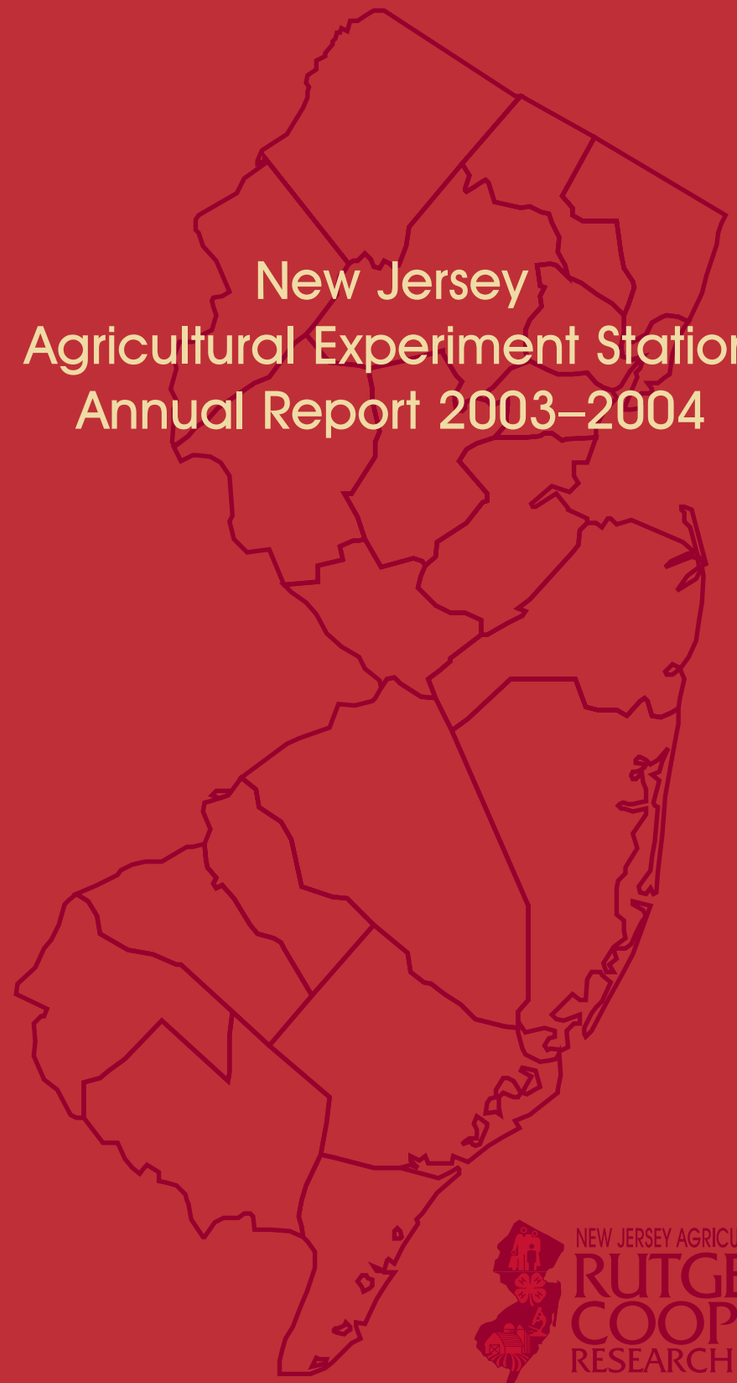
New Jersey Agricultural Experiment Station Annual Report 2003–2004



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THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS

NEW JERSEY AGRICULTURAL EXPERIMENT STATION
RUTGERS COOPERATIVE RESEARCH & EXTENSION

Executive Summary

A Message from the Acting Executive Dean

As we approach the fifth year of the "new" millennium, the New Jersey Agricultural Experiment Station (NJAES) is building upon its traditional areas of strength and applying those strengths to the challenges of tomorrow. We are focused on research and extension in four crucial areas: agriculture and food systems; environment and natural resource systems; food, nutrition and health; and human and community development. We continue to find new ways to integrate research and extension in those areas so that we can more quickly and effectively respond to the challenges faced by the people and communities of our state.

To better convey our current mission and direction to our stakeholders, we have created a brand name for the New Jersey Agricultural Experiment Station: Rutgers Cooperative Research & Extension (RCR&E). The NJAES Office of Research and Rutgers Cooperative Extension, which comprise the NJAES and are becoming increasingly interrelated, are both represented in this name. Throughout this and other organizational documents, references to "Rutgers Cooperative Research & Extension" are synonymous with "The New Jersey Agricultural Experiment Station."

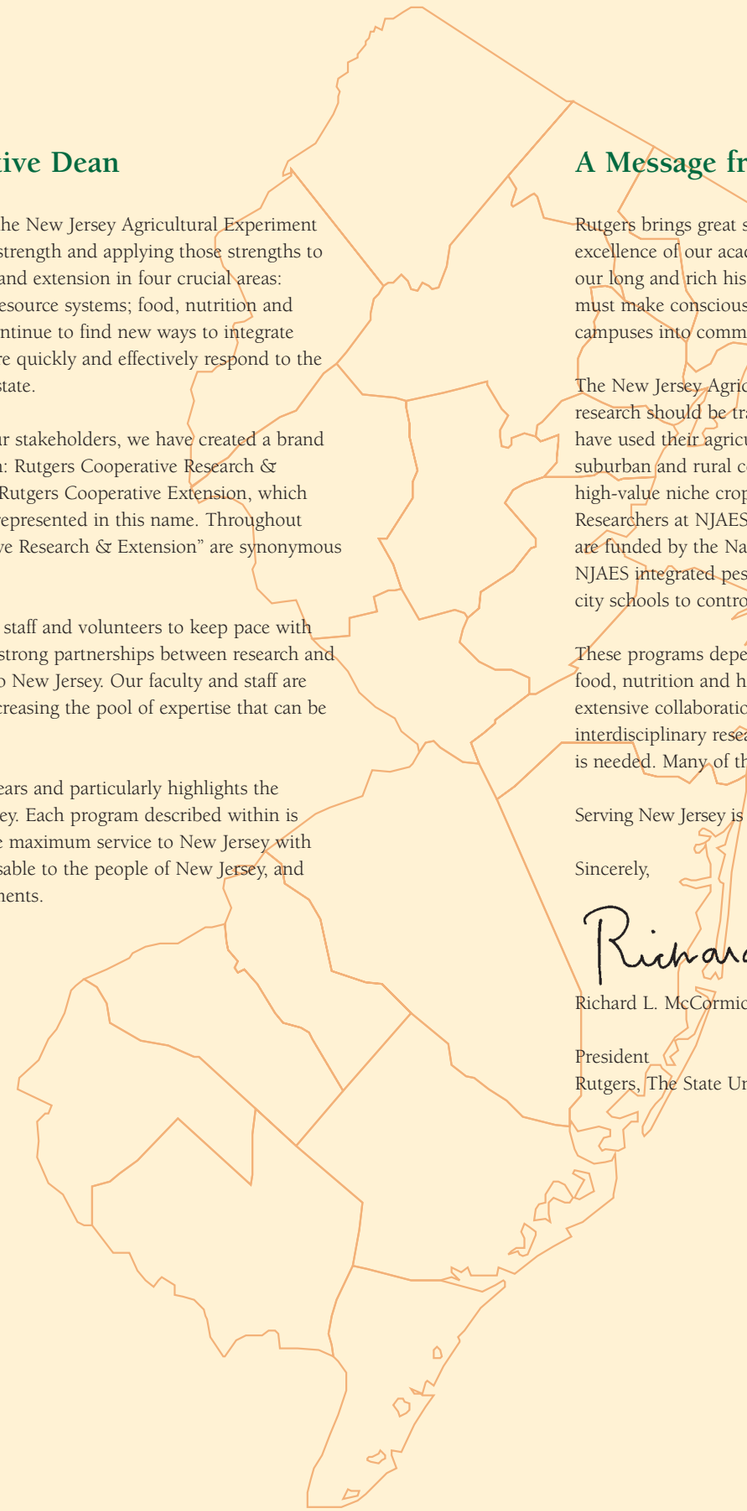
The brand name represents concrete changes that are enabling our faculty, staff and volunteers to keep pace with the evolving needs of our stakeholders. They are building and reinforcing strong partnerships between research and extension to enable them to deliver the latest knowledge and technology to New Jersey. Our faculty and staff are also building stronger ties with the greater Rutgers community, thereby increasing the pool of expertise that can be applied to collaborative research and outreach programs.

