New Jersey Agricultural Experiment Station
Rutgers Cooperative Extension

Plan of Work
Update
(FY 2005 – 2006)

Approval:

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Date: April 1, 2004

Introduction:

In New Jersey, agriculture and food are intrinsically linked. We have one unique "agricultural and food system" that encompasses the entire spectrum of activity from farm to fork. This extends from production activities on the farm to value-added processing after the farm gate to the health and well-being of the final consumers.

Our location creates the system's challenges and its comparative advantages. While our population density (the highest in the nation) exerts pressure on the agricultural production sector, it provides easy access to consumer markets and unique niche market opportunities. Within the food manufacturing sector, high labor costs and stringent regulations are balanced against access to a highly trained workforce and efficient transportation. All of our activities exist within a metropolitan and suburban residential context, but are also juxtaposed to pristine natural environments like the New Jersey Pinelands and the Atlantic Highlands as well as to restored environments like the Hackensack Meadowlands.

Whether it be preserving our rich and diverse agricultural tradition as "The Garden State," or helping our farmers, food processors and agribusinesses cope with complex technical and regulatory issues, or enhancing the quality of life for the diverse populations within our State, the New Jersey Agricultural Experiment Station (NJAES) focuses on innovative approaches to applying the land grant model in support of an agricultural and food system at the urban/suburban fringe. In fact, other states can learn from NJAES as they begin to confront challenges that we are addressing today.

Our process for the generation and transfer of knowledge and technologies is best viewed as a continuum in an integrated system. At Rutgers, we call this integrated system NJAES/Cook College, a dynamic research, education and outreach entity which is greater than the "sum of its parts". Through this integrated system, we deal with research problems and needs that are identified throughout the agricultural and food system. Needs assessment occurs at the grassroots level through our Cooperative Extension System, though our industry organizations, advisory boards, professional associations, and through our student body also play important roles. Research problems and needs, once identified as priorities, are addressed by our scientists and students. The research developments, findings and technologies are transferred through traditional and innovative mechanisms including educational and training programs, technology transfer, policy recommendations, and the formation of spin-off companies.

The needs of our diverse constituents are complex. Most of the issues we face are where the systems of food and agriculture, environmental resources and technology, and people and communities intersect. We deal with these issues within an *urbanized agricultural and food system.* Our success revolves around our ability to form partnerships that best address the complexities that are unique to New Jersey.

The goal of the NJAES/Cook College system is to use our agricultural and food base to foster economic development in New Jersey that will benefit communities, individuals and industries. Attaining this goal requires basic, applied and policy-oriented research, education and outreach. The impacts include economically successful and competitive producers in the global food and agricultural industry, an adequate supply of healthful food, a healthy and well-nourished population, a balanced and thriving ecosystem with environmentally-sustainable industries, and enhanced economic opportunity and quality of life for all New Jersey residents.

Planned Programs:

Function	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5
1862 Integrated Research & Extension	Program 1*: Foster an agricultural and food system that is highly competitive in the global economy*	Program 2: *A safe and secure food and fiber system*	Program 3: *A healthy, well-nourished population*	Program 4: *Greater harmony between agriculture and the environment*	Program 5: *Enhanced economic opportunity and quality of life for Americans*

Our integrated programs include both research and extension activities. Our proposed allocated resource budgets include federal, state, and local funds in addition to grant funding in order to reflect the depth and relevance of our programming. Cited budget figures reflect overall programmatic allocations and are not the basis for accounting or auditing purposes. The FTE units cited in the allocated resources for each program area are equivalent to scientist years for research and professional years for extension. This Plan of Work is part of a dynamic process and this document may change as our related strategic planning process unfolds over the coming.

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Program #1:

Foster an agricultural and food system that is highly competitive in the global economy

Statement of Issue:

As producers continue to experience high land prices, the highest property taxes in the nation, stringent environmental regulations, and high labor costs, our research and extension programs are tailored to their needs. By creating and capitalizing upon unique market opportunities and exploring agricultural innovations, our work will increasingly have value beyond the borders of New Jersey.

