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New Jersey Agricultural Experiment Station (NJAES) Annual Report Re-Design.

New Jersey Agricultural Experiment Station

2010 Annual Report

Jersey Roots, Global Reach

RUTGERS
New Jersey Agricultural Experiment Station

Jersey Roots, Global Reach

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Our Mission

To enhance the vitality, health, sustainability, and overall quality of life in New Jersey by developing and delivering practical, effective solutions to current and future challenges relating to agriculture; fisheries; food; natural resources; environments; public health; and economic, community, and youth development.

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New Jersey Agricultural Experiment Station

FUNDING SOURCES

Base funding from government sources provides the New Jersey Agricultural Experiment Station (NJAES) with a foundation for program development and delivery, while competitive grants, contracts, and gifts increase the scope and impact of research and extension education programs.

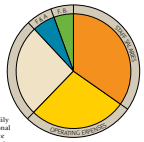
State appropriations for 2010 included $1,280,000 in federal ARRA stimulus funds. "Other" funding included restricted and unrestricted gifts, income from sales or service activities, patent and plant licensing income. County appropriations included salaries paid by counties to Rutgers Cooperative Extension (RCE) faculty and staff, as well as facilities and other support.

NJAES received $89.8 million in funding in fiscal year 2010. The percentage of funding from state and county appropriations declined again in the current fiscal year, which has been the trend over the last four years. Increased funding from grants and contracts, as well as a slight increase in our federal formula funds appropriation, have helped NJAES maintain its research and extension programs in the face of reductions in state and county appropriations. A large part of the increase in grants and contract funds for FY10 came from awards to the Office of Continuing Professional Education; the IR-4 Project; the SNAP-Ed program; the Department of Plant Biology and Pathology; the Department of Ecology, Evolution, and Natural Resources; and the Department of Animal Science.

- **39.2%** GRANTS AND CONTRACTS
- **28.5%** STATE APPROPRIATIONS
- **16.0%** OTHER
- **9.4%** FEDERAL APPROPRIATIONS
- **6.9%** COUNTY APPROPRIATIONS

EXPENDITURE BREAKDOWN

- **34.9%** STAFF SALARIES*
- **27.6%** OPERATING EXPENSES
- **25.8%** FACULTY SALARIES*
- **6.5%** FACILITIES AND ADMINISTRATION (F & A)**
- **5.3%** FRINGE BENEFITS (F. B.)

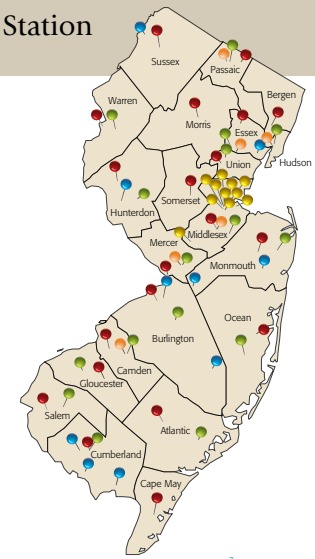


* Includes in-kind salaries paid by counties to RCE faculty and staff.

** Facilities and Administrative Costs (F&A) were previously referred to as Indirect Costs. These are costs that are incurred for common or joint objectives and therefore cannot be identified readily and specifically with a particular sponsored project, instructional activity, or any other institutional activity. Facilities costs include building and equipment depreciation, operation and maintenance expenses, interest on debt and library expenses. Administration costs include general administration and general expenses, departmental administration, sponsored projects administration, student administration and services.

New Jersey Agricultural Experiment Station

Jersey Roots, Global Reach



WE HAVE THE STATE COVERED

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

REACHING ALL 21 NEW JERSEY COUNTIES:

Rutgers Cooperative Extension Statistics

163,640	participants in educational outreach
10,958	volunteers trained
85,750	programs conducted
44,600	4-H Youth Development program participants
3,734	4-H volunteers
2,384	active Rutgers Master Gardener volunteers
44,882	one-on-one visits to homes, farms, fields, and industries
19,834	issues of various newsletters with a circulation of 60,110
1,282,093	downloaded publications and documents
8,788	adult and **7,356** youth EFNEP behaviorally focused nutrition education classes conducted
42,684	youth and **11,951** adult SNAP-Ed behaviorally focused nutrition education classes conducted

NJAES PLAYS A SIGNIFICANT ROLE IN THE STATE'S ECONOMIC GROWTH BY:

- Funding cutting-edge, innovative research
- Fostering technology and innovation transfer to industry
- Launching start-up enterprises through incubators and business development support
- Providing a well-educated, highly skilled workforce
- Developing sustainable growth strategies for urban and rural communities

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Portfolio of Work

A Message from the NJAES Executive Director

As we plan 150-year observances of the land-grant movement in 2012, we reflect on the radical changes to higher education and its impacts on society that resulted from the Morrill Act signed by President Abraham Lincoln in 1862. Today, Rutgers and the New Jersey Agricultural Experiment Station (NJAES) strive, through their missions of teaching and service, to be as transformative in the lives of New Jersey residents.

Several important initiatives have blossomed in 2010, including the New Jersey Institute for Food, Nutrition, and Health and the reinvention of the major in agricultural science. Our solid partnerships with the New Jersey Department of Agriculture, the state and county boards of agriculture, the New Jersey Farm Bureau, and the U.S. Department of Agriculture indicate a bright future for New Jersey agriculture. The past five years have brought a major reinvestment in the faculty; among them 22 (of 56 total) carry primarily extension appointments, speaking to our commitment to maintaining New Jersey's leadership in production agriculture and ensuring the viability of our farms and fisheries.

Rutgers Cooperative Extension programming also reaches further into the state's urban communities than ever before, providing a wide range of youth development activities and innovative solutions to problems like food security, nutrition, and obesity.

As always, NJAES remains firmly committed to providing New Jersey residents with the tools and information necessary to improve their lives and communities.

Robert M. Goodman

Commercial Agriculture

RUTGERS VARIETIES TAKE ROOT WORLDWIDE

What do annual bluegrass, bentgrass, switchgrass, dogwood, peaches, apples, asparagus, cranberries, strawberries, hazelnuts, and tomatoes have in common? All are integral to Rutgers' world-class plant breeding programs, whose varieties and cultivars have been planted across the U.S. and around the world. New Jersey is ideal for a diverse breeding program, as varieties developed here are often highly adaptable and well rooted in the mid-Atlantic region to lower New England. The long partnership of NJAES with stakeholders in the turf industry has led to the development of valuable turfgrass varieties. Ornamental dogwoods and tree fruits such as peaches, nectarines, and apples have long been established programs. Newer efforts to breed hazelnuts as a sustainable bioenergy crop were boosted by a major USDA Specialty Crops Research Initiative grant to a partnership of Rutgers, two other universities, and the Arbor Day Foundation. Switchgrass offers potential as a feedstock for local bioenergy production. No other crops represent New Jersey agriculture quite like blueberries and cranberries, as they are native to this growing region, and outstanding cranberry varieties have been developed by NJAES. Rutgers plant varieties provide the farming, landscape, ornamental, and turf industries with first-rate genetic materials and, in turn, help to fund Rutgers research and breeding programs through royalty returns.

SPECIALTY CROPS LINK GROWERS AND CONSUMERS

The Rutgers specialty crops research group, comprising extension agents and plant scientists, is led by Ramu Govindasamy, extension specialist in agricultural economics and marketing. For the past eight years, the group has worked to document and quantify ethnic produce market opportunities for farmers. To help farmers on the East Coast identify niche market opportunities for agricultural crops that can be grown locally, the team initiated a study that focuses on consumer research and crop production trials for four ethnic groups: Asian Indians, Chinese, Mexicans, and Puerto Ricans. A 2006 consumer survey of the total ethnic produce market on the East Coast was estimated at more than $1 billion for all four ethnic groups combined. In partnership with statewide stakeholders like the New Jersey Department of Agriculture and ethnic crops specialists committed to growing this emerging market, the Rutgers group conducts collaborative research with the University of Massachusetts, Pennsylvania State University, the University of Florida, and internal partners like the Food Innovation Center, Interregional Research Project No. 4, and the Rutgers Language Institute. This research links consumers, marketers, and growers through a strategic approach to ethnic specialty crops introduction and marketing in response to specific consumer demands.

GROWING THE WINE GRAPE INDUSTRY

With more than 1,000 acres of grapes under cultivation, some 192 New Jersey farms supply 43 state wine-making operations. These produce more than 40 different quality wines—from dry and semi-dry to sparkling, fruit, and dessert wines. In March, NJAES and New Jersey growers sponsored a statewide symposium, "Bordeaux–An Old World Terroir with Lessons for New Jersey," which attracted leading authorities from Bordeaux, France, and the U.S. NJAES has undertaken a number of viticultural initiatives in collaboration with growers, including a USDA multi-state evaluation of wine grape cultivars and clones at the Rutgers Agricultural Research and Extension Center and Snyder Farm. An NJAES pilot evaluation of cold-tolerant Italian vinifera clones, which were collected by Rutgers and growers, is underway. Joint demonstration projects include investigating alternative herbicide and mulch systems for vineyard floor management and testing the interaction of rootstock and cultivar combinations for their adaptability to New Jersey. To examine fruit quality and reduce pesticide use, NJAES tested bagged grape clusters for pest exclusion, tested Clopyralid as a plant growth regulator to reduce excessive vegetative vigor, and conducted pilot Integrated Pest Management (IPM) surveys of key grape disease pests. Targeted field demonstrations of all these experiments will be conducted.

UNLOCKING THE SECRETS OF DISEASE

Genome analysis, which requires high-quality basic research facilities, instrumentation, and personnel, is increasingly being incorporated into application-based agriculture research projects at NJAES. The strategic hiring of Debashish Bhattacharya, a senior scientist with an outstanding reputation for establishing a first-rate laboratory for basic research in marine microbiology and genomics, has greatly benefitted mission-oriented programs of NJAES in plant breeding, vector biology, bioremediation, and plant-microbe interactions. In addition to his own research, Bhattacharya has partnered with other NJAES scientists to advance their research programs using his lab and expertise. A centerpiece of the Bhattacharya lab is an Illumina sequencer capable of reading billions of bases of sequence in a single run. Determining primary sequence information is often a critical step to advancing research projects. Among the important collaborations of the Bhattacharya lab are the description of the pathogen that causes eastern filbert blight, a devastating disease of commercial hazelnut trees; analysis of mosquito genomes for population assessment; examination of mechanisms of variability in geminivirus genomes, one of the most important genera of the plant-infecting viruses; and development of tools for rapid, sequence-based plant pathogen detection.

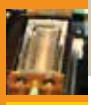
Venus® Dogwood Flora Bract

Supporting the Wine Industry

Ethnic Bitter Gourd Vegetable

Internal View of Genome Analyzer

Serving New Jersey and Beyond



New Jersey Agricultural Experiment Station

Jersey Roots, Global Reach

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 six-member statewide advisory committee. The president of Rutgers, the executive director of NJAES, and the state secretary of agriculture serve as ex officio members.

Atlantic County	August Wuillermin
Bergen County	Guy Nicolosi
Burlington County	Raymond Hlubik
Camden County	Vacant
Cape May County	Warren Stiles
Cumberland County	Maurice Sheets
Essex County	Frank Vesalovich
Gloucester County	Amy Link
Hudson County	Vacant
Hunterdon County	Meredith Compton, Corresponding Secretary
Mercer County	Louis Makrancy, Vice President
Middlesex County	Robert VonThun
Monmouth County	Stephen Dey, President
Morris County	Carol Davis
Ocean County	John Van Pelt
Passaic County	Edith Wallace
Salem County	Vacant
Somerset County	Chan Leung
Sussex County	Carladean Kostelnik
Union County	Richard Montag
Warren County	Anna Sodtalbers

STATEWIDE ADVISORY COMMITTEE

Biotechnology	Linda Rhodes
Community Resources	Lisanne Finston
Environment	Gene Huntington
Food Science	Pearl Giordano
Marine Science	Stephen Carnahan
Public Policy	Vacant

CENTERS AND INSTITUTES

Center for Advanced Food Technology
caft.rutgers.edu

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

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

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
pemarucciccenter.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

COUNTY EXTENSION OFFICES

Atlantic County	609-625-0056	Gloucester County	856-307-6450	Ocean County	732-349-1152
Bergen County	201-336-6781	Hudson County	201-369-3432	Passaic County	973-305-5742
Burlington County	609-265-5050	Hunterdon County	908-788-1339	Salem County	856-769-0090
Camden County	856-566-2900	Mercer County	609-989-6833	Somerset County	908-526-6295
Cape May County	609-465-5115	Middlesex County	732-398-5262	Sussex County	973-948-3040
Cumberland County	856-451-2800	Monmouth County	732-431-7261	Union County	908-654-9854
Essex County	973-353-1338	Morris County	973-285-8307	Warren County	908-475-6505

2010 NJAES Annual Report
ENVIRONMENTAL SAVINGS

- **2** TREES PRESERVED FOR THE FUTURE
- **5** lbs WATERBORNE WASTE NOT CREATED
- **751** gallons WASTEWATER FLOW SAVED
- **83** lbs SOLID WASTE NOT GENERATED
- **164** lbs NET GREENHOUSE GASES PREVENTED
- **1,252,481** BTUs ENERGY NOT CONSUMED

The savings above are achieved when post-consumer recycled fiber is used in place of virgin fiber. This project, based on a production run of 5,000 pieces, used 2,105.01 lbs of paper, which has a post-consumer recycled percentage of 10%.