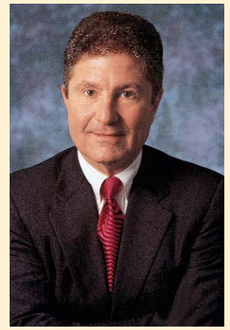
This report highlights a range of our accomplishments over the past few years and particularly highlights the application of FY04 funding to solving important issues faced by New Jersey. Each program described within is delivered by faculty, staff and volunteers who are determined to deliver the maximum service to New Jersey with the resources that are available to them. I think their services are indispensable to the people of New Jersey, and I am pleased to present this comprehensive summary of their accomplishments.

Regards,

Keith R. Cooper

Acting Executive Dean of Agriculture and Natural Resources
Acting Executive Director of NJAES
Acting Dean of Rutgers–Cook College





A Message from the University President

Rutgers brings great strengths to bear on New Jersey's challenges, drawing upon the breadth and excellence of our academic disciplines, the outstanding quality of our faculty and students, and our long and rich history in the state. But to take full advantage of its stellar resources, Rutgers must make conscious efforts to propel the results of our research beyond the boundaries of our campuses into communities and industries where it can be of most benefit.

The New Jersey Agricultural Experiment Station (NJAES) has long embraced the concept that research should be transferred for the benefit of society. Faculty and researchers at NJAES have used their agricultural and environmental heritage to enhance the lives of people in urban, suburban and rural communities throughout the state. NJAES works with farmers to produce high-value niche crops and with food manufacturers to develop strategies for tapping into world markets. Researchers at NJAES breed world-renowned blueberry and cranberry varieties and are among a select group who are funded by the National Institutes of Health to identify and enhance health-promoting properties of these fruits. NJAES integrated pest management programs are enabling farmers to use fewer pesticides, and they are also helping city schools to control urban-dwelling insects while safeguarding the health of the students.

These programs depend on NJAES's strengths in agriculture and food systems; environment and natural resources; food, nutrition and health; and human and community development. But these programs depend, too, on extensive collaboration across disciplines. Rutgers–Cook College and NJAES centers and institutes are conducting interdisciplinary research, refining it for practical application, and transmitting it beyond our campuses to where it is needed. Many of the real world results that emanate from those centers are described in this report.

Serving New Jersey is not an "extra" for NJAES faculty, staff and volunteers. Service is the very core of their mission.

Sincerely,

Richard L. McCormick

President
Rutgers, The State University of New Jersey

Yesterday's Agriculture...

NJAES
Office of Research

RUTGERS

NJAES
New Jersey
Agricultural
Experiment Station

Rutgers
Cooperative
Extension

From the archives of NJAES (upper left, clockwise): Oyster Experiment Station at Tuckerton, "Hotel Bivalve, Breeding Shed, Laboratory," 1904; Dr. Thurlow C. Nelson and J. Richard Nelson among baskets of shells bearing seed oysters, 1930; Van Nest Hall, first headquarters of the Experiment Station; Oats and peas on College Farm, 1910; Dr. J.B. Smith as "Foe of the Mosquito" cartoon from The New Brunswick Times, *1910; Dr. Smith in the entomology laboratory; Selman A. Waksman on the cover of* Time Magazine, *1949; An Extension Potato Tour of Mercer, Middlesex, and Monmouth Counties, 1922.*

NEW JERSEY AGRICULTURAL EXPERIMENT STATION
RUTGERS
COOPERATIVE
RESEARCH & EXTENSION

Today's Relevance & Application....

THE BENEFITS OF CHANGE

- *Greater Integration of Research and Extension*
- *Maximizing Rutgers' resources for greater service to New Jersey*

Building on the Past to Solve the Challenges of New Jersey Today

NJAES–A Great Return on Investment for New Jersey

Helping Small Business, Providing Consulting Services, Encouraging Start-ups

The Food Innovation Center helps farmers develop and market new niche products to maintain economic viability and to preserve farmland in New Jersey. Located in a federal Economic Empowerment Zone in Bridgeton, Cumberland County, the center serves a broad range of clients including farmers, cooperatives, start-ups and small to midsize food companies. In the past year, the center aided more than 200 clients, including 15 located in the Cumberland Empowerment Zone, and helped clients secure about $400,000 in grants from the U.S. Department of Agriculture and the Department of Labor.

Preventing Hunger in New Jersey

The Food Stamp Nutrition Education Program (FSNEP), the Expanded Food and Nutrition Education Program (EFNEP) and the Food Stamp Nutrition Education Support Network (the Network) provide nutrition outreach to New Jersey residents with limited resources. Locally based, FSNEP-trained community assistants provide education in classrooms and homes. As a result of the program, children eat breakfast more often, fewer families run out of food at month's end and more people comparison shop at the grocery store. In 2003, FSNEP and EFNEP reached more than 30,000 participants through approximately 1,700 short courses.

The Network is a statewide collaborative project that encourages more than 30 state agencies and nongovernmental agencies to work cooperatively to ensure nutrition education for families and individuals on food stamps. Through their involvement with the Network and New Jersey's State Nutrition Action Plan, the New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension is involved with every federally funded community nutrition group in the state.

Investing in the Equine Industry

A 1996 New Jersey Department of Agriculture survey of the horse industry found that the industry accounts for $682,000,000 in total equine animal value, $2,514,450,000 in property and $111,122,000 annually in expenditures for wages. Rutgers' Equine Science Center is dedicated to the well-being of equine athletes and the continued viability of the equine industry.

Keeping the Green Industries Strong

Cultivated turfgrass is a pervasive feature of the suburban and urban landscapes throughout New Jersey. In New Jersey, turf-related industries include sod farms, golf courses, landscaping, and other service providers. They significantly contribute to New Jersey's economy through employment, expenditures, sales, and the value created by its economic activities. For example, New Jersey landscapers and other turfgrass service providers employed more than 21,000 workers, providing an estimated $400 million in payroll and generating revenues of more than $1 billion in 2001. Similarly, New Jersey's 289 golf courses generated more than $500 million in 2001.

Rutgers' Center for Turfgrass Science directly benefits New Jersey's turf-related industries. The center, the largest of its kind in the nation, supports the turfgrass industry by generating and disseminating knowledge, training and education in the turfgrass sciences. The center fosters nationally recognized multidisciplinary research; undergraduate, graduate, and continuing professional education; and service programs. Through a portfolio of new varieties of turfgrass, the center generates economic development and job creation in New Jersey and throughout the United States. Moreover, virtually all major U.S. producers, distributors and marketers of turfgrass rely on the center for new varieties. In fact, approximately half of all premium turfgrass seed sold in the United States originates from the center.

Creating Intellectual Property for Industry

As the official demonstration site for the U.S. Department of Defense food manufacturing program, the Center for Advanced Food Technology (CAFT) at Rutgers has worldwide impact. Most ready-to-eat meals manufactured for our nation's troops are produced using CAFT-developed technology. Closer to home, CAFT and the Department of Food Science have generated more than 25 patents and copyrights that have led to the direct creation of new businesses and jobs in the state. In addition, more than 100 New Jersey companies use CAFT's mass spectrometry, rheology and extrusion facilities. CAFT's Food Manufacturing Technology Facility houses start-ups that employ New Jerseyans in food-related businesses.