Performance Goals:

Enhance profitability and viability of targeted producers within the agricultural and food system in New Jersey.

Output Indicators:

- Development of new value-added products (including plant varieties and food products)
- Development of new uses of commodities and functions of foods
- Development of new knowledge and technology that enhances the value of existing products
- Development of new technologies that reduce production costs
- Creation of agricultural innovation centers

Outcome Indicators:

- Agricultural and food products sold in new markets
- New types of agricultural and food enterprises
- Reduced production costs of targeted producers throughout the agricultural and food system
- Increased viability of agriculture-related businesses

Key Program Components:

- NJAES Food Industry Research and Extension Center
- Plant and animal production system performance
- New foods and food processing technologies
- Market opportunities for new and existing agricultural and food products

Descriptions:

- New Jersey Agricultural Experiment Station (NJAES) created Food Industry Research and Extension (FIRE) to provide solutions to the challenge of remaining viable in the future. Through educational seminars and its Food Business Incubator, this center provides farmers with an opportunity to create new businesses based on value added agricultural products, developing new products and commercial opportunities. It is anticipated that well over 250 companies will benefit from this Center by its fifth year in operation, and over 1,000 new jobs will be created in the region by its eighth year of operation. Services offered by the Center are expected to translate into considerable economic development in the region. It is estimated that the return on public investment will be at least $5 for every $1 invested.

- New Jersey extension specialists continue ongoing work on field trials and evaluations of vegetable crops to develop new products and increased production for agricultural producers. Comprehensive applied research on vegetable crops has resulted in new disease resistant varieties.

- The Equine Science Center was created to serve as the center for applied research and provides educational and outreach services to the equine industry and horse owners. Researchers are working on the problem of early termination of pregnancy in mares and detection of "blood doping" in race horses.

- The cost of doing farming in New Jersey is high, for many reasons. To stay viable, farmers in New Jersey need value-added products. The New Use Agriculture and Natural Products Program (NUAANP) and Phytomedics, Inc. endeavor to find new uses for plants or plant derived compounds that serve as value-added products. NUAANP was created to investigate and use organic compounds and products that have flavor, aroma, and medicinal activity. This program includes a substantial international collaboration. Phytomedics, Inc. researchers investigate methods and types of plants that can produce high value, plant-based pharmaceuticals.

- Farmers' markets provide an excellent marketing channel for small producers to sell directly to consumers and realize more favorable prices for their products compared to traditional wholesale market. Further, these markets allow small volume producers to directly serve specialized and niche market segments (e.g., customers for organic products) for which the volume is not large enough to support a wholesale market. Consumers also find these markets as convenient places to purchase produce fresh from the growers. Researchers identify the farmer characteristics and farm activities associated with higher profitability and farmer satisfaction from farmers' market operations. The results of this study suggest that farmers' profitability is enhanced through catering to niche markets such as that for organic products. Similarly, greater utilization of the direct marketing (e.g., via farmers markets) also help increase profit margin and hence farmer satisfaction. Although the survey found the majority of the farmers participating at farmers' markets to be satisfied with the profit margin, direct retailing to consumers through these off-farm outlets involve considerable investment in terms of labor, time, and equipment.

Internal and External Linkages:

Partnerships will continue with federal, state and local agencies, other universities, and the private sector, as appropriate to this performance goal. We will focus on shared responsibilities for the agreed objectives and use joint ventures with industry to facilitate technology transfer. Selected ongoing examples include:

- Center for Advanced Food Technology
- The Biotechnology Center for Agriculture and the Environment
- Institute for Marine and Coastal Studies
- NJ Turfgrass Association
- New Jersey Nursery & Landscape Association
- Linkages with numerous state and federal agencies such as USDA (ARS, AMS), Department of Defense, NASA, NJ Department of Agriculture, NJ Farm Bureau
- Vegetable Growers Association of NJ
- Blueberry-Cranberry Research Council
- County Colleges in several NJ counties
- Mid-Atlantic Consortium
- NJ Food Industry Alliance
- Center for Environmental Prediction