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School of Environmental and Biological Science (SEBS) Year in Review 2010-2011 Design and Layout.

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Portfolio of Work

welcome

A COHORT OF NEW FACULTY, NOTED FOR THEIR INTERD SC PL NARY APPROACH TO TEACH NG AND RESEARCH, ARE HELP NG TO CHANGE THE CULTURE OF SCHOLARSH P ON CAMPUS AS FACULTY NCORPORATE MORE GLOBAL D MENS ONS OF COURSE SYLLABI AND SERVICE LEARN NG OPPORTUN T ES BEYOND THE CLASSROOM, STUDENTS BENEF T FROM A VASTLY EXPANDED AND ENR CHED COLLEGE EXPER ENCE

Robert M. Goodman
Executive Dean,
School of Environmental
and Biological Sciences

Welcome to this inaugural "Year in Review" publication celebrating the Rutgers School of Environmental and Biological Sciences, which has a long and rich history with deep roots in science-based agricultural education.

Today, reflecting the vast potential of scholarship in the environmental and biological sciences, the school has evolved into an integrated center of teaching and research that covers "organisms to ecosystems."

In fall 2010, we enrolled 3,496 undergraduate students, our largest enrollment ever! My goal is to grow the school to 4,000 through strategic recruitment, here and abroad, and enhanced course offerings that enrich the student learning experience.

From the moment they step on campus, our first-year students are exposed to fascinating experiences like the Byrne Family seminars, taught by senior professors in small discussion settings designed to give purpose to our students' natural passion and creativity.

I've been thrilled to learn just how strongly international are the expertise and commitment of our faculty. Coupled with the increasing presence of international students on our campus and the growing options for study abroad, students who grow up in New Jersey as well as those who choose to come to Rutgers from states across the U.S. are gaining a truly global education.

Recent faculty hires, noted for their interdisciplinary approach to teaching and research, are helping to change the culture of scholarship on our campus. As our faculty incorporate more global dimensions of course syllabi and service learning opportunities beyond the classroom and laboratory, our students benefit from a vastly expanded and enriched college experience.

A journey of discovery awaits you at our school!

Supporting the school

giving

AS PART OF THE H STOR C $1 BILLION FUNDRA S NG CAMPAIGN OUR RUTGERS, OUR FUTURE," DES GNED TO ENSURE RUTGERS' PLACE AMONG THE WORLD S TOP UN VERS T ES, THE SCHOOL HAS SET ITS OWN AMB T OUS GOAL OF RA S NG $92 MILL ON TO FURTHER ITS NSTITUT ONAL PRIOR T ES, W TH THE STRONG SUPPORT OF A LOYAL AND ENGAGED COMMUN TY OF ALUMN , FACULTY, FR ENDS, AND PARTNERS IN INDUSTRY.

Over the past year, Rutgers announced the public launch of its historic $1 billion fundraising campaign, "Our Rutgers, Our Future," to ensure the university's place among the world's top institutions. As part of this campaign, the school has set its own ambitious goal of raising $92 million with the strong support of alumni, faculty, friends, and partners in industry.

BUILDING NEW LEARNING AND RESEARCH ENVIRONMENTS
The New Jersey Institute for Food, Nutrition, and Health is much more than a new research facility to be built on the George H. Cook Campus; it is an organizational enterprise that brings faculty and staff together from across the university, to work on large, multidisciplinary research projects. The design of the new building includes research, community, and administrative space, all housed within what is proposed as Rutgers' most sustainable, planned facility.

INCREASING SCHOLARSHIPS AND STUDENT SUPPORT
As a public university with a proud tradition of educational opportunity, Rutgers is committed to making higher education accessible to students from all socio-economic backgrounds. Undergraduate scholarships and graduate fellowship support are key to achieving this goal. Robust efforts are underway at the school to double its scholarship endowment. The Dennis and Linda Fenton and James Macmillan Endowed Graduate Fellowship in Microbiology as well as the Barry and Deborah Venezia Adler International Study Scholarship are two examples of new scholarships and fellowships established this year.

FACULTY AND RESEARCH More than 225 teachers and researchers, many with national and international reputations, form a diverse and dynamic faculty at the school. Through inspired teaching and meaningful research, our faculty members leverage these efforts to spark the student experience of discovery. A $950,000 grant from the Alfred P. Sloan Foundation allowed the Institute of Marine and Coastal Sciences to develop a priceless database of the diverse and abundant life in our oceans. Research on the wellbeing of horses was boosted by gifts of $100,000 each by Sandy Denarski and animal science professor Karyn Malinowski. The Rutgers Gardens continues to grow, thanks in part to more than $75,000 in gifts this year.

By the numbers

contact

THE RUTGERS SCHOOL OF ENV RONMENTAL AND B OLOG CAL SCIENCES HAS UNDERGONE SEVERAL ENRICH NG TRANSFORMAT ONS S NCE ITS BEG NN NGS IN 1864 AS THE RUTGERS SCIENTIF C SCHOOL HOWEVER WHAT HAS NOT CHANGED IN THE ALMOST 150 YEARS S NCE IS OUR SCHOOL S COMMITMENT TO GENERAT NG AND APPLY NG KNOWLEDGE ON A W DE RANGE OF ISSUES THAT ARE OF GLOBAL RELEVANCE

8
CENTERS AND INSTITUTES

14:1
STUDENT-TO-FACULTY RATIO

227
ON-CAMPUS FACULTY

73
UNDERGRADUATE RESEARCH OPPORTUNITIES

25
UNDERGRADUATE PROGRAMS

400
STUDENT CLUBS AND ORGANIZATIONS

3,496
UNDERGRADUATE STUDENTS

12
GRADUATE PROGRAMS

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CENTERS AND INSTITUTES

Center for Environmental Prediction
Center for Lipid Research
Center for Marine Biotechnology
Grant F. Walton Center for Remote Sensing and Spatial Analysis
Institute of Marine and Coastal Sciences
IR-4 Project: Center for Minor Crop Pest Management
New Jersey Institute for Food, Nutrition, and Health
Rutgers Energy Institute

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Turfgrass Management Brochure, Design and Layout.

RUTGERS
School of Environmental
and Biological Sciences

UNDERGRADUATE DEGREE

Turfgrass Management

RUTGERS
THE STATE UNIVERSITY
OF NEW JERSEY

Photo credits: *Cover*: iStockphoto; *page 2*: (from top to bottom) Nick Romanenko, iStockphoto, James Murphy; *Page 3*: Emily Merewitz; Page 4: (from top to bottom) Pradip Majumdar, Brad Park, John Inguagiato; *Page 5*: Brad Park; *Page 6*: (from top to bottom) Jack Rabin, iStockphoto, John Inguagiato; *Page 7*: iStockphoto.

WHAT IS "THE RUTGERS ADVANTAGE"?

- Nationally recognized turfgrass program
- World-class faculty
- Focused turfgrass curriculum
- Low student/teacher ratios
- Strong faculty commitment to students
- Assistance with Internship placements
- Excellent scholarship opportunities
- Flexible degree options
- Applied learning opportunities
- Outstanding educational facilities

UNDERGRADUATE DEGREE OPTIONS

A world of opportunities will open up to you when you pursue a degree in Turfgrass Management at the School of Environmental and Biological Sciences at Rutgers University. The undergraduate program in turfgrass management at Rutgers leads to a degree in Plant Science with an option in Horticulture and the Turf Industry. The Turfgrass Management curriculum is designed for students who are seeking a strong background in applied turfgrass science and entry into the turf industry upon graduation. Students who want a deeper understanding of the basic sciences can select a research option which is excellent preparation for graduate school.

WHY TURFGRASS MANAGEMENT?

Turfgrass is a multi-billion dollar industry in the United States. Excellent turfgrass management skills are essential for the maintenance of golf courses, parks, athletic fields, and aesthetically pleasing landscapes for businesses, homes, and communities. However, opportunities in turfgrass management do not stop there; they expand well beyond the world of sports into park planning, wildlife preservation, and home and commercial landscape management.

A major in turfgrass management would appeal to people with an interest in environmental enhancement and the design, creation and preservation of quality recreational areas. Students in this major will also gain an understanding of the importance of turf in land use and development. The demand for turfgrass managers with a four-year degree continues to increase. Golf, for example, has grown in popularity over the past decade. In addition, the turfgrass industry associated with home lawns, parks, athletic fields, schools, and industrial parks employs thousands of people in NJ and throughout the country. The demand for sound turf management information creates a constant need for well-trained turfgrass managers.

WHAT ARE THE CAREER OPPORTUNITIES?

The world of turf management is vast and is constantly changing and expanding. Take a look at the Career Opportunities Chart below for a list of some exciting job possibilities in this field.

If you don't like the idea of spending your day working on a beautiful golf course or at a finely-manicured sports facility, there are many career options for students with training in turfgrass management. You might consider a job in athletic field management, the lawn care industry, pest management, private consulting, or in the sale of turfgrass maintenance equipment, fertilizers, seed, or sod. How about consulting for an environmental firm or working with a landscape architect? Or, maybe you would like to write for a trade magazine or work at an academic institution or industry affiliated research facility. Whatever your choice, the opportunities are there if you have the necessary education and skills.

HOW MUCH MONEY CAN YOU MAKE AS A TURFGRASS PROFESSIONAL?

In general, entry-level salaries currently range from $40,000 to $75,000, however, experienced career professionals can earn well over $100,000 per year.

Here are a few examples:

- Golf course Superintendents can make over $65,000, with high end salaries of well over $150,000.
- Research scientists command salaries from $60,000 to more than $100,000 annually.
- Landscape contractors earn $50,000 to $80,000 annually.
- Irrigation contractors earn $40,000 to $70,000 annually.
- Lawn care professionals earn from $40,000 to $100,000 or more.

Turfgrass Management Brochure, Design and Layout *(continued)*.

WHY RUTGERS?

The turfgrass program at the School of Environmental and Biological Sciences at Rutgers University is one of the world leaders in turfgrass research, teaching, and outreach. The Center for Turfgrass Science at the School of Environmental and Biological Sciences/New Jersey Agricultural Experiment Station has over 25 faculty members working in turfgrass science. This is more than double the number of faculty dedicated to turfgrass science at most universities. Our faculty are accessible and work directly with students to enhance their overall learning experience. Moreover, these educators bring a range of expertise and experience to the classroom that simply cannot be found elsewhere. This means that students in our turfgrass program receive personalized instruction from world-renowned experts. In addition to the many innovative courses in plant science, environmental science, and biology, the turfgrass option offers a wide range of courses that are entirely devoted to turfgrass science and new courses are being offered every few years.

The Rutgers Turf Program prepares students for a variety of jobs in turfgrass management. Students can expect to learn everything from plant biology, entomology, pathology, and soil science to maintaining athletic fields and golf courses. The challenging curriculum in turfgrass management and hands-on experience at the School of Environmental and Biological Sciences prepares individuals for a successful career in the ever changing "green" industry.

The School of Environmental and Biological Sciences at Rutgers University is located at a major center of turfgrass culture, with more golf courses and landscape turf within a 100-mile radius of New Brunswick than any other location in the world. New Jersey also offers great cultural diversity, with major metropolitan areas such as New York City and Philadelphia within a short drive or train ride. Moreover, outstanding outdoor activities abound throughout the region, with highlights such as the New Jersey shore and the Appalachian Mountains all close by.