The Biotechnology Center for Agriculture and the Environment (Biotech Center) works to sustain intensive crop and livestock production in developing areas, reduce chemical burdens on farm and urban lands, and use biological processes to clean up toxic wastes. Companies currently licensing patented Biotech Center technology include Advanced Remediation Kinetics, Dupont, ForBio America, the Hughes Institute, Merck, and Pioneer Hi-Bred. Phytomedics, Inc., a Dayton, New Jersey-based start-up biopharmaceutical company founded on discoveries licensed from Cook College, recently secured $7.5 million in a new round of venture capital financing.

Promoting Economic Vitality while Protecting Public Health

Mosquitoes have a direct impact on public health and influence the state's economy, including coastal and mountain tourism, agriculture, and urban development. The Mosquito Research and Control unit is statutorily authorized to investigate and disseminate information about mosquito habits and control. The unit annually reviews all New Jersey county mosquito control plans to ensure that pesticide usage is targeted and justified.

INNOVATION

Rutgers Cooperative Research & Extension provided the following examples of innovation to the community in the fiscal year 2003–2004

LICENSING

- *Hybrid Dogwood Trees:* unique hybrids that are showy and disease-resistant
- *Jersey Asparagus*: strains that far outyield conventional varieties
- *Turfgrass*: virtually all major U.S. producers, distributors, and marketers of turfgrass rely on Rutgers for new varieties

START-UP SUCCESS

- *Phytomedics, Inc.,* Dayton: biopharmaceuticals from plants
- *WellGen, Inc.,* New Brunswick: nutraceuticals for the human food, pet food, human therapeutics, and dietary supplement markets

Boosting ROI in the Shellfish Industry

A proposed shell-planting program in Delaware Bay could yield more than 250,000 bushels of harvested oysters over a four-year period. Each 100,000 bushels of oysters would be worth about $15 million in economic benefit, a return on investment of about $75 for every $1 invested by New Jersey. In addition, state tax revenues would be $2 for every $1 of state investment.

Putting Science and Research to Work . . .

The New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E) offers a "classroom without walls" through which university research is delivered to people in their communities in all 21 counties. Whether helping municipalities set up waste-composting systems, helping families better handle their personal finances, teaching good nutrition or developing life skills in youth through more than 1,400 4-H organized clubs or other experiential learning methods, RCR&E activities improve the lives of residents throughout the state. Here are some more examples of research-based solutions RCR&E is delivering to the state:

- **The New Jersey School Integrated Pest Management (IPM) Act** ensures safe and effective pest management and minimizes the use of pesticides in and around school buildings. The RCR&E Pest Management Office, in coordination with the New Jersey Department of Environmental Protection, provides information and tools for pest management. The tools are based on RCR&E expertise, developed for agriculture and now benefiting city schools.

- A third of the nation's economy depends on the weather. **The New Jersey Weather and Climate Network (NJWxNET)** is helping people in New Jersey to make vital decisions related to the weather that could save money and lives. The weather data provided by the network helps people predict optimal scheduling for road and bridge construction, thereby reducing overtime expenses. The data can also alert firefighters to times when the state's forests are particularly vulnerable to fires, provide atmospheric and surface conditions for those charged with making decisions concerning water supplies during droughts and provide real time information for public safety officials during emergencies.

- Blueberry and cranberry research at the **Philip E. Marucci Center for Blueberry and Cranberry Research and Extension** is critical to New Jersey agriculture. New Jersey is the nation's second largest producer of highbush blueberries and the nation's third largest producer of cranberries. In 2003, New Jersey-grown blueberries brought in $45,690,000 in farm sales; New Jersey-grown cranberries brought in $14,208,000 in farm sales.

  Consumers benefit from the research into the health promoting qualities of cranberries and blueberries. Research at the center has shown that blueberries and cranberries can treat urinary tract infections. In 2004, researchers at the center were either principle or co-investigators of five out of nine grants awarded by the National Institutes of Health for studies related to the health benefits of cranberries.

- The **Rutgers EcoComplex**, a joint project of RCR&E and Burlington County, promotes growth that is economically viable and environmentally sustainable and helps move science from the lab to the real world. In one project, research focuses on reusing landfill methane gas as an energy source. This renewable energy source can be used for heat production and electrical generation for homes and businesses while reducing atmospheric greenhouse gases.

- New Jersey's 1,290 **nursery** producers generate more than $337 million in sales (39 percent of all New Jersey agricultural revenue) while utilizing less than 5 percent of the state's agricultural land. In addition to the economic benefits, nursery products confer many environmental benefits such as soil erosion prevention, groundwater recharge, cleaner air, cooler temperatures, enhanced wildlife habitat, and aesthetics. Rutgers nursery program is dedicated to helping the New Jersey nursery industry through a multifaceted, comprehensive approach. For example, Rutgers' cutting edge research in Integrated Pest Management (IPM) is helping nursery producers reduce their pesticide use as well as their costs. Moreover, Rutgers' patented varieties of holly trees and dogwoods are world-renowned and help to generate economic activity and job creation in the nursery industry.

. . . in Your Community

- The **Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA)** has developed a web site to provide residents and municipal governments in the New Jersey Highlands with the information they need to make the best land use decisions. The site's Highlands Regional Information System illustrates trends in population and land use change and the status of various natural resources at county and local levels.

- The **Cook College Office of Continuing Professional Education (OCPE)** delivers high standards of academic excellence while meeting the needs of today's workforce. OCPE has delivered more than 400 short courses, symposia, and conferences during the past year.

  In January alone, OCPE delivered more than 125 courses to nearly 3,000 professionals throughout the state of New Jersey. The Professional Golf Turf Certificate Program winter session enrolled 90 golf course professionals from all over the world. OCPE delivered nearly 40 programs for landscape and lawn maintenance professionals throughout the northeast region of the United States.

  OCPE initiated a Bio-Terrorism Certificate Program through a contract with the State Department of Health and Human Services to prepare New Jersey's public health professionals to respond to terrorist activities.

- The **Rutgers Urban Gardening Program** in Essex County motivates low-income families and individuals residing in Newark and surrounding areas to grow, use and preserve vegetables using backyards, containers and community garden plots. Gardens covering acres of former city wasteland are producing vegetables and other plants for food.

- **New Jersey Master Gardeners** are trained volunteers who assist RCR&E in its mission to deliver horticulture programs and information to the general public. In 2003, 356 new Master Gardeners were trained, joining 1,522 active members who provided the equivalent of $1.7 million of donated time and services to the residents of New Jersey. Since the program's inception in 1984, 3,795 Master Gardeners have been trained and provided $12.9 million worth of volunteer time to RCR&E. The volunteers help low-income people grow vegetable gardens to help save on food costs, suburban home owners who need advice on how to care for their lawns, and first-time gardeners, among others.

BRINGING RESEARCH TO THE PEOPLE

Reaching all 21 New Jersey Counties through the Rutgers Cooperative Research & Extension

2003–2004 Statistics

50,000 email and phone inquiry responses
34,000 one-on-one home, farm, field and office visits
8,500 volunteer direct contacts
2,250 volunteers trained
1,603 issues of various newsletters; total circulation of 106,475
870 radio programs
95 software/computer programs
59 television programs
24 home study courses
22 educational and promotional videotapes

Dedicated to Healthy People & Communities

New Jersey Obesity Group

The **New Jersey Obesity Group (NJOG),** established with funding from the New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E), brings together faculty from many disciplines and institutions to understand the source, causes and treatment of obesity. Current research projects include investigations of genetic differences in taste and the effect on weight, nutrient absorption during dieting and after gastric bypass surgery and the biology of how the fat cell is regulated and distributes fat throughout the body. Current studies focusing on childhood obesity are investigating dietary intake of elementary school children, growth retardation and body fat distribution, and whether overfeeding, inactivity or feeding in response to crying predicts excessive weight gain in infancy.

Family and Community Health

The New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E) recently-launched the ***New Jersey-Living Well*** initiative and is developing health-related programs for consumers and professionals in collaboration with the University of Medicine and Dentistry of New Jersey, Robert Wood Johnson University Hospital and various Rutgers departments, including psychology, sociology and communication.