Targeted Audience

- Agricultural and food producers and processors
- Brokers and retailers in the agricultural and food system
- Producers in nursery, turfgrass, ornamental horticulture, and floriculture
- Horse owners, caretakers, boarding facility personnel
- Greenhouse growers
- Irrigation professionals
- Professionals associated with marine, crop, livestock, and turf, ornamental producers
- Agriculture- and marine-business personnel
- Fishermen/fisherwomen
- Forestry professionals
- Migrant farm workers
- Agricultural service industry workers
- Wholesale and retail florists

Program Duration: 5 years

Allocated Resources: ($ x 1000; [FTE= units])

Type	Current (FY 1999)	FFY 2000	FFY 2001	FFY 2002	FFY 2003	FFY 2004	FFY 2005
Research Hatch Only SY	$10,383 $ 1,373 [34]	$10,695 $ 1,373 [34]	$11,016 $ 1,373 [35]	$11,346 $ 1,373 [35]	$11,687 $ 1,373 [36]	$12,037 $ 1,373 [36]	$16,659 $ 1,403 [36]
Extension Smith- Lever Only FTE	$5,000 $1,450 106]	$5,150 $1,450 [106]	$5,305 $1,450 [106]	$5,464 $1,450 [106]	$5,628 $1,450 [106]	$5,797 $1,450 [106]	$5,919 $ 608 [92]

Program #2:

A safe and secure food and fiber system

Statement of Issue:

New Jersey agricultural and food producers and processors are closely linked to our consumers. With seventy percent of the nation's major food manufacturing firms having headquarters or research facilities within a 100 mile radius of NJAES, production, processing, and distribution issues are of primary importance. They contribute towards a safe and secure agricultural and food system in our State. Due to recent events, biosecurity is of increasing importance to agriculture. As our entrepreneurial farmers capture increased value by moving into small-scale processing on farms and in fisheries, the need for improved food safety technologies and training for food handlers increases. A sizeable number of small-scale food processors thrive on the manufacture of foods tailored to meet the needs of a local consumer markets. A significant proportion of our residents live at or below the poverty line and do not attain even the most basic daily nutritional requirements. Access to a safe, healthful and affordable food supply is critical to the well being of this group. Emergency feeding networks and recovery efforts reach some of our most needy residents with programs that provide food security for families, many with children. This great diversity within the State forces us to design and deliver innovative programs that address widespread needs throughout our agricultural and food system from gate to plate.

Performance Goals:

Reduced risk of incidence of food-borne diseases

Improved access to the quantity and quality of food needed for an active healthy life

Output Indicators:

- Development of new methods to detect pathogens in food
- Changed food handling and preparation behaviors
- New knowledge and outreach (i.e. about biosecurity)
- Technological developments to enhance food safety
- Increased distribution of food targeted to limited-resource populations
- Technological developments to extend the shelf-life of selected fresh and processed foods

Outcome Indicators:

- Reduced incidence of food-borne risks and diseases
- Increased knowledge and education about biosecurity
- Increased access to food by limited-resource populations

Key Program Components:

- New or improved food processing and packaging technologies to enhance food safety
- New detection methods for pathogenic micro-organisms and harmful chemicals
- Food handling and risk assessment
- New information and recommendations for prevention and response to bioterrorism

Project Descriptions:

- Cook College & NJAES has launched a Food and Agriculture Biosecurity Initiative (FABI) to study and make recommendations for prevention and response to bioterrorism. The group coordinates and builds collaborations at Cook College & NJAES and among private, government and academic institutions that are contributing to efforts to anticipate, prevent and better understand bioterrorism. They sponsored three satellite conferences to help the food industry comply with the Bioterrorism Preparedness and Response Act of 2002 and a statewide conference on biosecurity that addressed first and emergency response systems for farm and domestic animals.