WHAT KIND OF EDUCATIONAL EXPERIENCE WILL I GET AT RUTGERS UNIVERSITY?

The Turfgrass Center's faculty spans many disciplines, with expertise in turfgrass breeding, management, physiology, pathology, entomology, weed science, soil science, and molecular biology, just to name a few. Foran Hall, a large research and teaching facility, houses the Center for Turfgrass Science and the Department of Plant Biology and Pathology. This state-of-the-art building features teaching classrooms, research laboratories, and the Rutgers University Agricultural Library. Also available for turfgrass research and teaching is the Ralph Geiger Educational Center (a 5,000 sq. ft. facility housing classrooms, a computer lab, a small library, and the Rutgers Plant Diagnostic Laboratory), a 27,000 sq. ft. computer controlled greenhouse facility, and three turf research farms spanning more than 300 acres and a range of soil and climatic conditions. Rutgers has the largest collection of cool-season turfgrasses in the world and our research farms serve as outdoor classrooms, providing students with unparalleled hands-on experience.

Students majoring in turfgrass management are encouraged to spend each summer working in the turfgrass industry or with Rutgers faculty through our Summer Internship Program. Our

excellent rapport with the private industry, sports facilities, and golf courses throughout the world allows us to provide students with an extensive list of internship opportunities. In addition to making the classroom more relevant, the internship experience will be invaluable as you seek permanent employment.

At Rutgers, we also provide students with an opportunity to conduct turfgrass research. The Turfgrass Center offers a unique opportunity for undergraduates to participate in laboratory and field research. In this program, participants develop a research proposal in an area of personal interest. Such one-on-one interactions with a faculty member outside the classroom provides invaluable practical experience, new skills, and enhanced job prospects. Research internships are provided to qualified students on a competitive basis.

TURFGRASS MANAGEMENT CURRICULUM: A TYPICAL 4 YEAR PROGRAM

	FALL SEMESTER	SPRING SEMESTER	SUMMER
FRESHMAN	General Biology General Chemistry Math (i.e., Precalculus) Expository Writing Freshman Seminar	General Biology General Chemistry Introduction to Experimentation Multicultural Elective Human Behavior Elective	*Summer Co-op/ Internship*
SOPHOMORE	Introduction to Horticulture Geology and Geology Lab Planning & Planting in the Residential Environment Microeconomics Humanities/Art Elective	Plant Science Soils and Water Landscape Management & Maintenance General Microbiology International Studies Elective	*Summer Co-op/ Internship*
JUNIOR	Turf Management Application of Irrigation, Math & Equipment in Turf* Agribusiness Marketing Public Speaking or Technical Writing General Plant Pathology	Soil Management for Sports and Landscape Applications* Plant Physiology Agribusiness Management Agric. Entomology & Pest Management Political Processes Elective	*Summer Co-op/ Internship*
SENIOR	Soil Fertility Weeds: Impact and Management* Plant Genetics Special Problems in Plant Science Environmental Ethics	Turfgrass Pest Science* Fine and Sports Turf* Jr./Sr. Colloquium Basic Statistics Humanities/Art Elective	

** **Turfgrass Pest Science** and **Fine and Sports Turf** are offered odd numbered years. **Soil Management for Sports and Landscape Applications, Weeds: Impact and Management**, and **Application of Irrigation, Math & Equipment in Turf** are offered even years only.*

WHAT ABOUT FINANCIAL AID?

Rutgers University offers a comprehensive program of federal and state grants, loans and work-study jobs, based on financial need and scholastic achievement. In addition, numerous student scholarships, grants and awards are available to students majoring in Turfgrass Management. More than $90,000 in financial aid is awarded annually to turfgrass students at Rutgers University by the New Jersey turfgrass industry. The turfgrass industry in New Jersey also works closely with the turfgrass program at Rutgers University, providing a great avenue for future career opportunities

HOW DO I GET MORE INFORMATION?

The Center for Turfgrass Science is located at:

Rutgers University
School of Environmental and Biological Sciences
59 Dudley Road
Foran Hall, Room 366
New Brunswick, New Jersey 08901-8520.

Think this major is for you? Check out our website: turf.rutgers.edu.
If you still have questions or would like to arrange a campus visit, contact us through turf.rutgers.edu/education/undergraduate.html.

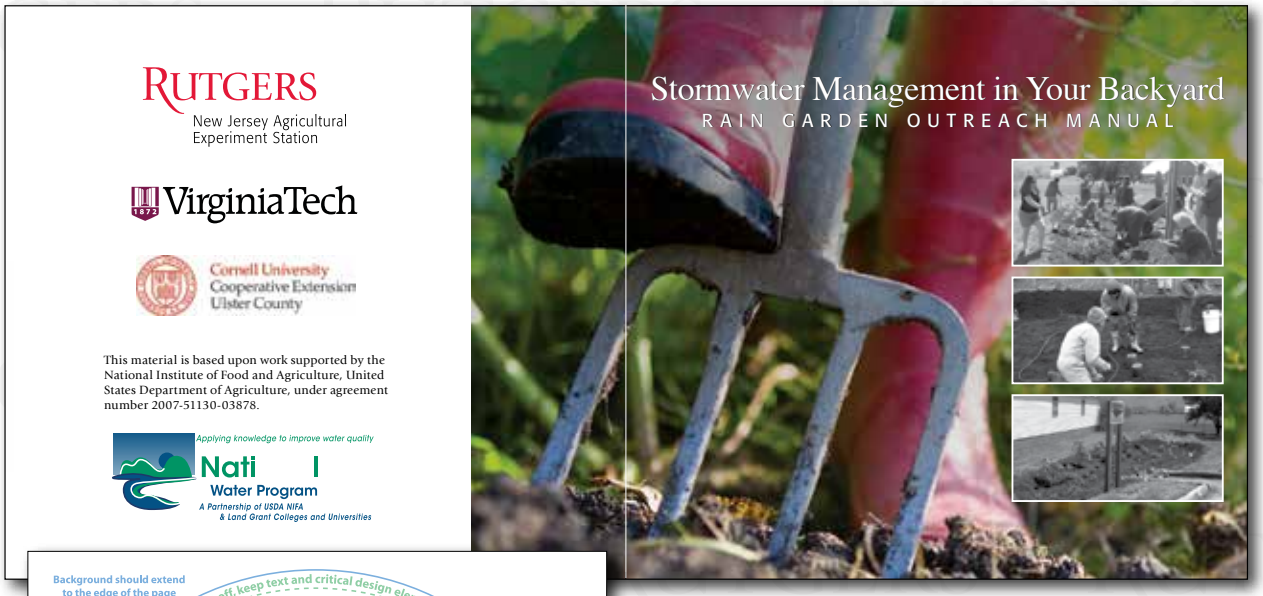
Come see for yourself all that the Rutgers Turfgrass Program has to offer!

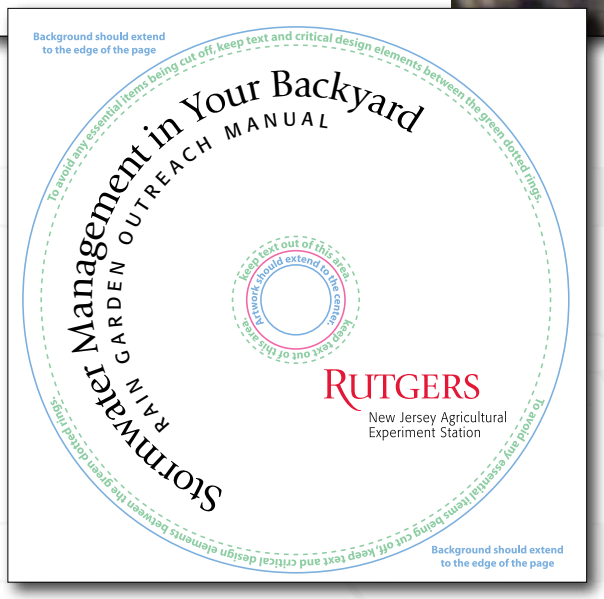
Turfgrass Management Pocket Folder, Design and Layout.

Office Of Communications

Portfolio of Work

NJAES, Cooperative Extension Rain Garden CD Jacket, CD and Manual Cover Design and Layout.





NJAES, Cooperative Extension HHP Consumer Brochure, Design and Layout.

Rubber bands keep the shells closed.

Shellfish are processed at 45,000 psi.

Perfect presentation for retail or food service.

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

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Website: FOODSCI.RUTGERS.EDU/KARWE

FSC Mixed Sources

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.

Photo Credits: Kevin Paccione, Jack Rabin and istockphoto.

High Hydrostatic Pressure Processing
FOR CLAMS

Pre shucked clams for superior presentation, without compromising taste, with a greater amount of meat, and an increased shelf life.

Try one today!

RUTGERS
New Jersey Agricultural Experiment Station

Processing with High Pressure

High Hydrostatic Pressure (HHP) processing is a process that takes place in a pressure-controlled machine that exposes the clam (and other food products) to 30,000 to 100,000 psi. of ultra high pressure. This intense pressure eliminates pathogenic bacteria, making the product safe for human consumption. It has a value added benefit in that a knife is not needed to shuck clams from the shell. The muscles that hold the shells closed release from the shell so that it is extremely easy to get to the clam meat.

After processing, the clam can be eaten raw on the half shell or toppings can be added for cooking as one would do with hand shucked clams.

A Rutgers sensory study determined that high pressure processed clams are liked equally to traditional hand shucked clams by the consumer, the processed clams looked plumper, and testers throughout the study said they tasted just like hand shucked clams. And some liked them better.

The benefits of high hydrostatic pressure (HHP) processing:

- No physical damage to clam.
- Greater meat yield.
- Clams retained taste and texture after HHP.
- Perfect Presentation for retail and food service. Meat appearance is good, undamaged and plump.
- Pre-shucked and safe for home preparation since a sharp knife is not needed to open the clams.
- Economic viability – premium product which is value added.
- There is improved shelf life and product integrity.
- Eliminates personal injury by shucking knife while shucking in food service operations where high volumes of shellfish might be needed.
- Raw clams which are microbiologically safer for consumption.
- Ease of handling.

This process is especially important at this point since there is a growing Public Perception about Seafood Safety, and an increased desire by consumers to eat more fish and shellfish.

Shellfish consumers have always been told not to purchase clams or oysters unless they are alive. High pressure processing does not result in a live animal but since all bacteria which may have been in the clam or oyster is eliminated by the processing, the shellfish are perfectly safe to eat raw.

NJAES, Cooperative Extension HHP Educational Brochure, Design and Layout.

Not all foods are suitable for HHP processing. Foods containing air pockets (mushrooms, whole eggs) can collapse under pressure.

HHP processing can be used after food has been packaged. This minimizes post processing contamination.

Flexible pouches, plastic jars and bottles are suitable for HHP processing.

HHP processing is a batch process and maximum volume of food per batch is about 600 - 1,000 liters.

HHP processed products may need refrigeration to extend shelf life.

The HHP process has been used to make value added products from other shellfish such as oysters, crabs, and lobsters.

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

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Photo Credits: Kevin Paccione, Jack Rabin and istockphoto.

High Hydrostatic Pressure Processing

FOR CLAMS

Pre shucked clams for superior presentation, without compromising taste, with a greater amount of meat, and an increased shelf life.

Try one today!

RUTGERS

High hydrostatic pressure (HHP) processing takes place in a pressure-controlled machine that exposes clams (and other food products) to 30,000 to 100,000 psi, which is like three elephants standing on a dime! This intense pressure eliminates harmful bacteria, making clams safe for human consumption. It has a value added benefit in that a knife is not needed to shuck the clams from their shells. After HHP processing the muscles that hold clam shells shut get detached, making it easy to get the clam meat out. After processing, the raw clams can be served on half shells or prepared in the same manner as non-processed clams.

A Rutgers sensory study determined that HHP processed clams are liked equally as traditional steam cooked clams by consumers. Tasters in the study also found HHP processed clams to be plumper than hand shucked clams.

The benefits of high hydrostatic pressure (HHP) processing:

- Raw clams which are microbiologically safer for consumption.
- Greater meat yield.
- Better retention of original raw taste.
- Improved shelf life and better product integrity.
- Perfect presentation for retail and food service; glossy, undamaged and plump appearance.
- Economic viability – premium value added product.
- Pre-shucked and safe for home preparation since a sharp knife is not needed to open the clams.
- Eliminates risk of personal injury by shucking knife in food service operations where high volumes of shellfish might be needed.