Osteoporosis education and prevention have been a long-time focus for RCR&E. In the past 11 years, diagnosis of the condition in women has increased 600 percent, due in part to improved knowledge about the disease. RCR&E faculty participate in the Interagency Coalition on Osteoporosis, a New Jersey group of doctors, nurses and academics who are responsible for much of the education about the condition.

Another focus area for RCR&E is teaching about the health-promoting qualities of food. One program, Pigment Power in Your Diet, teaches clients to choose fruits and vegetables from a variety of colors (phyto-chemicals) to help reduce the risk of diseases, such as cancer and heart disease.

Tomorrow's agriculture will focus on crops and crop products for the **nutraceuticals** industry. These crop products prevent and treat diseases while increasing human longevity, productivity and quality of life. RCR&E is helping New Jersey to become a leader in this growing industry. The Food Innovation Center works with food producers and manufacturers to grow and develop foods with proven nutraceutical value. The Center for Advanced Food Technology offers services to companies interested in commercializing or improving new or existing nutraceutical products. WellGen, Inc., a spin-off company, is developing proprietary disease prevention products. Phytomedics, Inc., another spin-off company, is discovering, developing and manufacturing new plant-based pharmaceuticals, botanical drugs and other related products. A Phytochemicals Symposium, sponsored by the Department of Family and Community Health Sciences, presented the latest nutraceuticals research information to 250 New Jersey dieticians and nutritionists.

A GROWING CONCERN IN NJ

Obesity is a serious social, medical and psychological problem in New Jersey. Currently, more than 64 percent of Americans are overweight or obese.

From 1991 to 1998, the prevalence of obesity in New Jersey increased by 57 percent, a rise that was greater than neighboring states.

In 2001, 19 percent of New Jersey adults were obese. 8.4 percent had Type-2 diabetes, higher than in New York or Pennsylvania.

4-H Youth Development

In 2003, 67,367 New Jersey youth from cities and suburbs, small towns and rural areas participated in 4-H programs. There were 3,054 enrolled adult 4-H leaders and 349 4-H youth volunteers in New Jersey. These volunteers enabled RCR&E to leverage its funding to reach more youth in New Jersey.

One very successful 4-H program is the **CHARACTER COUNTS!℠** program. This program has been delivered throughout New Jersey in cooperation with local, county and state departments of education, the New Jersey Juvenile Justice Commission, Youth Services Commission, National School and Community Corps, chambers of commerce, State Department of Labor and local businesses. More than 600 4-H-trained teachers have taught character education to approximately 15,000 New Jersey students. These programs have resulted in documented positive changes in behavior of students. For example, one school has tracked a 39 percent reduction in discipline referrals to the office after implementing this program.

4-H County Fairs have long been a staple of New Jersey communities. During the summer of 2003, 1.3 million people visited 4-H County Fairs in New Jersey. Thousands of 4-H members, volunteers, and parents help to make these fairs possible. The fairs are funded with assistance from county government and local non-profit agencies.

Air Quality

To comply with current U.S. Environmental Protection Agency regulations, New Jersey must measure atmospheric fine particle mass concentrations. A researcher in the Department of Environmental Sciences is measuring fine particulate matter and studying the effects of human exposure to these airborne particles. Her findings aid the development of effective **air quality management plans** for New Jersey and the region.

Water Quality

A New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E) specialist in water resources is leading several projects related to U.S. Environmental Protection Agency Phase II regulations. For example, he has added a stormwater education module to the Nonpoint Education for Municipal Officials (NEMO) program that addresses water quality through land use. The NEMO program builds on work completed by the Grant F. Walton Center for Remote Sensing and Spatial Analysis that maps "build-out" in sensitive areas.

When the New Jersey Department of Environmental Protection began preparing Total Maximum Daily Loads (TMDLs, or the sum of the allowable loads of a single pollutant from all contributing points) the Rutgers EcoComplex provided technical assistance to ensure that TMDL development is based on sound cutting-edge science.

A study to develop and implement a phosphorous trading program in the Upper Passaic River Watershed was funded by a $900,000 grant from the U.S. Environmental Protection Agency Targeted Watersheds Grant Program. In addition to economic benefits, this program will provide opportunities for wetland restoration and improved wildlife habitats. Collaborators include Cornell University, the New Jersey Department of Environmental Protection and the Passaic River Alliance.

Urban Ecology Restoration in China

Ecologists at Rutgers–Cook College and the New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E) were a key part of an interdisciplinary and multi-institutional team that won the international design contest for the new Forest Park for the 2008 Beijing Summer Olympic Games. The complex ecological design maximized biodiversity on the 2,200 acre site, which is in Beijing. Rutgers faculty from various disciplines, including ecology, evolution and natural resources; landscape architecture; environmental and occupational health sciences; plant biology and pathology; and environmental sciences contributed to the project.

Research Excellence… Real World Application

Here When New Jersey Needs Us

The New Jersey Agricultural Experiment Station/ Rutgers Cooperative Research & Extension (RCR&E) has recently responded to various plant and animal diseases and pests that have emerged in New Jersey. Without quick action, these incidents could have had serious repercussions on the economic viability of New Jersey food-related industries, on human health and on the overall quality of life in New Jersey.

RCR&E is able to react rapidly because its faculty, staff and volunteers have established extensive networks with dozens of grass-roots groups throughout the state. Furthermore, the organizational structure of RCR&E is designed so that there is a capacity for rapid communication between our central administration and people throughout New Jersey. This is the only network in New Jersey with this capability.

When emergencies arise, agricultural agents immediately transmit the latest information throughout the state, addressing questions from individuals, consumers and producers. They also speak with media outlets to convey objective, research-based information. In addition, RCR&E maintains web sites to serve as information sources for communities, industry and consumers seeking reliable information. Here are a few examples of how this network serves various needs in New Jersey:

- **Asian Longhorned Beetle:** This imported pest is responsible for the loss of thousands of trees in New Jersey, New York, Chicago, and Canada; and most recently in Jersey City, New Jersey. RCR&E educational materials, available in both English and Spanish, review the origin, transportation, United States Department of Agriculture inspection and infestation quarantines, identification, lifecycle, damage, and control methodologies of the beetle.

- **Bacterial Leaf Scorch Infection:** This incurable plant disease has infected an estimated 39 percent of oaks statewide. The economic impact of this disease could be devastating to municipal budgets in New Jersey as trees will need to be pruned and in many cases removed. The aesthetic impact of this disease will be felt throughout New Jersey's affected municipalities, as large tree removals will change the character of neighborhoods, and replacement trees will take decades to grow to the size of the trees that were removed. There is no cure for Bacterial Leaf Scorch, but with proper management affected trees can often be maintained for many years. Agricultural agents are determining proper management methods and educating tree-care professionals in these methods.

- **Mad Cow Disease:** Researchers at the Food Policy Institute immediately launched a nationwide telephone survey when Mad Cow Disease was discovered in Washington State. The data collected provided detailed, research-based information about how consumers responded to the news. This information was used by the agriculture industry and government agencies, including the United States Department of Agriculture.

- **Late Blight Infection:** During the summer of 2004, a farmer appealed to the nearby Rutgers Agricultural Research and Extension Center for assistance with a potentially devastating outbreak of late blight infection in tomatoes. Finding an effective solution required the quick action and cooperation of RCR&E, the New Jersey Department of Agriculture, the New Jersey Department of Environmental Protection, the Pennsylvania Department of Agriculture, New Jersey state legislators and DuPont, a fungicide manufacturer. Thirty-six hours later, tomato growers had legal access to a new fungicide they desperately needed to help manage this disease.

- **Avian Flu:** Consumers and poultry producers became concerned about Avian Flu when the Delaware Department of Health announced that it had found an outbreak of the disease on a Delaware poultry farm. Through careful collaborations between RCR&E and the New Jersey Department of Agriculture, poultry farmers were informed of strict biosecurity measures they should take to prevent the spread of this disease, and consumers were advised of the extremely low risk to humans.

