, agriculture, and locally grown food projects. Designed as a fun activity, Grow Healthy is a wellness program that involves school teachers, staff, and administration, students, families, and trained volunteers who work together to make school a healthier place. While learning about healthy foods, students also gain an awareness of where foods come from and what crops are in season in New Jersey. There are nutrition lessons in the classroom, school and family fitness events, trainings for foodservice personnel, wellness council support, and school gardens—all of which build healthier kids and families. Visit njaes.rutgers.edu/growhealthy.

Rutgers Master Gardener Program

For New Jersey residents who love gardening and want to further their knowledge and also give back to the community, the Master Gardener program is a unique opportunity that blends these pursuits. As trained volunteers, Master Gardeners receive in-depth, hands-on instruction in horticulture from Rutgers NJAES faculty and professional staff in the Department of Agricultural and Resource Management Agents. Basic topics include plant biology, propagation, soil science, and disease and pest control. Volunteer activities include gardening demonstrations, telephone helpline, plant clinics, community and youth gardening, horticultural therapy, and information booths at county fairs and other public events. When county residents have questions about gardening, the Master Gardeners are the ones to turn to.

Visit njaes.rutgers.edu/mastergardeners.

RESEARCH PROGRAM SPOTLIGHTS

Center for Vector Biology

As residents enjoy the outdoors each summer, it's hard to believe that not too many decades ago, such recreational activities were severely hampered because of the mosquito menace. Working with county mosquito extermination commissions, Rutgers researchers helped develop a number of tools and integrated mosquito management methodologies. These include the development of the New Jersey light trap, insect repellents such as 6-12, insecticide recommendations for mosquito control professionals, arboviral surveillance protocols, and other practices to help in the fight to eradicate mosquito breeding grounds and reduce the threat of disease transmission. Visit njaes.rutgers.edu/mosquito.

P.E. Marucci Center for Blueberry and Cranberry Research and Extension

Until recently, New Jersey cranberry growers cultivated plants from wild bogs or relied on first-generation hybrids from the 1940s and 1950s that had a number of limitations. Rutgers NJAES cranberry breeding efforts developed a cranberry plant that delivered higher yields, ripened earlier in the season, and had vines that grew faster and resisted weeds and disease better than previous varieties. The new hybrid, Crimson Queen, delivered higher yields resulting in fewer new acres of environmentally sensitive wetlands being developed to meet increased demand. The hybrid's hardiness also reduces the need for herbicides and pesticides, thus cutting costs and reducing environmental impact. Visit pemaruccicenter.rutgers.edu.

Center for Turfgrass Science

Keeping our lawns lush is a quest most homeowners and turf managers handle by regular application of fertilizers. While keeping our grass green, fertilizer also ends up on sidewalks, driveways, and streets and enters our streams, rivers, and bays from stormwater runoff. This influx of nutrients into our waterways creates an overgrowth of algae and other aquatic plant life, leading to conditions that no longer adequately support aquatic animal life. When New Jersey implemented its fertilizer law in 2011 to protect local waterways from nutrient runoff from lawn fertilizers, it designated Rutgers NJAES as the source for training and certification of commercial fertilizer applicators. An online program guides applicators through understanding the process by which rivers, lakes, and bays are impaired by excess nutrients as well as the procedures for proper application and the requirements under the law. Visit turf.rutgers.edu.



COUNTY EXTENSION OFFICES



- *Cranberry research involves NJ specific breeding and pest management.*
- *The Food Innovation Center creates healthy school foods with NJ produce.*
- *Build a Rain Barrel workshops help homeowners manage rainwater runoff.*
- *The Great Tomato Tasting offers many tomato varieties to compare.*

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- ▶ **Union County**
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Administration Building,
Suite 102
165 County Road 519 South
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908-475-6505

visit us at: njaes.rutgers.edu/county

OFF-CAMPUS STATIONS

Clifford E. and Melda C. Snyder Research and Extension Farm, Rutgers Center for Sustainable Agriculture, Pittstown
snyderfarm.rutgers.edu

Haskin Shellfish Research Laboratory, Bivalve
hsrl.rutgers.edu

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

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

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

Rutgers EcoComplex - Rutgers Environmental Research and Extension Center, Bordentown
ecocomplex.rutgers.edu

Rutgers Food Innovation Center, Bridgeton
foodinnovation.rutgers.edu

Rutgers Fruit and Ornamental Research Extension Center, Cream Ridge
creamridge.rutgers.edu

Rutgers Plant Science Research and Extension Farm, Adelphia
njaes.rutgers.edu/plantscience

Rutgers University Marine Field Station, Tuckerton
marine.rutgers.edu/rumfs

CENTERS AND INSTITUTES

▶ **Center for Deep-Sea Ecology and Biotechnology**
deepseacenter.rutgers.edu

▶ **Center for Turfgrass Science**
turf.rutgers.edu

▶ **Center for Urban Restoration Ecology**
i-cure.org

▶ **Center for Vector Biology**
vectorbio.rutgers.edu

▶ **Equine Science Center**
esc.rutgers.edu

▶ **Food Policy Institute**
foodpolicyinstitute.rutgers.edu

▶ **IR-4 Project: Center for Minor Crop Pest Management**
ir4.rutgers.edu

▶ **Rutgers Energy Institute**
rei.rutgers.edu

▶ **Wildlife Damage Control Center**
njaes.rutgers.edu/wdcc



Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

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