Shellfish consumers have always been told not to purchase clams or oysters unless they are alive. HHP processing does not result in a live animal but since the majority of the bacteria in clams or oysters are eliminated by HHP processing, the shellfish are safer to eat raw.

Thermal processing of foods (canning, pasteurization) has been around for many years. During thermal processing, the heat has to penetrate into the food product to destroy harmful micro-organisms and it can take up to an hour for heat to penetrate into the product. This results in nutritional, flavor and texture losses.

In HHP processing, the pressure penetrates almost instantaneously throughout the product and the process time is independent of product size and shape, unlike thermal processing. HHP processing retains the nutritional quality, taste, aroma, and texture properties of food better than thermal processing.

Although HHP processing effectively destroys most of the harmful micro-organisms (bacteria, viruses, fungi, and molds), a combination of high pressure and moderate temperature (100-180°F) is needed to destroy harmful bacterial spores.

Energy wise, HHP processing consumes similar to less energy as compared to thermal processing.

Office Of Communications

Portfolio of Work

SEBS Community Day Signage, Design and Layout by Kevin Paccione, and Lori Casciano.

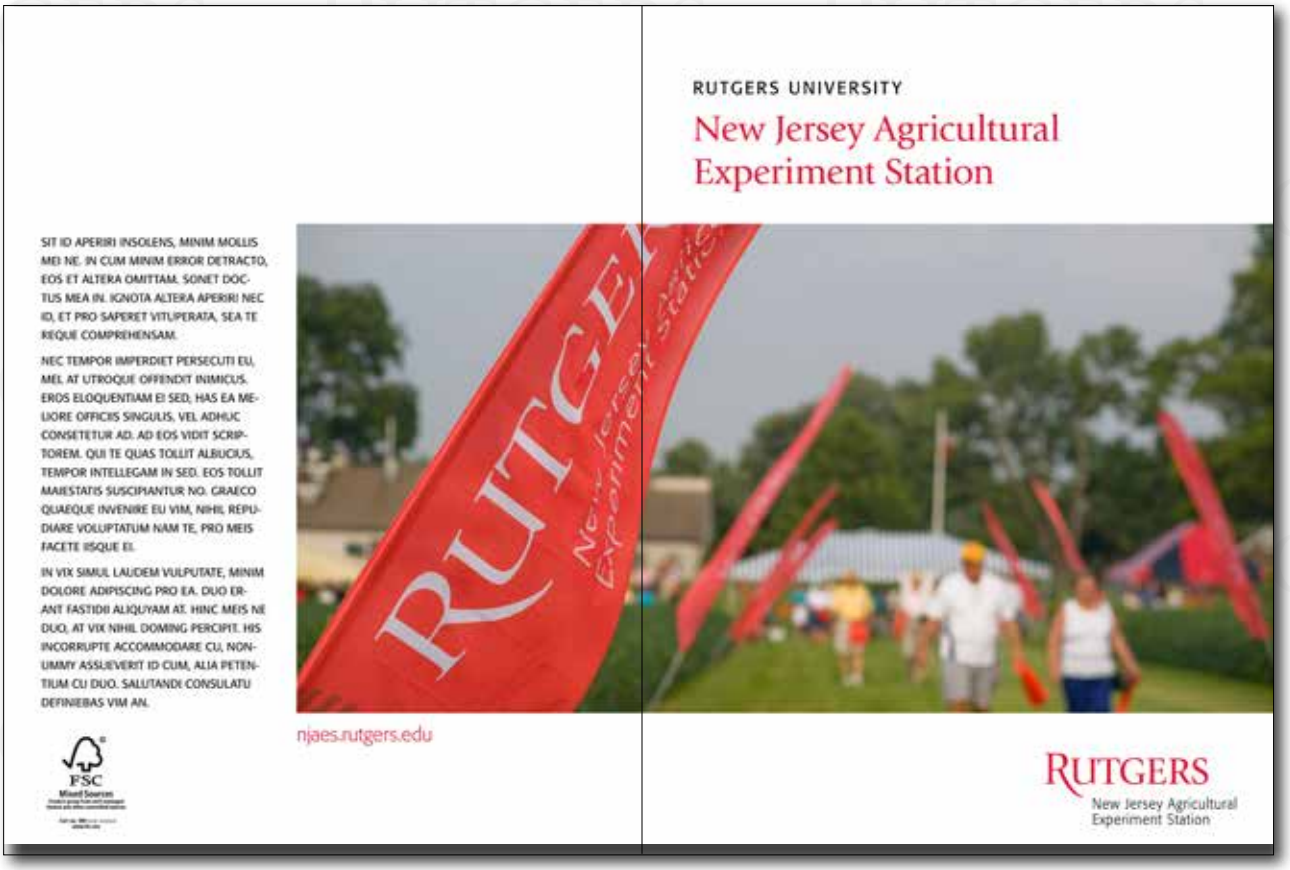
SEBS Graduation Robe Mock Ups for Color Options.

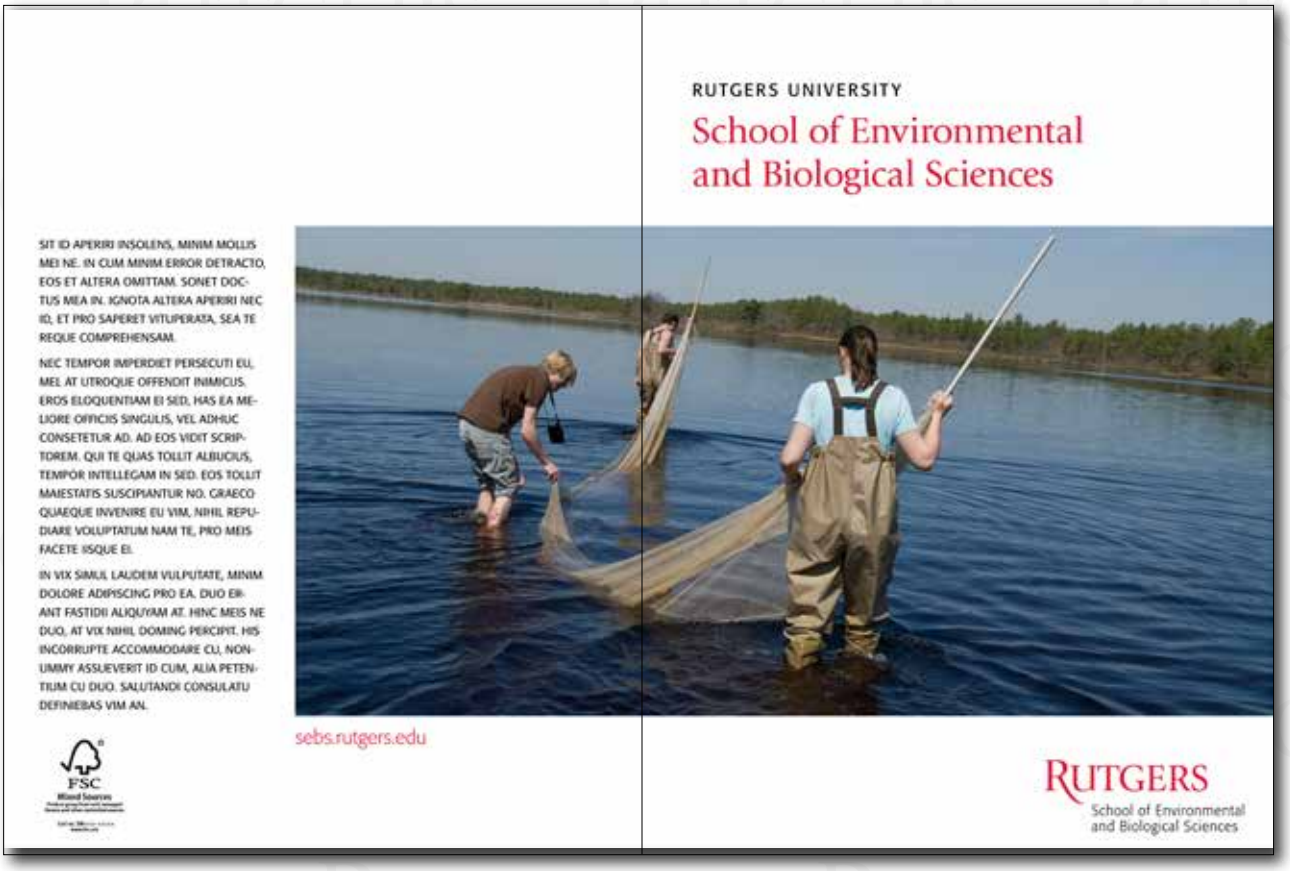
Office Of Communications

Portfolio of Work

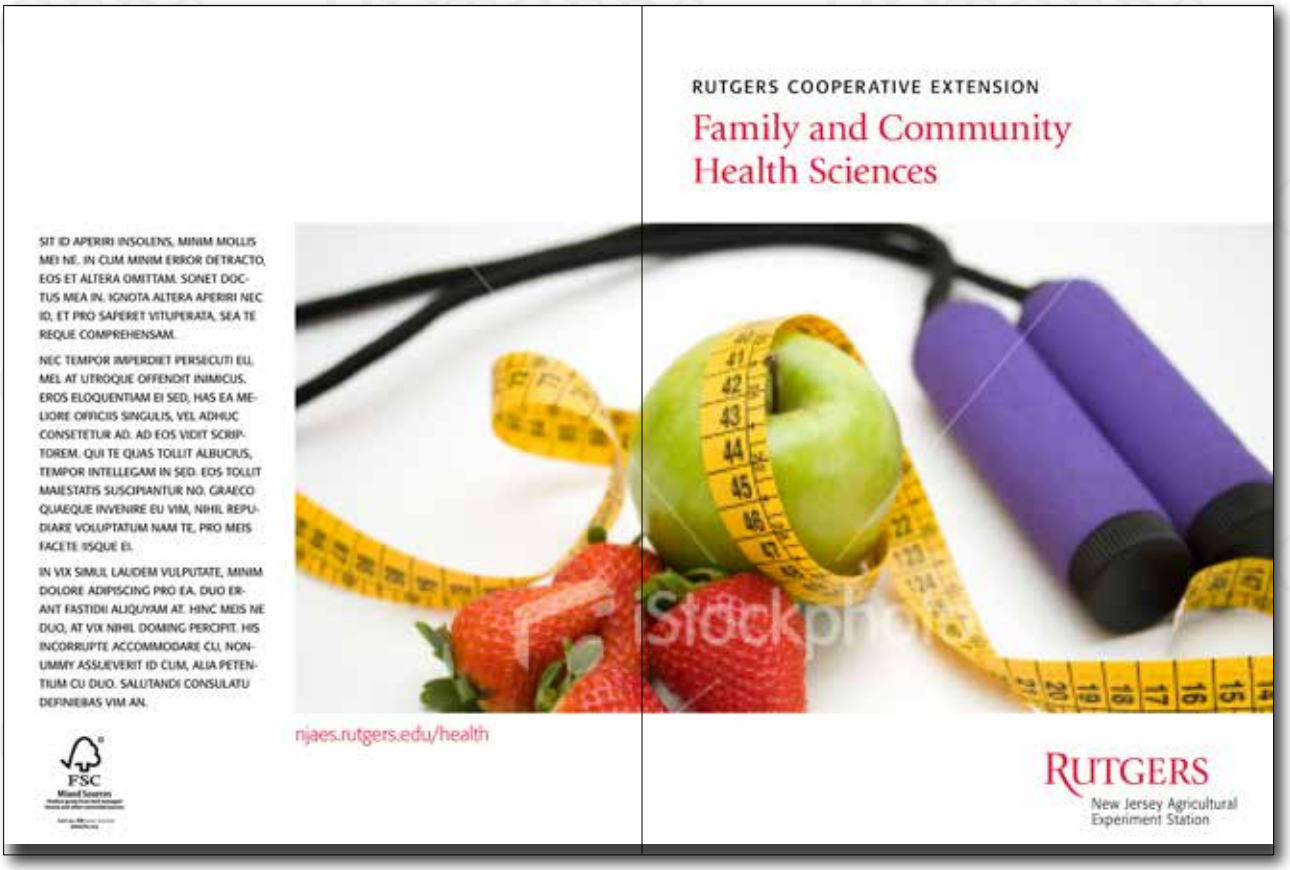
4-H Website Design and Layout, Completed.