- **The Food and Agriculture Biosecurity Initiative:** In response to potential threats to the food supply, RCR&E established the Food and Agriculture Biosecurity Initiative. In case of an attack, RCR&E will not only provide emergency agricultural information to protect plants and animals and clean-up of the environment, but also communicate emergency management information for the public through the new emergency response communication tree. Initiative goals include creating an early warning system for the food supply from farm to table, creating a clearinghouse of information on plant, insect and viral pathogens, as well as working with governments and industries to create standards and practices for the prevention and mitigation of food system attacks. This initiative produced several conferences to help the food industry meet the Bioterrorism Preparedness and Response Act of 2002.

New Jersey also faces challenges related to its air, water and land quality. The New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E) is providing practical expertise to help communities make visible improvements in their environments:

- **Watershed Restoration:** An estimated 75 percent of current watershed restoration projects in New Jersey would not be possible without help from organizations like Rutgers. An RCR&E specialist in water resources leads various watershed restoration projects, identifying critical water quality problems, designing solutions, finding funding sources, overseeing the permit process, and explaining to communities why the restoration projects are important, all at no charge to the community. Recent projects include the restoration of a 4.5 acre tract of land in Rahway to its natural riparian flood plain state and refurbishing 700 feet of the Pompeston Creek to eliminate erosion in the Pompeston Watershed.

- **Stormwater Management:** An educational curriculum on stormwater management is a significant component of the Environmental Steward volunteer training curricula, which is currently under development by RCR&E and is being pilot-tested in three counties. The program, which is initially targeting Master Gardeners, provides instruction on the impacts of stormwater runoff, stormwater Best Management Practices (BMPs), the design and construction of these systems, and monitoring and maintenance of BMPs.

- **Highlands Water Protection and Planning Act:** Soon after the Highlands Water Protection and Planning Act passed in June 2004, RCR&E prepared a summary of the bill. The document, which is posted on the RCR&E web site, explains the implications of the bill for environmentalists, landowners, farmers, public officials, urban planners, builders and home owners.

Helping New Jersey through Valuable Partnerships* while Maximizing Resources

Federal Partnerships

Federal Emergency Management Agency
National Aeronautics & Space Administration
National Institutes of Health
National Oceanic & Atmospheric Administration
National Science Foundation
U.S. Department of Agriculture
–Cooperative State Research Education and Extension Service
–Farm Service Agency
–Fish & Wildlife Service
–Food & Nutrition Service
–National Agricultural Statistics Service
–National Forestry Service
–Natural Resources Conservation Service
U.S. Department of Defense
U.S. Department of Energy
U.S. Department of Health & Human Services
U.S. Department of Housing & Urban Development
U.S. Department of Justice
U.S. Department of Transportation
U.S. Environmental Protection Agency
U.S. Food & Drug Administration

State Partnerships

New Jersey Department of Agriculture
New Jersey Department of Community Affairs
New Jersey Department of Corrections
New Jersey Department of Environmental Protection
New Jersey Department of Human Services
New Jersey Department of Justice
New Jersey Division of Fish, Game & Wildlife
New Jersey State Police

County Partnerships

Boards of Chosen Freeholders
County & Local Governments & Chambers of Commerce
County Agricultural Development Boards
County Boards of Agriculture
County Boards of Health
County Library Systems
County Mosquito Control Commission
County Offices of Emergency Management

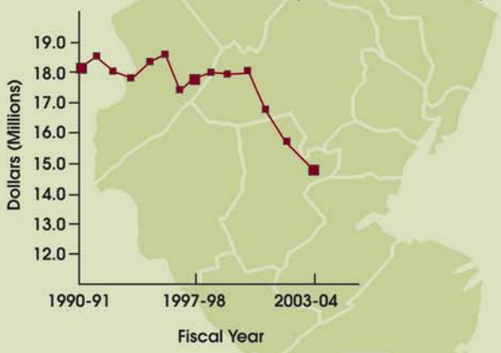
Industry, Not-for-Profit & Institutional Partnerships

American Association of Family & Consumer Sciences
American Lung Association of New Jersey
American Society of Horticulture Science
Americorps
Association of Community Colleges
Casino Reinvestment Development Authority
Cornell University
Delaware State University
FFA
Golf Course Superintendents Association of New Jersey
Horizon/Mercy HMO Health Education
International Society for Horticultural Science
Master Gardener Association of New Jersey
New Jersey Agricultural Society
New Jersey Audubon Society
New Jersey Blueberry/Cranberry Research Council
New Jersey Dietetic Association
New Jersey Farm Bureau
New Jersey Horse Council
New Jersey Institute of Technology
New Jersey Nursery & Landscape Association
New Jersey Nutrition Council
New Jersey Pediatric Council on Research & Education
New Jersey Turfgrass Association
New Jersey Vegetable Growers Association
Ocean Spray, Inc.
Penn State University
Penn/Jersey Regional Program
Regional Dairy Quality Management Alliance
Robert Wood Johnson University Hospital
Rutgers University
Saint Peter's University Hospital
United States Golf Association
University of Medicine & Dentistry of New Jersey
W.K. Kellogg Foundation

Please note, these are a small example of our partnerships.

Financial Summary

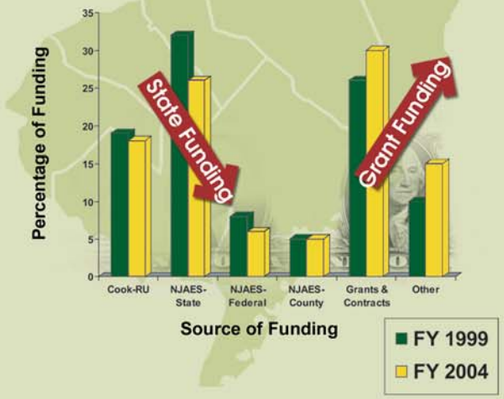
NJAES STATE BUDGET ANALYSIS FINANCIAL YEARS 1990-2004 (INFLATION ADJUSTED)



NJAES & COOK COLLEGE STATE FUNDING FACTS

- *Declining State Funding*
- *Inability to Raise Tuition*
- *Relying on Grants & Awards to Offset Budget Cuts*
- *NJAES/Cook College Faculty Have Increased Grants*
- *Mandated Salary Increases Regularly Underfunded*

NJAES & COOK COLLEGE STATE FUNDING BY SOURCE FINANCIAL YEARS 1999 and 2004

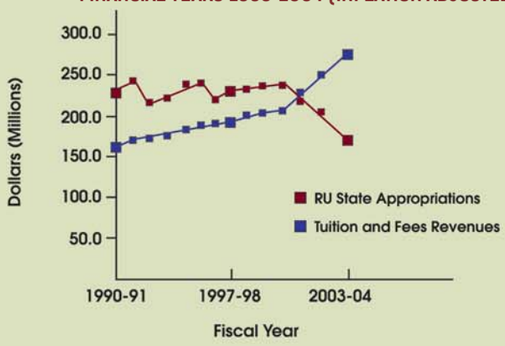


NJAES & COOK COLLEGE CUMULATIVE MANDATED SALARY PACKAGES/REQUIREMENTS VS. STATE MONIES RECEIVED FINANCIAL YEARS 1990-2004

NJAES & COOK COLLEGE MANDATED SALARY FACTS

- *65% of Salary Package Not Funded By the State*

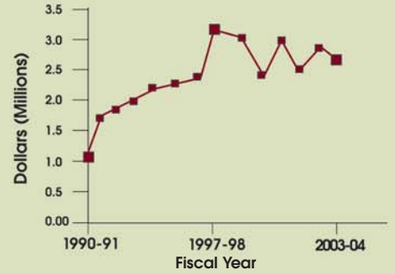
RUTGERS UNIVERSITY STATE BUDGET ANALYSIS FINANCIAL YEARS 1990-2004 (INFLATION ADJUSTED)