- Fruit and vegetable buyers have concerns about microbial contamination which could threaten the market. Extension specialists and agents have developed educational programs and strategic collaborations to address this threat to the fresh produce chain.

- NJAES delivers a multi-faceted food security program to meet the diverse needs of N. J. consumers. This program includes activities to link N. J. growers with school lunch and summer feeding programs, youth farmstands which bring fresh produce to urban areas while at the same time providing workplace skills to urban youth, and the production of produce in community based gardens and greenhouse operations.

Internal and External Linkages:

Partnerships exist and will continue with federal, state and local agencies, other universities, and the private sector, as appropriate to this performance goal. We will focus on shared responsibilities for the agreed objectives and use joint ventures with industry to facilitate technology transfer. Selected ongoing examples include:

- Community food banks
- Restaurant associations
- Food Processors Institute
- Center for Advanced Food Technology
- USDA
- Department of Homeland Security
- New Jersey Department of Agriculture
- Hospitals
- NJ Department of Health
- NJ Food Council
- NJ Pest Control Association

Target Audiences:

- Livestock producers
- Dairy producers
- Food processors and handlers
- Food service operators
- All classes of bioterrorism responders
- Agricultural producers
- Agricultural service industry workers
- Targeted households
- Supermarkets
- Migrant farm workers

Program Duration: 5 years

Allocated Resources: ($ x 1000; [FTE= units])

Type	Current (FY 1999)	FFY 2000	FFY 2001	FY 2002	FY 2003	FY 2004	FFY 2005
Research Hatch Only SY	$1,743 $ 232 [6]	$1,795 $ 232 [6]	$1,849 $ 232 [6]	$1,904 $ 232 [7]	$1,961 $ 232 [7]	$2,020 $ 232 [7]	$2,080 $ 232 [7]
Extension Smith-Lever Only FTE	$215 $ 62 [3]	$221 $ 62 [3]	$228 $ 62 [3]	$235 $ 62 [3]	$242 $ 62 [3]	$249 $ 62 [3]	$713 $ 20 [5]

Program #3:

A healthy, well-nourished population

Statement of Issue:

New Jersey's residents run the gamut from those with the willingness and ability to pay for health-promoting dietary supplements to those who can barely afford the most basic nutritional requirements. Across the economic spectrum, consumers are confused and concerned about nutrition-related information available through the media. The agricultural and food system in New Jersey must serve the entire spectrum of consumers. Our food and pharmaceutical companies develop functional and medicinal foods that promote health and ameliorate specific disease conditions. Producers are supplying foods that meet basic dietary requirements as well as foods designed to enhance health and prevent disease. NJAES programs address this full spectrum with world class programs in food science, food technology, nutrition and community nutrition as well as the emerging field of nutraceuticals. The health of New Jersey residents is also impacted by disease vectors such as ticks and mosquitoes, and by toxins in the household. NJAES programs in entomology and environmental health contribute towards improving the health of all New Jersey residents through research, teaching and extension programs that address these issues.

Performance Goals:

Improved health for targeted populations

Output indicators:

- Improved dietary habits
- Better understanding of the relationships between diet and health
- Changed behaviors with respect to food choices, health choices and healthier lifestyles
- New technologies for producing and screening bioactive compounds

Outcome Indicators:

- Better nourished population
- Reduced incidence of diseases
- Improved health for targeted populations
- Food consumption patterns more consistent with good health
- Greater healthy lifestyle choices

Key Program Components:

- Relationships between food and human health
- Environmental hazards to human health and safety
- Vectors of human disease
- Factors influencing food consumption and health-related decisions

Descriptions:

- NJAES has mounted a major multi-disciplinary *Food, Nutrition and Health Initiative.* Research and Extension faculty from our Food Science, Nutritional Sciences, Plant Sciences, Family and Consumer Sciences, Agricultural, Food and Resource Economics Departments, in cooperation with other units within Rutgers and other institutions within the region, are working on this initiative.