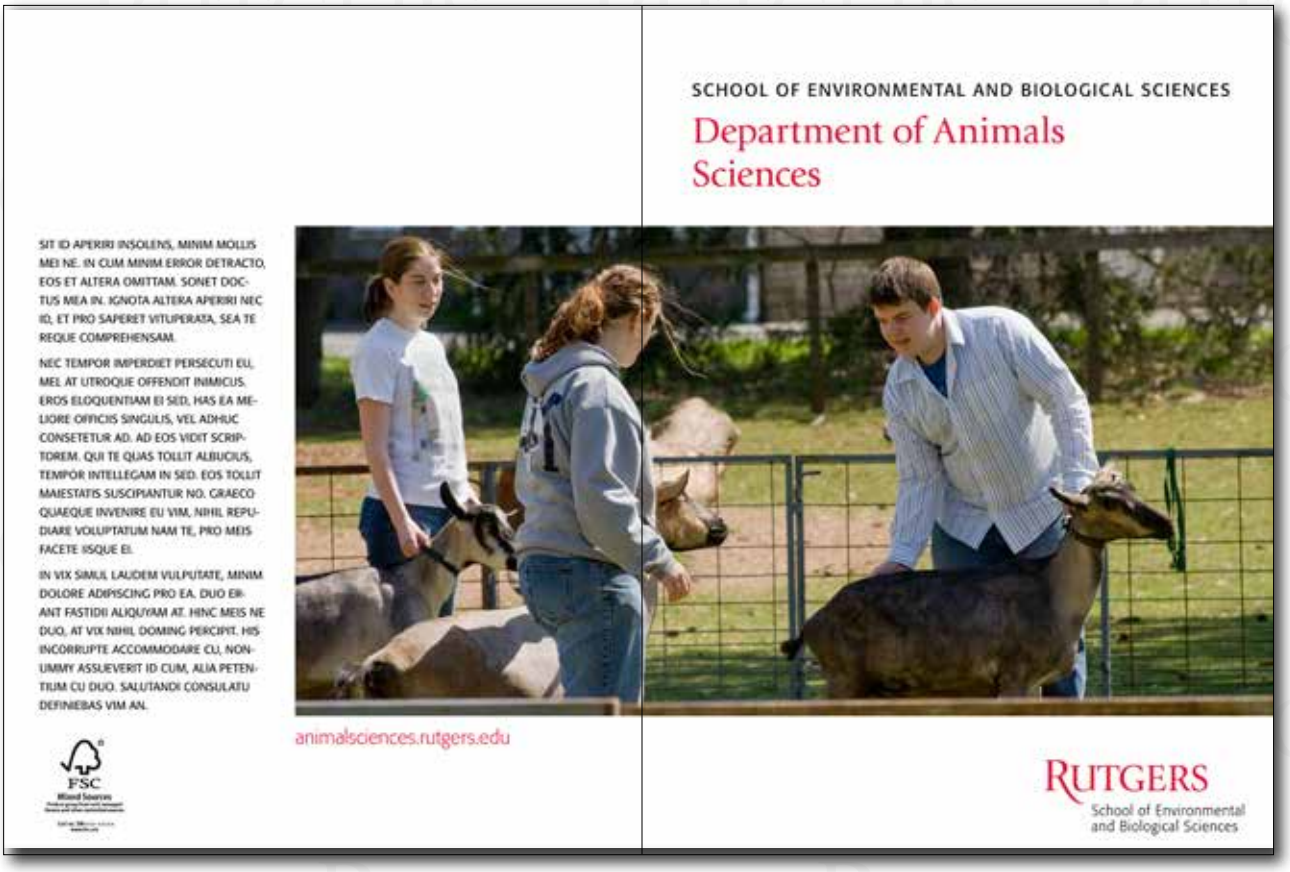
Pocket Folder Concepts, Design and Layout.





Pocket Folder Concepts, Design and Layout *(continued)*.

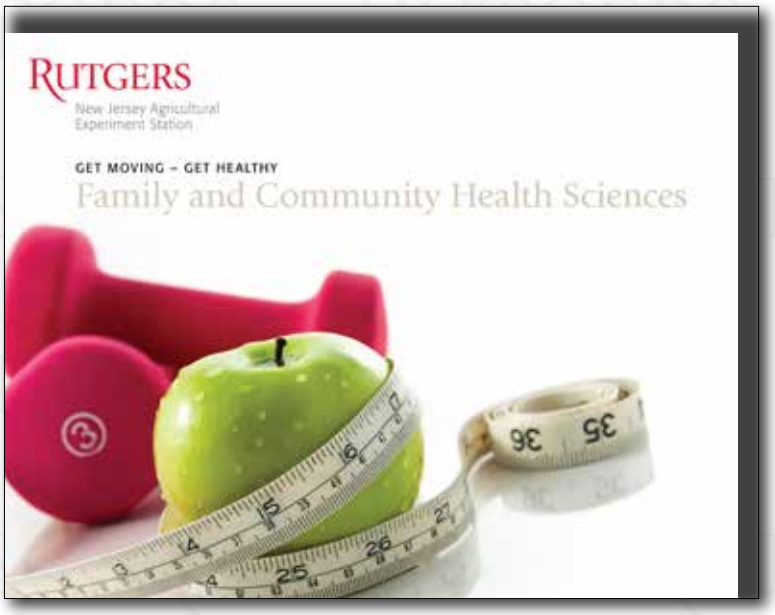


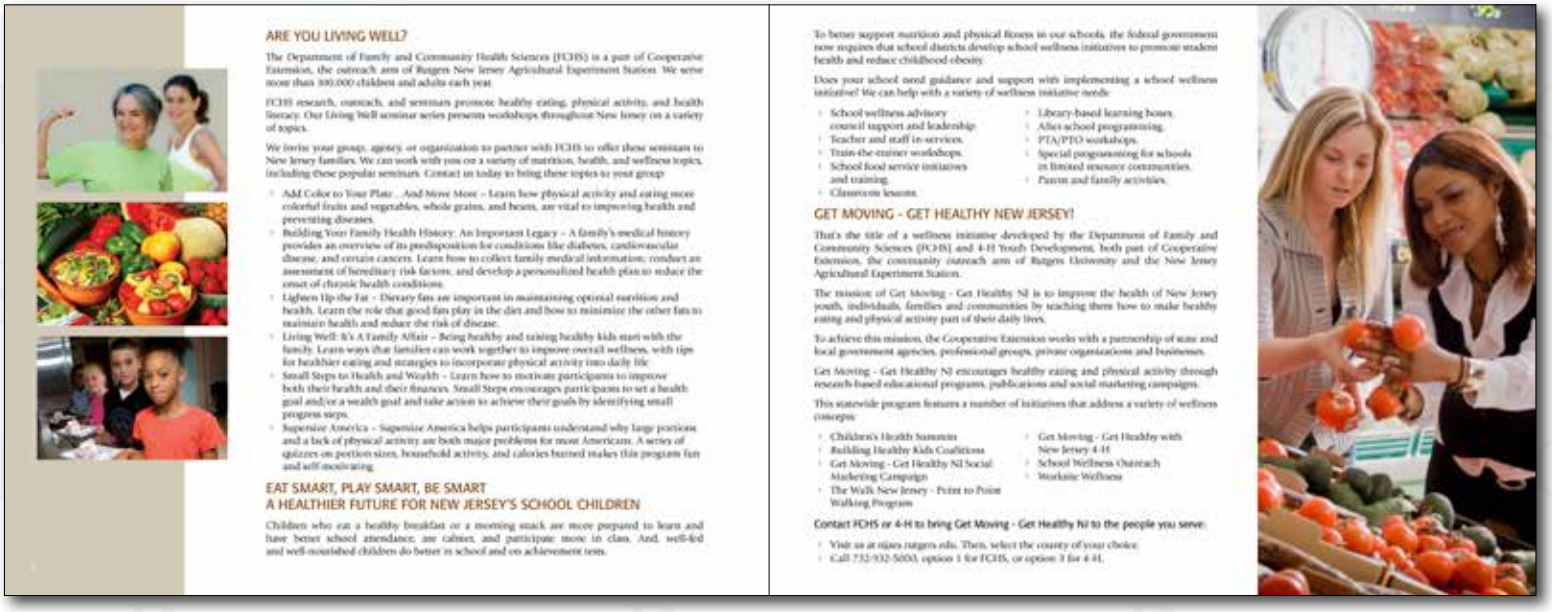


Office Of Communications

Portfolio of Work

Card to Brochure Conversion Concepts, Design and Layout.





ARE YOU LIVING WELL?

The Department of Family and Community Health Sciences (FCHS) is a part of Cooperative Extension, the outreach arm of Rutgers New Jersey Agricultural Experiment Station. We serve more than 300,000 children and adults each year.

FCHS research, outreach, and seminars promote healthy eating, physical activity, and health literacy. Our Living Well seminar series presents workshops throughout New Jersey on a variety of topics.

We invite your group, agency, or organization to partner with FCHS to offer these seminars to New Jersey families. We can work with you on a variety of nutrition, health, and wellness topics, including these popular seminars. Contact us today to bring these topics to your group.

- Add Color to Your Plate…And Move More – Learn how physical activity and eating more colorful fruits and vegetables, whole grains, and beans, are vital to improving health and preventing diseases.
- Building Your Family Health History: An Important Legacy – A family's medical history provides an overview of its predisposition for conditions like diabetes, cardiovascular disease, and certain cancers. Learn how to collect family medical information; conduct an assessment of hereditary risk factors; and develop a personalized health plan to reduce the onset of chronic health conditions.
- Lighten Up the Fat – Dietary fats are important in maintaining optimal nutrition and health. Learn the role that good fats play in the diet and how to minimize the other fats to maintain health and reduce the risk of disease.
- Living Well: It's A Family Affair – Being healthy and raising healthy kids start with the family. Learn ways that families can work together to improve overall wellness, with tips for healthier eating and strategies to incorporate physical activity into daily life.
- Small Steps to Health and Wealth – Learn how to motivate participants to improve both their health and their finances. Small Steps encourages participants to set a health goal and/or a wealth goal and take action to achieve their goals by identifying small progress steps.
- Supersize America – Supersize America helps participants understand why large portions and a lack of physical activity are both major problems for most Americans. A series of quizzes on portion sizes, household activity, and calories burned makes this program fun and self-motivating.

EAT SMART, PLAY SMART, BE SMART
A HEALTHIER FUTURE FOR NEW JERSEY'S SCHOOL CHILDREN

Children who eat a healthy breakfast or a morning snack are more prepared to learn and have better school attendance, are calmer, and participate more in class. And, well-fed and well-nourished children do better in school and on achievement tests.

To better support nutrition and physical fitness in our schools, the federal government now requires that school districts develop school wellness initiatives to promote student health and reduce childhood obesity.

Does your school need guidance and support with implementing a school wellness initiative? We can help with a variety of wellness initiative needs:

- School wellness advisory council support and leadership
- Teacher and staff in-services
- Train-the-trainer workshops
- School food service initiatives and training
- Classroom lessons
- Library-based learning bases
- After-school programming
- PTA/PTO workshops
- Special programming for schools in limited resource communities
- Parent and family activities

GET MOVING - GET HEALTHY NEW JERSEY!

That's the title of a wellness initiative developed by the Department of Family and Community Sciences (FCHS) and 4-H Youth Development, both part of Cooperative Extension, the community outreach arm of Rutgers University and the New Jersey Agricultural Experiment Station.

The mission of Get Moving - Get Healthy NJ is to improve the health of New Jersey youth, individuals, families and communities by teaching them how to make healthy eating and physical activity part of their daily lives.

To achieve this mission, the Cooperative Extension works with a partnership of state and local government agencies, professional groups, private organizations and businesses.

Get Moving - Get Healthy NJ encourages healthy eating and physical activity through research-based educational programs, publications and social marketing campaigns.