RUTGERS UNIVERSITY STATE FUNDING FACTS

- *Declining State Funding*
- *Tuition & Fees Increase to Offset Budget Cuts*

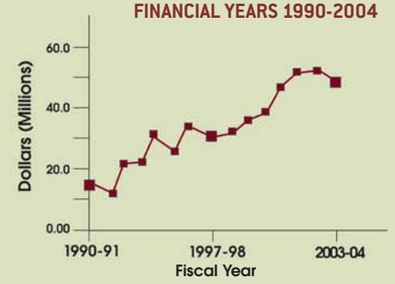
NJAES & COOK COLLEGE CUMULATIVE LICENSING REVENUES FINANCIAL YEARS 1990-2004



LICENSING REVENUE FACTS

	NJAES/Cook College	Rutgers	NJAES/CC Proportion of RU
Number of Faculty	*330*	*2,364*	*13%*
2004 Licensing Revenues	*$2,675,101*	*$4,278,475*	*63%*
2004 Licensing Revenues per Faculty	*8,100*	*1,669*	*NA*

NJAES & COOK COLLEGE CUMULATIVE GRANTS & CONTRACT AWARDS FINANCIAL YEARS 1990-2004



GRANTS & CONTRACT AWARD FACTS

	NJAES/Cook College	Rutgers	NJAES/CC Proportion of RU
Number of Faculty	*330*	*2,564*	*13%*
2004 Total NJAES/Cook Funded Grants & Contract Awards	*$47.7M*	*$257.1M*	*20%*
2004 Grants & Contract per Faculty	*$144,683*	*$100,280*	*NA*

NJAES STATEMENT OF REVENUE AND EXPENDITURES – JUNE 30, 2004

	STATE APPROP.	FEDERAL APPROP.	DESIGNATED FUNDS	GRANTS AWARDS	RESTRICTED FUNDS	ENDOWMENT FUNDS	PLANT FUNDS	TOTAL
REVENUE								
RESEARCH	15,860,686							15,860,686
EXTENSION	8,497,314							8,497,314
HATCH		2,887,971						2,887,971
SMITH/LEVER		3,611,809						3,611,809
SALES			5,186,193		806,211			5,992,404
STUDENT FEE			1,370,090					1,370,090
GIFTS			5,346		609,178	254,726	350	869,600
GRANTS/ CONTRACTS				33,981,148				33,981,148
INVESTMENT INC						1,086,503	3,623	1,090,126
TOTAL REVENUE	**$24,358,000**	**$6,499,780**	**$6,561,629**	**$33,981,148**	**$1,415,389**	**$1,341,229**	**$3,973**	**$74,161,148**
EXPENSE								
SALARIES	21,352,464	5,756,521	4,038,419	16,539,261	615,261	145,736		48,447,662
SUPPLIES	1,000,351	101,440	1,089,196	2,425,806	175,710	38,660		4,831,163
SERVICES	963,005	576,565	1,492,801	11,949,397	157,344	32,351		15,171,463
REP./MAINT.	651,722	96	89,441	432,533	27,159	980		1,201,931
EQUIPMENT	257,621	36,614	296,851	619,402	13,879	27,264	654,669	1,906,300
ADMIN.	132,837	28,544	945,765	5,803,383	48,635	471,408		7,430,572
TOTAL EXPENSE	**$24,358,000**	**$6,499,780**	**$7,952,473**	**$37,769,782**	**$1,037,988**	**$716,399**	**$654,669**	**$78,989,091**
TRANSFERS			1,174,013		80,378	884,855	96,330	2,235,576
FUND BALANCE			8,975,653	4,976,676	1,382,862	10,040,577	3,905,839	29,281,607
JUNE 30, 2004	**$0**	**$0**	**$8,758,822**	**$1,188,042**	**$1,840,641**	**$11,550,262**	**$3,351,473**	**$26,689,240**

Station Profiles

Director: Dr. John Grande
Email: grande@aesop.rutgers.edu
Phone: 908/730-9419
Fax: 908/735-8290

Clifford E. and Melda C. Snyder Research and Extension Farm; Rutgers Center for Sustainable Agriculture

The Snyder Research and Extension Farm near Pittstown (Hunterdon County) is Rutgers' center for sustainable agriculture. Snyder Farm faculty and staff initiate and disseminate research applicable to the production of a variety of food and fiber products including grain and forage crops, tree and small fruits, turfgrass, ornamentals, and conservation and sustainable agriculture in general. The farm's 390 acres provide a valuable capacity to research soil and climate conditions and crops of northern New Jersey.

Director: Louis Cooperhouse
Email: cooperhouse@aesop.rutgers.edu
Phone: 856/459-1125
Fax: 856/459-3043
Web: www.foodinnovation.rutgers.edu

Food Innovation Center

The Food Innovation Center, based in Bridgeton (Cumberland County), is dedicated to the economic development of the agricultural and food processing industry of New Jersey. Its mission is to stimulate and support sustainable economic growth and prosperity to this industry by providing businesses with innovative research, customized practical solutions, resources for business incubation, and a trusted source for information and guidance. With its team of on-site specialists and linkage to the vast resources at Rutgers, the Food Innovation Center transfers business and technology expertise to farmers, food business entrepreneurs, and small and mid-sized food processors, and offers its clients a full range of services that include business development, market development, product and process development, workforce development and training, regulations and manufacturing support, and quality assurance and food safety systems.

Director: Dr. Eric N. Powell
Email: eric@hsrl.rutgers.edu
Phone: 856/785-0074 x4309
Fax: 856/785-1544
Web: www.hsrl.rutgers.edu

Haskin Shellfish Research Laboratory

The Haskin Research Laboratory in Bivalve (Cumberland County) generates and disseminates research information directly applicable to all aspects of fisheries and aquaculture science, concentrating on species of commercial importance to New Jersey.

Director: James Tavares
Email: 4hcamp@aesop.rutgers.edu
Phone: 973/948-3550
Fax: 973/948-0735
Web: www.nj4hcamp.rutgers.edu

Lindley G. Cook 4-H Youth Center for Outdoor Education

The Lindley G. Cook 4-H Youth Center for Outdoor Education, operating since 1951, was named for a director of extension who realized the vision of a 4-H camp in New Jersey. The camp is located within Stokes State Forest on 1,000 wooded acres in Sussex County. It includes accommodations for 215 people, recreation fields, and an 8-acre lake for fishing, swimming, and boating.

Director: Dr. Nicholi Vorsa
Email: vorsa@aesop.rutgers.edu
Phone: 609/726-1590 x4411
Fax: 609/726-1593
Web: www.njaes.rutgers.edu/~bluecran

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

The Philip E. Marucci Center for Blueberry and Cranberry Research and Extension in Chatsworth (Burlington County) develops and distributes research to ensure the continued production of high-quality blueberries and cranberries. The center develops new cultivars for industry and evaluates Integrated Pest Management alternatives for the culture of these crops.

Director: Dr. Bill Nicholson
Email: nicholson@aesop.rutgers.edu
Phone: 856/455-3100 x4106
Fax: 856/455-3133
Web: www.njaes.rutgers.edu/~rarec

Rutgers Agricultural Research and Extension Center

The Rutgers Agricultural Research and Extension Center in Upper Deerfield (Cumberland County) generates and dispenses research applicable to the production of high-quality vegetable crops, ornamentals, field crops, and tree and small fruits. The center simulates the production of crops with maximum benefit to the New Jersey economy and minimum risk to the environment.

Acting Director: David Specca
Email: specca@aesop.rutgers.edu
Phone: 609/499-3600 x226
Fax: 609/499-3647
Web: www.ecocomplex.rutgers.edu

Rutgers EcoComplex

The Rutgers EcoComplex in Bordentown (Burlington County) is a multi-institutional, multi-disciplinary environmental center that harnesses research and education resources toward the development and industrial application of innovative environmental technologies. The mission of the Rutgers EcoComplex is to promote economic development in the environmental arena, including the remediation and protection of environmental quality, and the compatible sectors of food and innovative agriculture. By targeting these areas with integrated programmatic thrusts in research, education and economic development, the Rutgers EcoComplex provides distinctive focus. By harnessing the strengths of multiple institutions, the Rutgers EcoComplex presents an array of capabilities unique in the nation.