- Antibiotic resistance has grown more problematic in recent years. Rutgers researchers identified compounds in cranberries that are effective in treating urinary tract infections, even when the responsible bacteria show antibiotic resistance.

- The West Nile virus has underscored the need for mosquito research and control. Researchers are analyzing the scope of the threat to human health. This program, originally designed to monitor mosquito vectors (including birds and deer) has expanded to new invasive mosquito-borne pathogen and collection surveillance data.

- Basic research into the mechanisms of lipid transport and the role of newly discovered fat cell proteins that regulate fat storage may provide promising leads for the development of new anti-obesity drugs; and data about how calorie restriction and diabetes affects the rate of bone turnover in overweight women is showing that premenopausal women (unlike postmenopausal women) do not lose bone mass due to moderate weight loss and that calcium supplementation is beneficial in both groups of women. In addition, new insights are helping scientists understand how early nutrition is related to later risk for obesity and diabetes, and may lead to new methods for treating children who have suffered undernutition in early childhood. Explorations into how diabetes affects sweet taste, food cravings and dietary compliance is improving the treatment for gestational diabetes, which creates greater risk for poor fetal outcome and for developing Type 2 diabetes later in life.

Internal and External Linkages:

Partnerships exist and will continue with federal, state and local agencies, other universities, and the private sector, as appropriate to this performance goal. We will focus on shared responsibilities for the agreed objectives and use joint ventures with industry to facilitate technology transfer. Selected ongoing examples include:

- The Nutraceuticals Institute (with Saint Joseph's University and Rutgers Campus at Camden)
- Rutgers University, College of Pharmacy
- New Jersey Farm Bureau
- Dairy Council
- Food Stamps
- NJ Nutrition Council
- ISLES, Inc.
- NJ Department of Labor
- NJ Department of Health
- Dietetic programs in others colleges and universities
- Housing Authorities
- NJ Mosquito Control Commission
- WIC

Target Audiences:

- Dietitians
- Nutritionists
- Pregnant teenagers
- Young mothers
- Senior citizens
- Local health officials
- Limited resource residents
- Food industry personnel
- Consumers

Program Duration: 5 years

Allocated Resources: ($ x 1000; [FTE= units])

Type	Current (FY 1999)	FFY 2000	FFY 2001	FFY 2002	FFY 2003	FFY 2004	FFY 2005
Research Hatch Only SY	$1,650 $ 127 [5]	$1,700 $ 127 [5]	$1,751 $ 127 [5]	$1,803 $ 127 [6]	$1,857 $ 127 [6]	$1,913 $ 127 [6]	$1,970 $ 139 [6]
Extension Smith-Lever Only FTE	$515 $149 [9]	$530 $149 [9]	$546 $149 [9]	$563 $149 [9]	$580 $149 [9]	$597 $149 [9]	$984 $ 32 [19]

Program #4:

Greater harmony between agriculture and the environment

Statement of Issue:

As the most densely populated state in the country, New Jersey is experiencing environmental problems sooner and more severely than other states. We are challenged with issues related to air, land, and water and to attaining an efficient balance between production activities, the environment, and human health. In addition, agriculture plays a pivotal role in open space preservation, enhancing the quality of life for all our residents. New Jersey has the potential to serve as a model of how to achieve greater harmony between agriculture and the environment. Our State is a microcosm of both the challenges faced at the agricultural/environmental interface and the mutually beneficial solutions that are possible.