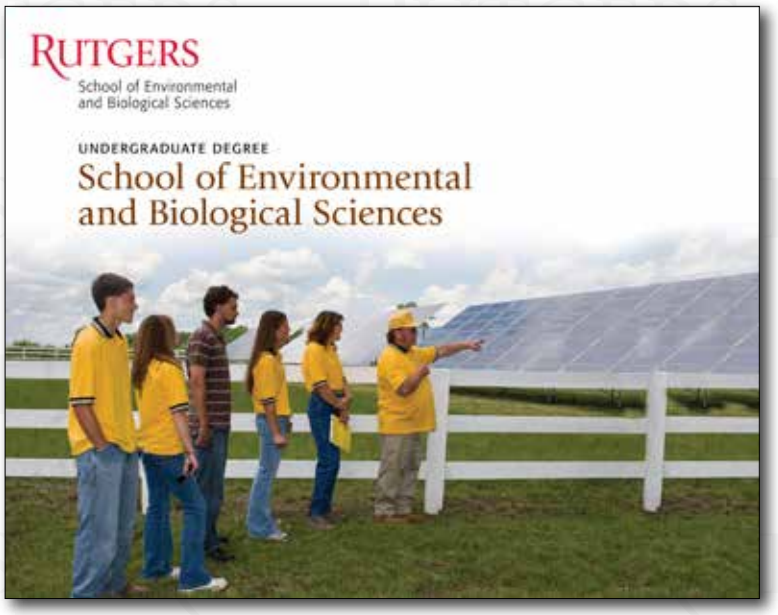
This statewide program features a number of initiatives that address a variety of wellness concepts:

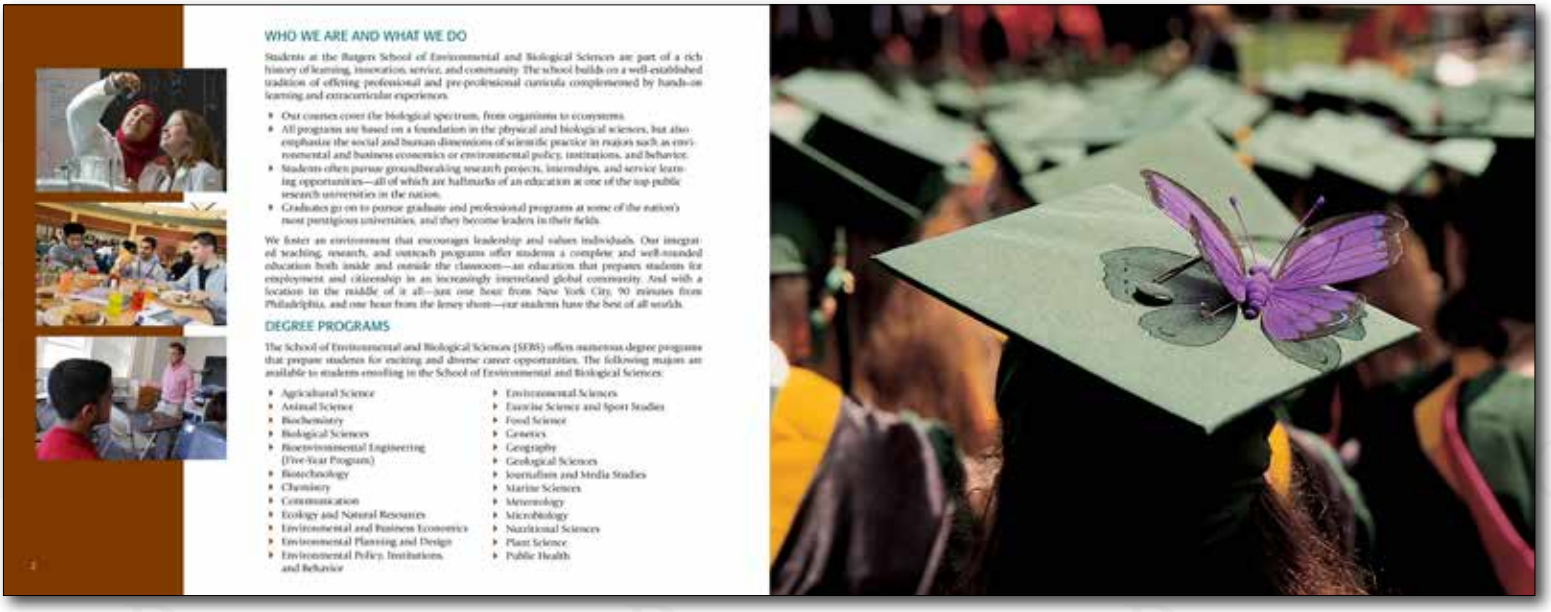
- Children's Health Summits
- Building Healthy Kids Coalitions
- Get Moving - Get Healthy NJ Social Marketing Campaign
- The Walk New Jersey - Point to Point Walking Program
- Get Moving - Get Healthy with New Jersey 4-H
- School Wellness Outreach
- Worksite Wellness

Contact FCHS or 4-H to bring Get Moving - Get Healthy NJ to the people you serve:

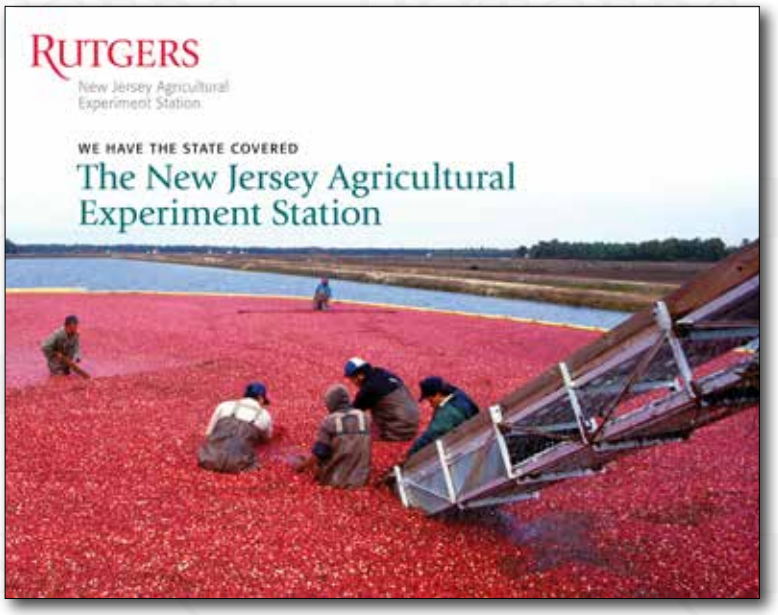
- Visit us at njfamily.rutgers.edu. Then, select the county of your choice.
- Call 732-932-5000, option 1 for FCHS, or option 3 for 4-H.

Card to Brochure Conversion Concepts, Design and Layout *(continued)*.





Card to Brochure Conversion Concepts, Design and Layout *(continued)*.



NJAES, Coperative Extension Summary Summit Meeting Cover, Design and Layout.

Office of Community Engagement Poster, Design and Layout.

FEEDING NINE BILLION PEOPLE IN 2050 ON A RESOURCE-LIMITED PLANET

Executive Dean's Distinguished Lecture Featuring Kenneth G. Cassman

**Director of the Nebraska Center for Energy Sciences Research,
Heuermann Professor of Agronomy,
University of Nebraska-Lincoln**

**Wednesday, October 20, 2010,
Reception at 6 P.M. and Lecture at 7 P.M.**

**Cook Campus Center, MPR B and C
59 Biel Road, New Brunswick, NJ 08901**

How do we feed nine billion people in the year 2050? With estimates that food demand will double from current requirements, do we have the capacity to grow what is needed? How will intensive cultivation affect the environment? Answers to these global questions are neither easy nor simple.

In this public lecture, Dr. Cassman will discuss these challenges as the framework for his research–finding ways to ensure that increases in crop production for human food production, livestock feed, biofuels, and bio-based products do not compromise the quality of soil and water resources or threaten the integrity of natural ecosystems.

Contact the Office of Community Engagement to RSVP by October 14 at 732-932-2000, ext. 4211, or discovery@aesop.rutgers.edu.

Sponsored by the Office of the Executive Dean, School of Environmental and Biological Sciences, and the Office of International Programs, School of Arts and Sciences, at Rutgers, The State University of New Jersey.

Designed by Kevin Paccione, layout refinement Lori Casciano

Office of Community Engagement Poster, Design and Layout.

EXECUTIVE DEAN'S DISTINGUISHED LECTURE

Senior Scientist, National Oceanic and Atmospheric Administration

Susan Solomon

THURSDAY, FEBRUARY 10, 2011
6 - 8:30 P.M.

COOK CAMPUS CENTER
NEW BRUNSWICK, NEW JERSEY

A WORLD OF CHANGE:
Climate Yesterday, Today, and Tomorrow

Susan Solomon is an internationally recognized leader in atmospheric science, and is the recipient of many prestigious awards including the President's National Medal of Science and the Bowie Medal from the American Geophysical Union. She was named one of the 100 most influential people in the world in 2008 by Time magazine. She was the co-chair of Working Group 1 of the Intergovernmental Panel on Climate Change, which shared the 2007 Nobel Peace Prize.

RSVP by February 2, 2011
discovery@aesop.rutgers.edu
or call the Office of Community Engagement at 732-932-2000, ext. 4205

We hope you will join us for this dynamic presentation. A reception will precede the lecture.

RUTGERS
School of Environmental and Biological Sciences

Sponsored by the Office of the Executive Dean of the School of Environmental and Biological Sciences, the Climate and Environmental Change Initiative, Ecologies in the Balance (Executive Vice President for Academic Affairs, Office of Undergraduate Education, Office of International Programs at the School of Arts and Sciences)

Mesh Banners for SEBS, NJAES, and Rutgers Cook Campus.

NJAES, Food Innovation Center Promotional Piece, Layout.

The Food Innovation Center is pleased to feature five outstanding pioneers who have transformed New Jersey's agricultural treasures into exceptional value-added food products.

From innovative processing and packaging techniques to pioneering US implementation of Ultra High Temperature Pasteurization, Cumberland Dairy's forward thinking has allowed it to become one of the nation's largest producers of specialty dairy products.

As the largest and longest running fresh tomato canner in the United States, Violet Packing has been processing vine-ripened Jersey tomatoes for the past 125 years. Today, this iconic company is known for their strong commitment to supporting local agriculture. Violet Packing still reflects its founding dedication to consistent quality and a unique Italian fresh taste.

Food Innovation Center

Continuing the Heritage of Innovation in the Garden State

www.foodinnovation.rutgers.edu

Pioneers in developing the technology and viability of America's frozen food industry, Seabrook Brothers & Sons freezes and distributes more than 150 million pounds of frozen vegetables across the globe every year. Seabrook Brothers & Son's highly innovative achievements transformed the frozen food industry and has created tremendous opportunities for local agricultural growers.

Starting with Dr. John T. Dorrance's creation of condensed soup that had a longer shelf life and that was lighter and easier to ship, Campbell Soup Company has had a long history of ground breaking thinking in the food industry. Success has continued as it has carried on as the world's largest soup producer and leading manufacturer of juice beverages, sauces, and biscuits.

Committed to combining 'old fashioned goodness' with the 'marvel of modern food processing techniques', P.J. Ritter Company established a cannery in 1917 along the Cohansey River in Bridgeton, NJ, where they produced award-winning catsup and played an important role in the history of New Jersey Agriculture for nearly six decades.

Donovan Designs is a design studio that specializes in large and small scale interior and exterior murals and finishes. They have done numerous commercial and private murals in the Bridgeton area and their work can be seen in locations across the country.

RUTGERS
New Jersey Agricultural Experiment Station

FSC Mixed Sources

Food Innovation Center

450 EAST BROAD STREET, BRIDGETON, NEW JERSEY 08302

Equine Science Center, Signage.

Equine Science Center, Graphic.

Office Of Communications

Portfolio of Work

NJAES Document Covers.

RUTGERS
New Jersey Agricultural
Experiment Station

Assessment of Biomass Energy Potential in New Jersey

Executive Summary

Rutgers New Jersey Agricultural Experiment Station
July 2010

FCHS Annual Report and County Annual Reports.