Director: Dr. William Meyer
Email: wmeyer@aesop.rutgers.edu
Phone: 732/761-9257
Fax: 732/932-9441

Rutgers Plant Science Research and Extension Farm

The Rutgers Plant Science Research and Extension Farm in Adelphia (Monmouth County) supports research and extension programs directly applicable to turf, field, and agronomic crops and to plant and soil interaction. The center's research is used in solving problems relating to the production of food, feed, and fiber, and problems relating to environmental or aesthetic quality.

Director: Dr. Joseph Goffreda
Email: goffreda@aesop.rutgers.edu
Phone: 609/758-7311 x13
Fax: 609/758-7085

Rutgers Tree Fruit Research and Extension Center

The Rutgers Tree Fruit Research and Extension Center in Cream Ridge (Monmouth County) conducts and disperses research applicable to the production of high-quality tree and small fruits, including apples, peaches, apricots, nectarines, brambles, strawberries and grapes. The center increases production efficiency and protects fruit crops against environmental and biological hazards, while decreasing production costs and pesticide use.

New Jersey Agricultural Experiment Station/Rutgers Cooperative Research & Extension (RCR&E) Presence in 21 Counties

SKYLANDS REGION

Hunterdon County, RCR&E Office, Flemington
- Clifford E. and Melda C. Snyder Research and Extension Farm, Pittstown

Morris County, RCR&E Office, Morristown

Somerset County, RCR&E Office, Bridgewater

Sussex County, RCR&E Office, Newton
- Lindley G. Cook 4-H Youth Center for Outdoor Education, Branchville

Warren County, RCR&E Office, Belvidere

ECONOMIC IMPACT

- Production from Morris County's agricultural, nursery and greenhouse businesses is worth more than $29 million to the local economy. This economic benefit combined with maintaining more than 22,000 acres of open space adds to the quality of life for local residents.
- Hunterdon County leads the state in hay production, farms with non-racehorses and cattle, total number of beef cows and sheep and Christmas tree farms.

PROGRAMS

- Education for producers improves production efficiency, helps develop innovative marketing strategies and promotes management skills.
- A regional livestock agent delivers new innovations, technologies and applications for producers across the region.
- Programming in Spanish helps landscapers communicate better about pesticide safety and lawn care.
- The Integrated Pest Management program provides services to all commercial fruit growers for a modest charge.
- Health programs include "Strong Bones for a Lifetime" and "Step Out Hunterdon …Strides to Health."
- RCR&E research in farmland preservation policy helps preserve thousands of acres of open space.
- Food Stamp Nutrition Education Programs serve individuals and families who are eligible for, or currently receiving, food stamps.
- 4-H programs focus on youth development and empowerment.

GATEWAY REGION

Bergen County, RCR&E Office, Hackensack

Essex County, RCR&E Office, Roseland

Hudson County, RCR&E Office, Jersey City

Middlesex County, RCR&E Office, New Brunswick
- E.A.R.T.H. Center at Davidson's Mill Pond Park
- State Offices for RCR&E, Cook Campus, New Brunswick

Passaic County, RCR&E Office, Wayne

Union County, RCR&E Office, Westfield

ECONOMIC IMPACT

- Agriculture has diversified to meet changing consumer needs in this region. In addition to apples, peaches and vegetables, farmers grow nursery products and ornamental plants. Farm markets are models of innovative and highly successful direct marketing.

PROGRAMS

- Agricultural agents deliver programs for farmers, nursery and greenhouse growers, landscape contractors, turf and sports field managers, golf course superintendents and home owners.
- Master Gardeners of Union County initiated a project in which they grew and then donated produce with a retail value of $3,349 to 10 community food banks serving more than 300 families.
- The Expanded Food and Nutrition Education Program focuses on issues of nutrition, diet, health, food safety and compensating for budgetary constraints.
- Food Stamp Nutrition Education Programs serve people who are eligible for, or currently receiving, food stamps.
- A Senior Nutrition Program in Union County brought more than 350,000 nutritious lunches to more than 2,700 clients in 2003.
- 4-H programs are tailored to the individual needs of communities. Current programs deal with topics ranging from computers to applied science.

DELAWARE RIVER REGION

Mercer County, RCR&E Office, Trenton

Burlington County, RCR&E Office, Mount Holly
- Philip E. Marucci Center for Blueberry and Cranberry Research and Extension, Chatsworth
- EcoComplex, Burlington

Camden County, RCR&E Office, Clementon

Gloucester County, RCR&E Office, Clayton

Salem County, RCR&E Office, Woodstown

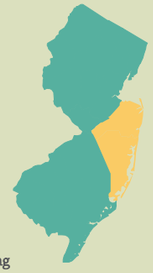
ECONOMIC IMPACT

- Gloucester County is the number one tree fruit producing county in the state.
- Mating disruption for peach insect control saved growers $80 per acre in insect control costs.
- An agricultural agent's research is helping soybean growers to produce organic food-grade soybeans worth $12 to $16 per bushel, compared to $4 to $5 per bushel for conventionally grown soybeans.

PROGRAMS

- Research on 390 peach, nectarine and plum varieties resulted in 25 new selections for commercial use.
- Integrated Crop Management on farms covering 7,400 acres reduces pesticide use and prevents over-fertilization.
- Home landscape programs teach gardeners to reduce use of lime and fertilizer.
- Farm safety programs teach farmers how to safely use pesticides and personal protective equipment.
- RCR&E evaluated more than 40 varieties of sweet corn and shared the results with more than 1,000 growers. New Jersey's corn yield reached a record high of 135 bushels per acre.
- A New Jersey IPM Greenhouse Scouting Program trains Master Gardeners to identify major greenhouse insect pests and diseases, saving growers time and money.
- Family and Community Health Sciences programs address such topics as food-borne illness, children's nutrition and heart health.
- The 4-H program continues to expand its efforts to serve persons with disabilities. Several clubs are specifically tailored to those with special needs.

SHORE REGION



Monmouth County, RCR&E Office, Freehold
- Rutgers Plant Science Research and Extension Farm, Adelphia
- Rutgers Tree Fruit Research and Extension Center, Cream Ridge

Ocean County, RCR&E Office, Toms River

ECONOMIC IMPACT

- Monmouth County ranks first in the state in farm markets, nurseries and sod and greenhouse produce.
- Monmouth County ranks number one in the state and in the country for the number of horses pastured within a single county. Rutgers is expanding its Equine Science Center in support of the equine industry.
- Organic blueberry production grew from zero to over 125 acres statewide from program efforts based in Monmouth County.

PROGRAMS

- Monmouth County is the headquarters for the state's Pasture Management Research and Education Program.
- Agriculture and marine programs provide education and help to develop the ecotourism industry.
- The Marine Extension Program is developing products for commercial fisheries, including "shuckless shellfish" and ornamental aquatic plants.
- The Rutgers Tree Fruit Research and Extension Center now does applied research into specialty vegetables and ornamental nursery production.
- The Food Stamp Nutrition Education Program works closely with local and government organizations offering nutritional education to culturally diverse and food stamp eligible residents.
- 4-H clubs focus on programs that encourage youth to become socially active and to reach out to better serve their community.

GREATER ATLANTIC CITY REGION

Atlantic County, RCR&E Office, Mays Landing

ECONOMIC IMPACT

- The county ranks first in the state in blueberry and sweet potato production.
- The primary objective of the ornamental program of RCR&E of Atlantic County is to increase grower profitability and sustainability through research, education and environmental conservation.

PROGRAMS

- More than 533 Atlantic County youth from kindergarten through the first year of college have participated in the 4-H Youth Development and Empowerment Program.
- The commercial fisheries and aquaculture agent works with the people who supply fresh, high quality seafood to New Jersey consumers. He also provides expertise for the six hard clam hatcheries and 40 growers in the area who supply about 25percent of the state's harvest of hard clams. The agent also provides assistance to aquaculturists who are new to this sector of agriculture.
- The RCR&E Greenhouse Working Group participants, which included growers and individuals from RCR&E and the New Jersey Department of Agriculture (NJDA), developed Best Management Practices for adoption into Right-to-Farm legislation. The group also helped set standards for the NJDA's "Jersey Grown" label, which is a program for New Jersey-grown ornamentals that parallels the "Jersey Fresh" program for New Jersey-grown produce.
- Urban Educational Center, an urban outreach center in Atlantic City, offers activities and educational workshops.