Performance Goals:

Reduced pollution from the production of agricultural and food products

Increased use of biological solutions to enhance environmental quality

Maintaining agricultural open space

Output Indicators:

- New environmental technologies
- Technological adoption
- Adoption of practices to improve and enhance agricultural nutrient management and the efficiency of nutrient use
- Waste reduction, reuse and recycling
- Adoption of integrated pest management practices
- New policy techniques to maintain open space

Outcome Indicators:

- Reduced pollution
- Achieve acceptable levels of waste streams that could have potential for re-use
- Achieve acceptable levels of nutrient run-off
- Reduced use of pesticides
- More environmentally-sustainable industries
- Reduced rates of conversion of agricultural land to non-agricultural use

Key Program Components:

- Biological and integrated pest management strategies
- Migration, degradation, and bioavailability of pollutants in natural environments
- Biological approaches to environmental remediation technologies
- Ecosystem sustainability and biodiversity
- Waste management
- Water use and conservation
- Farmland retention

Descriptions:

- A major focus in New Jersey has been in biological and integrated pest management. We have GIS and GPS technologies to identify site-specific targets for the use of biological pesticides guided by IPM practices. In addition to extensive IPM programs in traditional crops such as fruits, vegetables and field crops, we have planned and implemented IPM programs for landscape plantings including turfgrass. The "Best Management Practices for Turf Systems in the East" research and extension program will help golf course superintendents make informed choices and should improve their ability to manage new cultivars when they are established.

- Scientists from the Center for Urban Restoration Ecology (a collaborative center of Rutgers and the Brooklyn Botanic Garden) have been using the Fresh Kills Landfill as a demonstration site for how to best restore native vegetation to degraded public land. Currently, they are testing the ability of different plants to support invertebrates and other animal life at the site.

- Cook College & NJAES strategically hired an extension specialist in water quality to tackle the numerous water quality issues in the state. He identifies problems, designs solutions, finds funding sources, oversees the permitting process, and explains to communities why the restoration projects are important.

- Cook/NAJES' Water Quality Initiative created a Stormwater Management Education and Outreach Program to help municipalities minimize the costs of compliance, and the resulting tax burden, through education and outreach efforts.

Internal and External Linkages:

Partnerships exist and will continue with federal, state and local agencies, other universities, and the private sector, as appropriate to this performance goal. We will focus on shared responsibilities for the agreed objectives and use joint ventures with industry to facilitate technology transfer. Selected ongoing examples include:

- The Biotech Center for Agriculture and the Environment
- Institute for Marine and Coastal Studies
- NJ EcoComplex (with Stevens Institute of Technology)
- NOAA, NASA, USGS, NRCS, Department of Interior, EPA, NJ DEP
- NJ Corporation for Advanced Technology
- Nature Conservancy
- NJ Pinelands Commission
- NJ Higher Education Partnership for Sustainability
- Private foundations
- Brooklyn Botanical Gardens
- NJ Farm Bureau
- County Boards of Agriculture

Target Audiences:

- Agricultural producers
- Waste haulers
- Planning officials
- Environmental regulators
- Environmental consultants
- Utilities
- County & local utilities authorities
- County & local recycling coordinators
- Health officials
- Wildlife managers
- Homeowners
- Parks and recreation personnel
- Policymakers
- Grower organizations
- Environmental technology companies
- Site remediation companies
- Industrial ecology managers
- Process management engineers in manufacturing industries
- Environmental compliance managers
- Environmental auditors
- Pollution prevention managers
- Quality control managers
- Environmental attorneys
- Industrial hygienists
- Occupational Health & Safety managers

Program Duration: 5 years

Allocated Resources: ($ x 1000; [FTE= units])

Type	Current (FY 1999)	FFY 2000	FFY 2001	FFY 2002	FY 2003	FY 2004	FFY 2005
Research Hatch Only SY	$6,064 $ 923 [17]	$6,246 $ 923 [17]	$6,433 $ 923 [18]	$6,626 $ 923 [18]	$6,825 $ 923 [19]	$7,029 $ 923 [19]	$7,029 $ 923 [19]
Extension Smith-Lever Only FTE	$773 $224 [14]	$796 $224 [14]	$820 $224 [14]	$845 $224 [14]	$870 $224 [14]	$896 $224 [14]	$2,808 $ 210 [44]

Program #5:

Enhanced economic opportunity and quality of life for Americans

Statement of Issue:

New Jersey is home to a mosaic of many ethnic communities with large numbers of recent immigrants. This cultural richness generates a diversity of needs. Demographic and socioeconomic factors such as an aging population, changing employment conditions, poverty, health, family structure, caregiver needs, and indebtedness all create uncertain futures for individuals, families, communities, agricultural and food producers and small business owners.