Animal Science Update
The Department of Animal Sciences

Newsletter December 2010


Karyn Malinowski with Could Be Magic


The 2010 NESA Team Members and Advisors


John Falco, Jim Wohlt, and Marina Kviker

Rutgers NESA Team Brings Home a Red Ribbon + Other Good News

by Carol Bagnell, PhD, Department Chair

Great news! Our students placed second overall in the 2010 American Society of Animal Science/American Dairy Science Association Northeast Student Affiliate (NESA) competition. These annual competitions include livestock judging, a quiz bowl, and paper presentations. Hosted by the University of Rhode Island, the February NESA competition included 39 teams with a total of 162 students from 10 universities and colleges ranging from Maine to Delaware. The high performance of all four Rutgers teams brought us to a second place school finish, the highest placing that Rutgers has ever achieved at NESA. Individual awards to **Lisa Furbeck '10** (3rd place, Research Paper Presentations) and **Michele Zaccaro '11** (7th place, Livestock Judging) were also critical to the win. Pictured above are team members and their advisors—**Carey Williams** (in front row holding the red Second Place ribbon), **Barry Jesse**, and graduate student **Danielle Smarsh**. Since October, our students have been preparing for NESA 2011, hoping to bring home a blue ribbon next time. We wish them well.

Throughout 2010 many of our faculty members have been recognized for their excellence in research, education, and outreach. In January, **Karyn Malinowski** (pictured above left) received the Governor's Trophy for Horseperson of the Year presented by the NJ Department of Agriculture, saluting her lifetime of work on behalf of horses and the equine industry in New Jersey. At the SEBS-NJAES Awards Dinner in April, **Sarah Ralston** (pictured on page 3, bottom) won the Academic Professional Excellence Award for Academic Innovation due to her outreach to nontraditional students, development of online courses in equine science, and creation of the highly innovative and sustainable Young Horse Teaching and Research Program. **Jim Wohlt** received the Barbara Munson Goff Teacher of the Year Award from Alpha Zeta (he is pictured above right with John Falco '11 and Marina Kviker '11). Jim is also the Northeast winner of the 2010 Distinguished Service Award of the American Society of Animal Science/American Dairy Science Association. In October, **Carey Williams** and other members of the eXtension HorseQuest leadership team (see extension.org/horses) received the USDA National Institute of Food and Agriculture's 2010 Partnership Award. **Dmitry Govorko** received an award from the International Society for Biomedical Research on Alcoholism for best research work by a postdoctoral scientist; poster coauthors were Dipak Sarkar and graduate students Changqing Zhang and Rola Bekdash. Congratulations to all!

We are grateful to all who donated money this past year to support our Academic Excellence Fund, student awards, or Heifer Research Fund, including those who made a donation in honor of Jim Wohlt on the occasion of his retirement (see page 4). Please stay in touch via email at animalsci@aesop.rutgers.edu. Write to us with your memories. Best wishes,

Equine Vet Honored by New Scholarship

Impressed by the dedication of **John M. Walsh, DVM (AG '72)** to his equine clients and to education, two donors recently created a SEBS scholarship in his honor. **Amanda Prisk '11** was selected as the first recipient of this scholarship, which recognizes undergraduates who are interested in becoming a large animal veterinarian.

Amanda's academic success, leadership in our Society of Animal Science, and passion for large animal medicine made her an exceptional candidate for this award. We hope that others who know and love Dr. John Walsh will contribute to this scholarship fund to encourage other students to follow in his footsteps.

RUTGERS
School of Environmental
and Biological Sciences

Department of Animal Sciences
Rutgers School of Environmental and Biological Sciences
animalsciences.rutgers.edu

RUTGERS
New Jersey Agricultural
Experiment Station

Agri-Environmental Assessment of Equine Pasture in the Colts Neck Watershed

Bill Sciarappa, PI, Brian Hulme and Kevin Soldo

Program Assistants – John Applegate & Vivian Quinn
Rutgers University, Department of Agriculture & Resource Management Agents

Partners

Rutgers University
B l Meyer & Me ssa W son, P ant Sc ence Department
Sarah Ra ston, Equ ne Sc ence Center
Cra g Phe ps Department of B otechnology
Cara Musc o, RCE Resource Management Agent
Kevin Sullivan Agr cultura Econom cs

Monmouth University
John T edemann & M chae W tty B ology Department

Freehold Soil Conservation District
nes Gr mm and T m Thomas

Monmouth County
Cooperative Extension

2009 Annual Report

Our Vision

Rutgers Cooperative Extension of Monmouth County helps individuals, groups and organizations to address their needs, problems and concerns. We identify issues and provide the leadership, organizational skills and commitment to develop appropriate solutions through the educational process.

Our Mission

Helping the diverse population of Monmouth County adapt to a rapidly changing society and improve their lives by applying current science-based information. Our focus is on issues and needs relating to Agriculture and the Environment; Management of Natural Resources, Food Safety, Quality, Nutrition, and Health; Family Stability; Economic Security and Youth Development.

Rutgers Cooperative Extension

Links the U.S. Department of Agriculture; New Jersey Agricultural Experiment Station at Rutgers - The State University, The School of Environmental and Biological Sciences and New Jersey county governments to provide practical education for all people. While our name changed slightly again, our mission remains focused on key extension issues. RCE faculty and staff provide outreach programs in Agriculture and Resource Management, Sea Grant Extension, 4-H Youth Development, and Family and Community Health Sciences.

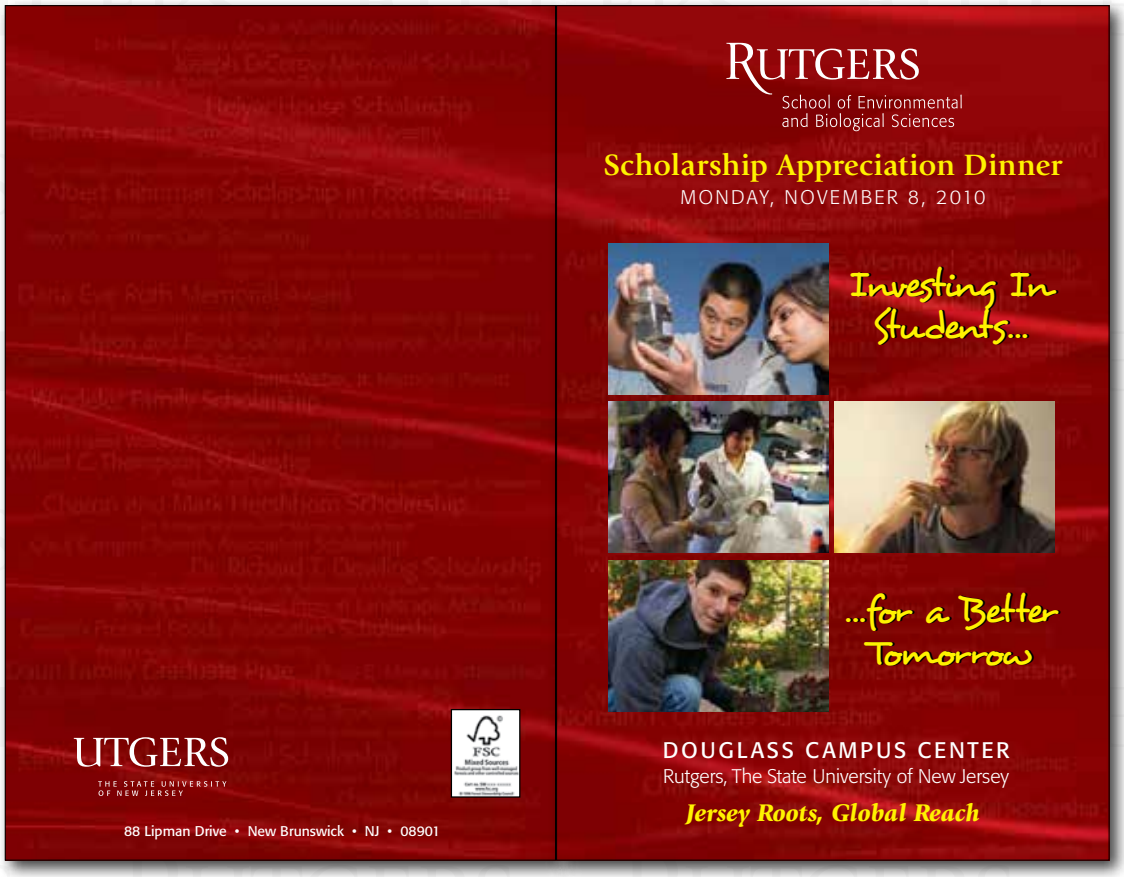
The staff is supported by dedicated groups of trained volunteers who serve on advisory boards and who increase our educational outreach and services to Monmouth County.

This annual report highlights some of our program outreach in 2009.

RUTGERS
New Jersey Agricultural
Experiment Station

Cooperative Extension of Monmouth County
4000 Kozloski Road, PO Box 5033
Freehold, NJ 07728
www.visitmonmouth.com/07050coopext

Scholarship Appreciation Dinner Program Updated Artwork.



Rutgers School of Environmental and Biological Sciences Scholarship Donors and Recipients

2010 - 2011 Academic Year

A special thanks to our donors for their generous support of our students...

Ben and Eva Adelaja Student Leadership Prize

DONOR REPRESENTATIVE: Dr. Adesoji O. Adelaja
STUDENT: Elissa P. Nagy

Barry and Deborah Venezia Adler International Study Scholarship

DONORS: Dr. Barry Adler and Ms. Deborah Venezia Adler
STUDENT: Stacy Brody

David H. Agans Memorial Scholarship

DONOR: Mr. Franklin Pompper, Jr.
STUDENTS: Lauren A. Barron, Laura R. Chen, Elyse Conway, Michelle R. Huey, Christopher S. Krumm, Nicole M. Peterson

Philip and Ann Aines Endowed Fellowship

DONOR: Dr. Philip D. Aines
STUDENT: Kristy Longpre

Phillip Alampi Scholarship

DONORS: Mr. Richard J. Alampi, Mr. and Mrs. E. Brockett, Jr., The New York Farmers, Mr. Oakleigh Thorne
STUDENTS: Anson J. Ahne, Michael M. Broadbent, Helen W. Chandler, James V. Ciccone, Barbara E. Dutra, Jeffrey D. Esquillo, Michael G. Fontano, Michele M. Gomez, Julie Haas, Davis Huang, Kristen M. Johnson, Christopher G. Marciano, Mitesh S. Patel, Bryan S. Ramos

Bayer Environmental Science Scholarship

DONOR REPRESENTATIVE: Mr. Rich Hanrahan
STUDENT: Katelyn A. Venner

Anthony Nicholas Betances Memorial Scholarship

DONORS: Mr. and Mrs. Robert A. Betances, Mr. William K. Rhoads
STUDENTS: Amanda S. Cloke, Luisa Rodriguez

Jayanth Bhatt Memorial Scholarship

DONORS: Dr. and Mrs. Vimala P. Bhatt
STUDENT: John J. Daub

Eileen Brennan Graduate Scholarship Endowment in Plant Biology and Pathology

DONORS: Dr. Bruce B. Clarke, Dr. Eva Lindauer Pell, Dr. Barbara A. Zilinskas, Dr. Ann F. Rhoads, Mr. Eugene and Barbara Kutcher
STUDENT: Recipient To Be Awarded in Spring of 2011

Murray and Helen Buell Scholarship

DONOR: Dr. Kyle R. Barbehenn
STUDENTS: Shreya S. Amin, Kenneth G. Disbrow, Rebecca C. Freiday, Chelsea A. Goodwin, Lynnicia N. Massenburg

Linda Rudolph Burns Memorial Scholarship

DONOR: Mr. Frank R. Burns
STUDENTS: Brittney A. Kelly, Timothy A. Lum, Kevin J. Whitney

Dr. Kenneth and Mrs. Jane Charlesworth Endowed Scholarship in Teacher Education

DONORS: Dr. Kenneth and Mrs. Jane Charlesworth
STUDENTS: Krista Coleman, Glen Stewart

RUTGERS
School of Environmental and Biological Sciences

SCHOLARSHIP APPRECIATION DINNER 2010

Scarlet's Smithsonian Flyer, Design and Layout.

Scarlet Knight
AT THE SMITHSONIAN

Rutgers Institute of Marine and Coastal Sciences' undersea Slocum glider RU27, christened *Scarlet Knight* by the U.S. Integrated Ocean Observing System (IOOS), was launched from Tuckerton, New Jersey on April 27, 2009. For 221 days, scientists and students on both sides of the Atlantic navigated the *Scarlet Knight* 7,400 km eastward across the ocean.

Entering Spanish waters during the stormy North Atlantic winter, the *Scarlet Knight* was recovered off the coast of Spain by the Puertos del Estado research vessel *Investigador.* On December 9, 2009, the *Scarlet Knight* made safe landfall in Baiona, Spain, the first port visited by Columbus' vessel *La Pinta* upon its return from the New World in 1493.