SOUTHERN SHORE REGION

Cape May County, RCR&E Office, Cape May Court House

Cumberland County, RCR&E Office, Millville
- Food Innovation Center, Bridgeton
- Haskin Research Laboratory, Bivalve
- Rutgers Agricultural Research and Extension Center, Upper Deerfield

ECONOMIC IMPACT

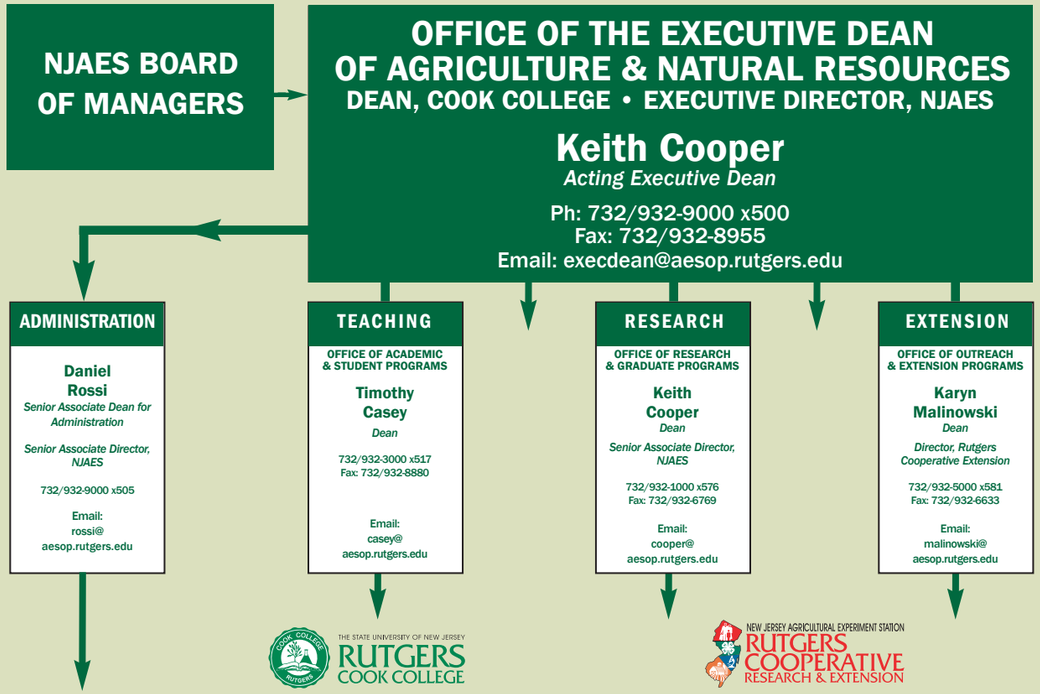
- The Food Innovation Center provides expertise from Rutgers and strategic partners to New Jersey's $63+ billion agricultural and food industries. It is estimated that the return on public investment is at least $5 for every $1 invested.
- Cumberland County produces more than $75 million worth of vegetables and is number one in harvested acres of cabbage, eggplant, lettuces and many specialty crops.
- The commercial wine grape and ornamentals industries (greenhouse, nursery and sod) are the most rapidly growing segments of Cape May County agriculture.

PROGRAMS

- A program resulted in the creation of the Ocean City Farmers Market and the West Cape May Sunset Farmers Market.
- Evaluations of 28 New Jersey Department of Environmental Protection agricultural water allocation certificates directly affect nearly 2.5 billion gallons of water.
- Expanded Food and Nutrition Education Programs serve hundreds of youth in a nutrition-focused summer day camp.
- Programs selected with the input of county stakeholders, volunteers and program participants place high priority on human development, parent education and leadership development for families.
- 4-H programs provide opportunities for youth to "shadow" a Cumberland County employee on County Government Day and to learn about aerospace, world cultures and careers in environmental science.

We've Got the State Covered!

Administration



TEACHING

Comprehensive undergraduate programs in food, agriculture, marine and environmental sciences prepare future workers, scientists and leaders of industry and community.

Office of Academic & Student Programs:

- Instructional Programs
  12 Departments
- Cook Academic Programs
- Student and Resident Life Programs
- Cooperative Education
- Teacher Education
- Special Programs
- Scholarship & Alumni Programs

RESEARCH

Faculty and other scientists make significant basic and applied research contributions that ensure the prosperity of New Jersey industry, government and citizens, as well as have national and international impacts.

Office of Research & Graduate Programs:

- Research Programs
  16 Departments
  13 Centers and Institutes
  8 Off Campus Farms/Stations

EXTENSION

Rutgers Cooperative Research & Extension (RCR&E), helps the diverse population of New Jersey adapt to a rapidly changing society and improve lives through an educational process that uses science-based knowledge.

Office of Outreach & Extension Programs:

- Extension Programs
  16 Departments
  21 County Offices
  8 Off Campus Stations/ Farms & Office of Continuing Professional Education
- Expanded Food & Nutrition Education Program (EFNEP) Offices
- Rutgers Urban Gardening

Board of Managers

Atlantic County	Robert Fenton
Bergen County	vacant
Burlington County	Marilyn Russo
Camden County	vacant
Cape May County	Allen Carter
Cumberland County	Philip Neary
Essex County	Glen VanOlden, Vice President
Gloucester County	Douglas Zee, Jr.
Hudson County	Frances O. Bowen-Thompson
Hunterdon County	Thomas Michalenko
Mercer County	William Perrine
Middlesex County	George Conover
Monmouth County	Michael Puglisi
Morris County	Aimee Myers
Ocean County	Jeffrey Adams
Passaic County	vacant
Salem County	Joel Rudderow
Somerset County	Kenneth Osterman, President
Sussex County	Leonard Pollara, Secretary - Treasurer
Union County	David Williams
Warren County	Mitchell Jones

Statewide Advisory Committee

Biotechnology	Ramesh Pandey
Community Resources	Elizabeth Johnson
Environment	Karen Anderson
Food Science	Pearl Giordano
Marine Science	Stephen Carnahan
Public Policy	Shing-Fu Hsueh

Centers and Institutes

Biotechnology Center for Agriculture and the Environment
www.cook.rutgers.edu/~biotech

Center for Advanced Food Technology
www.foodsci.rutgers.edu/caft

Center for Controlled-Environment Agriculture
www.cook.rutgers.edu/~horteng

Center for Deep-Sea Ecology and Biotechnology
www.cooknjaes.rutgers.edu/centers/quickinfo.asp?id=32

Center for Environmental Prediction
www.cep.rutgers.edu

Center for Turfgrass Science
www.turf.rutgers.edu

Center for Urban Restoration Ecology
www.i-cure.org

Food Policy Institute
www.foodpolicyinstitute.org

Grant F. Walton Center for Remote Sensing & Spatial Analysis
www.crssa.rutgers.edu

Institute of Marine and Coastal Sciences
www.marine.rugters.edu

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

Rutgers Equine Science Center
www.esc.rutgers.edu

Wildlife Damage Control Center
www.cooknjaes.rutgers.edu/centers/quickinfo.asp?id=44

County Offices

Atlantic County	609/625-0056
Bergen County	201/336-6781
Burlington County	609/265-5050
Camden County	856/566-2900 x227
Cape May County	609/465-5115
Cumberland County	856/451-2800
Essex County	973/228-3179
Gloucester County	856/307-6450
Hudson County	201/915-1392
Hunterdon County	908/788-1339
Mercer County	609/989-6833
Middlesex County	732/398-2598
Monmouth County	732/431-7261
Morris County	973/285-8307
Ocean County	732/349-1152
Passaic County	973/305-5742
Salem County	856/769-0090
Somerset County	908/526-6295
Sussex County	973/948-3040
Union County	908/654-9854
Warren County	908/475-6505

For more information visit www.rcre.rutgers.edu