Performance Goals:

Reduced unemployment and underemployment for targeted audiences
Enhanced opportunities for improving overall quality of life for targeted audiences

Output Indicators:

- Enhanced employability
- More effective interpersonal skills for families
- Increased opportunities to develop leadership skills
- Enhanced character development

Outcome Indicators:

- Reduced poverty
- Reduced dysfunction in the family
- Increased sense of community

Key Program Components:

- Workforce development
- Community revitalization and leadership development
- Character development

Descriptions:

- The Rutgers Cooperative Extension Arboriculture Training and Internship Program is a state-wide youth training program. It is the workforce preparation component of the New Jersey Youth Corps serving at-risk youth in New Jersey.

- There is an increasing need for understanding, tolerance, and communication about differences. The C.O.L.O.R.S. participants encountered situations arising in their own diverse group that tested their patience, tolerance, and conflict resolution skills. They shared a sense of accomplishment in overcoming challenges and reaching their goals.

- The 4-H Youth Development Program uses experimental learning methods to engage youth grades K-13 in educational programs focused on science literacy and environmental stewardship, character development, community youth development and healthy lifestyles. 4-H educators and caring adult volunteers and teen volunteers share their skills to make a difference in the lives of the 67,367 youth who participate in the program.

Internal and External Linkages:

Partnerships exist and will continue with federal, state and local agencies, other universities, and the private sector, as appropriate to this performance goal. We will focus on shared responsibilities for the agreed objectives and use joint ventures with industry to facilitate technology transfer. Selected ongoing examples include:

- Local school Boards of Education
- Departments of Parks and Recreation (local, county, state)
- Grassroots organizations
- NJ Economic Development Authority
- Local media outlets (print, audio/video, television, and electronic)
- Library systems
- Juvenile Justice Commission
- Office on Aging
- Housing authorities
- Youth-serving organizations
- NJ Department of Health
- Regional economic development entities
- Center for Risk Communication

Target Audiences:

- Communities and households
- Schools
- Retirement homes
- Home health aides
- Limited resource homemakers
- Pregnant teenagers
- Youth
- Older adults
- Caregivers
- Adults engaged in pre-retirement decisions
- Educators
- Public health workers
- Small business managers
- Parents

Program Duration: 5 years

Allocated Resources: ($ x 1000; [FTE= units])

Type	Current (FY 1999)	FFY 2000	FFY 2001	FFY 2002	FFY 2003	FFY 2004	FFY 2005
Research Hatch Only SY	$836 $ 43 [2]	$861 $ 43 [2]	$887 $ 43 [2]	$914 $ 43 [3]	$941 $ 43 [3]	$970 $ 43 [3]	$1,000 $ 47 [4]
Extension Smith-Lever Only FTE	$3,697 $1,072 [78]	$3,808 $1,072 [78]	$3,922 $1,072 [78]	$4,040 $1,072 [78]	$4,161 $1,072 [78]	$4,285 $1,072 [78]	$2,321 $ 281 [45]

Stakeholder Input Process:

NJAES/Cook College has several mechanisms for stakeholder input which are used on a regular basis to inform decision-making. Over the coming year as we monitor and review this updated Plan of Work, we will put into place additional processes that feed input directly into the Plan of Work from our existing and diverse stakeholder input mechanisms.