A year to the date after *Scarlet* reached Spain, she was welcomed to the Sant Ocean Hall at the Smithsonian National Museum of Natural History as its newest exhibit. *Scarlet* is highlighted on the Smithsonian's Ocean Portal web site at: ocean.si.edu/ocean-news/underwater-robots-explore-ocean.

The photos to the right are from the induction ceremony celebrating this great collaborative mission. Photo descriptions are below.

First Photo: *Scarlet* proudly on display in her new home at the Smithsonian National Museum of Natural History.

Second Photo: Shere Abbott, representing the White House Office of Science and Technology Policy, delivers the welcome address to the Smithsonian guests before previewing the film about Scarlet's journey titled "Atlantic Crossing: A Robot's Daring Mission."

Third Photo: Representatives from Rutgers, NOAA, U.S. Navy, Teledyne Webb Research, the Smithsonian Institution, U.S. Department of Commerce, Puertos del Estado, and the White House join in on the ribbon cutting ceremony to officially welcome *Scarlet* into the Smithsonian National Museum of Natural History.

Fourth Photo: Rutgers undergraduate students chat with Fabien Cousteau about their involvement with *Scarlet's* Atlantic crossing mission and the importance of ocean exploration for future generations.

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School of Environmental and Biological Sciences

Kelly L. Watts, Associate Dean of Development
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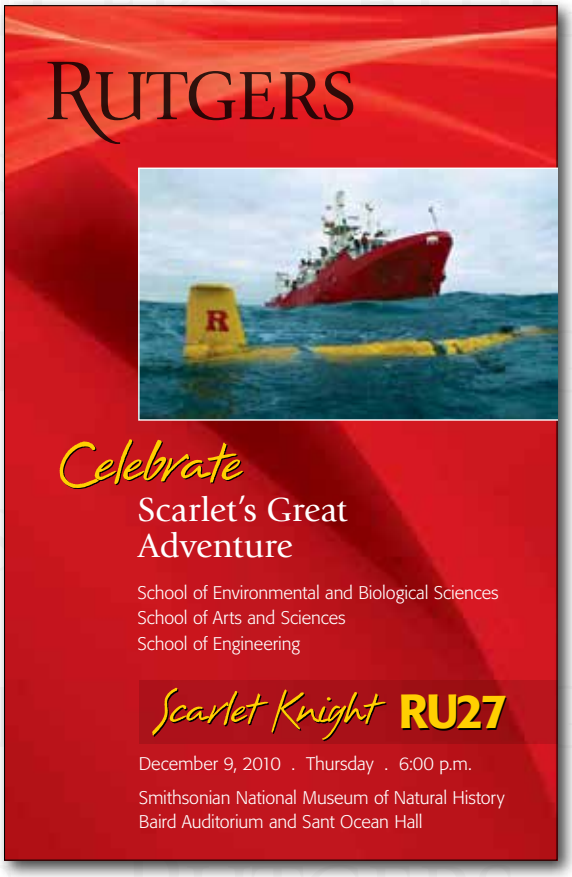
Scarlet's Great Adventure Event Program.



COLLABORATIVE EXPLORATION

The *Scarlet Knight's* successful Atlantic crossing is a historic demonstration of national and international collaboration. The partnership between Rutgers and Webb Research began in 1999, resulting in the first at-sea deployment of a Slocum glider by Doug Webb and then student Josh Kohut offshore Tuckerton, NJ. That partnership, initiated by the National Ocean Partnership Program, has been sustained by the Office of Naval Research, the National Science Foundation, the National Oceanographic and Atmospheric Administration, the Gordon & Betty Moore Foundation, and the Department of Homeland Security.

Ten years later, funded in part by a gift from a Rutgers alumnus, the Scarlet Knight was launched from the same port where Slocum gliders first went to sea. International partners at Puertos del Estado, the Universidad de Las Palmas de Gran Canaria, PLOCAN, and Qualitas in Spain and the University of the Azores in Portugal made possible the recovery in Spanish waters. This tradition of collaboration is the core of both the U.S. IOOS and the Global Earth Observation System of Systems.

Scientists from Spain and the U.S. return to the Investigador after first contact with the Scarlet Knight in Spanish waters.

Plaque on the seawall in Baiona, Spain commemorating the historic voyages of the Pinta and the Scarlet Knight.

Jersey Roots, Global Reach: Scientists, Captain and Crew aboard the Investigador pose for the recovery photo sent from sea to newspapers around the world.

THE CHALLENGER MISSION

The *HMS Challenger* began the first dedicated scientific circumnavigation of the globe in 1872, a response to the growing public debate on evolution. The British research vessel traversed 111,000 kilometers in 3.5 years, exactly 15 times the distance covered by the *Scarlet Knight*. At the *Scarlet Knight's* landfall ceremony in Baiona, NOAA presented the oceanographic community with another grand challenge: Pilot a coordinated international fleet of gliders along synchronized legs that revisit the historic track of the *HMS Challenger*.

As with the first Trans-Atlantic glider mission, a circumnavigation will require the use of new technologies like the energy harvesting Slocum Thermal glider. It will require the development of new international partnerships around the globe that link glider technology centers in the U.S. and Europe with new centers developing on other continents. Support to build and deploy this new fleet of ocean-class gliders, and scale up global glider technology centers, is crucial to the mission. Most importantly, it will require us to excite a new generation of global ocean explorers as we prepare to meet the challenges of our changing water planet.

Teledyne Webb's Slocum Thermal Glider deployed from the Virgin Islands and piloted by undergraduate summer interns.

Track of the HMS Challenger, the first scientific circumnavigation of the globe from 1872-1876.

Office Of Communications

Portfolio of Work

Spotlights for NJAES, Design and Layout by Kevin Paccione with Art Direction from Lori Casciano.

Office Of Communications

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Office Of Communications

Portfolio of Work

Spotlights for NJAES, Design and Layout by Lori Casciano.

Spotlights for SEBS, Design and Layout by Kevin Paccione.

Office Of Communications

Portfolio of Work

Spotlights for SEBS, Design and Layout by Kevin Paccione, with Art Direction from Lori Casciano.

Office Of Communications

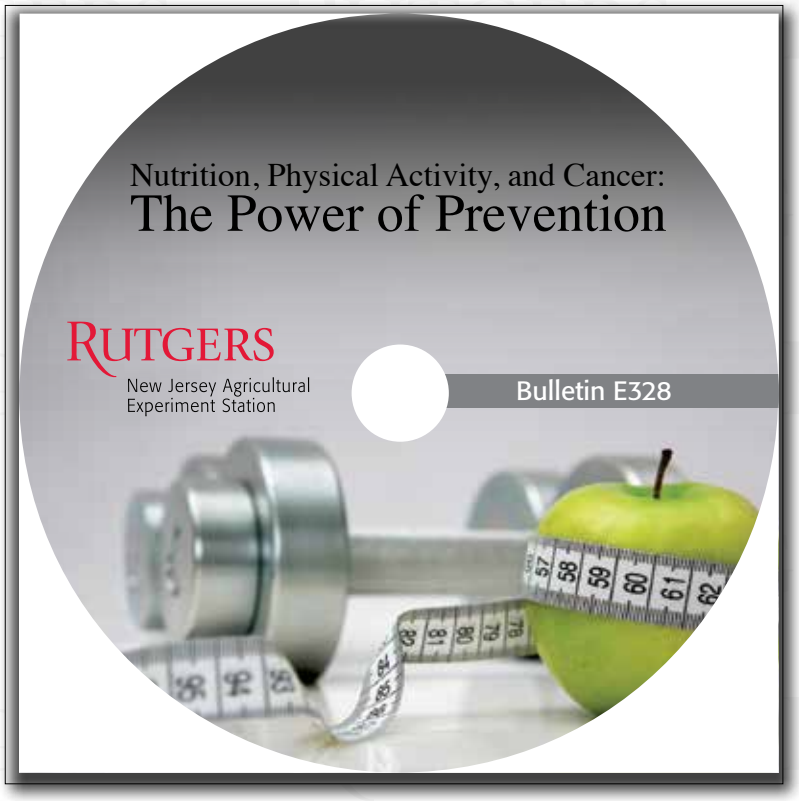
Portfolio of Work

Spotlights for SEBS, Design and Layout by Lori Casciano.

Office Of Communications

Portfolio of Work

NJAES Cooperative Extension, CD Art Design and Layout.



SEBS Admission Poster, Design and Layout Concept.

We Need a Headline to Place Right Here

Rutgers School of Environmental and Biological Sciences offers a unique learning experience both in and out of the classroom. Cooperative Education, research opportunities, and an outstanding student life and leadership program are all integral components of this unique school experience. The School of Environmental and Biological Sciences prepares students for professional school (medical, dental, veterinary medicine, and law), graduate study, and positions in government, industry, business, and health-related areas.

- Agricultural Science
- Animal Science
- Biochemistry
- Biological Sciences
- Bioenvironmental Engineering (Five Year Program)
- Biotechnology
- Chemistry
- Communication
- Ecology, Evolution and Natural Resources
- Environmental and Business Economics
- Environmental Planning and Design
- Environmental Policy, Institutions, and Behavior
- Environmental Sciences
- Exercise Science and Sport Studies
- Food Science
- Genetics
- Geography
- Geological Sciences
- Journalism and Media Studies
- Marine Sciences
- Meteorology
- Microbiology
- Nutritional Sciences
- Plant Science
- Public Health

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For more information, please visit sebs.rutgers.edu or call the Office of Academic Programs and Research at 732-932-3000, ext. 512

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Office Of Communications

Portfolio of Work

Update Logo

SGC

SEBS Governing Council

Serving School of Environmental and Biological Sciences Students

Name Tags

RUTGERS

Parents Association

Laurel Van Leer

2nd Vice President

CYFAR 8 x 8″ Information Card.

Jersey Roots, Global Reach: 4 H Climate Science Program

A Children, Youth, and Families At-Risk Sustainable Communities Project (CYFAR/SCP)

The Rutgers New Jersey Agricultural Experiment Station's Jersey Roots, Global Reach: 4-H Climate Science Program delivers programming in Camden and Newark, New Jersey, two urban, high at-risk communities, to help youth develop a greater understanding of global climate change and its impact on our local communities while addressing a variety of 4-H Science, Engineering and Technology areas. The overall objective is to teach students about the science, causes, and impacts of climate change.

This project is under the CYFAR/SCP program of the National Institute of Food and Agriculture. The program utilizes collaboration across Rutgers University, including Rutgers Cooperative Extension (administered through the Department of 4-H Youth Development) and disciplines of marine science, geography, and environmental science.

Climate change study is an ideal interdisciplinary theme for education. Focusing on the simple concepts and observations of climate science through fun, hands-on activities, the program addresses core curriculum science standards including scientific inquiry, data collection and analysis, examining evidence, and making predictions.

Youth will address climate change issues related specifically to urban communities, such as:

- Increase in temperatures in the cities.
- Increase in flooding and storm effects.
- Impact on human health.
- Changes in distribution of organisms including changes in growing season.
- Increase knowledge in climate change. This will include developing a community service project related to climate change issues in their community.



RUTGERS
New Jersey Agricultural Experiment Station

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Jersey Roots, Global Reach: 4 H Climate Science Program

Webinars conducted with experts in various topics related to the foci aided in the development of the scope, sequence, and identification of activities. The webinar topics include Understanding Climate Change, Effective Strategies for Afterschool Science Learning, Service Learning in Citizen Schools, and Developing a Scope and Sequence of Learning for Climate Literacy. Recorded webinar links are available as a resource at cyfar.rutgers.edu.

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1. Vanderhoof, R. I. & Vanderhoof-Forschner, K. M. B. Lyme disease: The cost to society. The Journal of the Actuarial Profession 5, 42-47 (1993). 2. Newcomb, J. Biology and Borders: SARS and the New Economics of Biosecurity. (Bio Economic Research Associates, Cambridge, MA, 2003). 3. http://www.horsecouncil.org/issues/Health%20and%20Research/West%20Nile.htm.

For more information, visit us at cyfar.rutgers.edu.

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Photo credits back page, (from l. to r.): Sharon Kinsey (photo 1), Dr. Linda Anthony (photo 2), and Chad Ripberger (photo 3).



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