Strategic Planning

NJAES/Cook College programs continued to be guided by the Strategic Planning for Cook College and NJAES document that was implemented in 2001. The strategies and recommendations from the guiding document continue to be put into practice. Within the next year, a review of the original Strategic Plan will be completed, as we move towards beginning the process of updating the current plan.

As discussed more fully below, Rutgers Cooperative Extension has recently engaged in a strategic planning process that involved extensive stakeholder input. This effort resulted in the document "RCE 2000: Investing in People for the Future."

NJAES/Cook Board of Managers

NJAES/Cook College has a formal stakeholder input mechanism mandated by the State of New Jersey. The NJAES Board of Managers is an advisory group appointed by the Rutgers University Board of Governors based on nominations by each County Board of Agriculture. The Board thus provides representation from the agricultural community from all 21 counties in the State. It also includes representatives from six other major constituencies related to the Cook/NJAES mission: environment, biotechnology, marine science, food science, community resources, and public policy. Through its regular formal meetings and committees, this Board provides input and advice to NJAES/Cook College. The Board of Managers is important in making the appropriate links with key players in the State's agricultural and food system, and enhancing our understanding of the system's needs so that our programs better serve the State.

The Board of Managers has research, extension and teaching committees which provide valuable input directly to the respective deans, faculty and staff. These committees are extremely helpful in defining initiatives, identifying resources, establishing linkages, and pro-actively addressing important issues essential to the successful development of NJAES/Cook College programs.

Departmental and Center Advisory Boards

Various academic departments and centers at NJAES/Cook College have constituent and industry advisory boards that inform decision-making at the departmental and center level. These advisory boards meet between one and four times a year, depending on the department or the center. They provide valuable technical inputs and links with constituents.

Rutgers Cooperative Extension Community Forums

Rutgers Cooperative Extension (RCE), as part of its recent strategic planning process (RCE 2000), used open community forums to obtain stakeholders input to identify future programmatic directions. In these forums, community leaders interacting with RCE faculty identified social, economic and demographic trends and their future implications for county residents. In addition to identifying resident needs, they also clarified how RCE could forge partnerships, linkages and collaborations with agencies and grassroots organizations.

After conducting these extensive sessions throughout the State, RCE faculty and constituents met to identify and prioritize statewide needs. Once statewide needs were developed, RCE returned to its constituents to verify their interpretation and prioritization. An ongoing process with stakeholder groups and county extension advisory boards monitors RCE progress towards the strategic goals that were identified.

NJAES Revitalization Initiatives

In 2000, we created an internal grants program, designed to deliver multidisciplinary, stakeholder responsive research and extension programs that serve our state and abroad. Recognizing the value and need for stakeholder driven research and extension program, the Program Enhancement Grant (PEG) program was created to support and develop programs that demonstrate stakeholder-driven needs. These PEG grants provided significant funds (up to $250,000/5 years) for the top proposals in this internal competitive grants program. Another internal grants program, the Rapid Response Grants Program, was designed to support combined research and extension projects or programs that served an immediate need or emergency situation. The purpose was to deliver information in a rapid manner, to the relevant stakeholders. Lastly, the Outlying Station Capacity Building Grants were created to support those stakeholder driven programs at our outlying stations, which are intimately involved with growers, industry, local governments and citizens. This program has spearheaded the promotion of collaborations among faculty members that do not traditionally collaborate.

Presently, depending on funding, we are proposing a new needs-driven, multidisciplinary, problem solving grants program: the NJAES Research Supports Grants Initiative. This initiative stresses collaboration with the broader university and public community, providing a continuum of basic research, applied research to outreach.

Future Processes

Presently, and in the coming year, we are reviewing our strategic plan and the progress that has been made as a result of the recommendations of the original plan. Many of the objectives have been met. Another task is to update the strategic plan, or write a new one, to better reflect the needs of the college community and stakeholders. NJAES/Cook is due for an updated strategic plan for the first decade of the new millennium. We will commence this process over the coming year with our faculty, constituents and stakeholders. This Plan of Work will be an important input. The planning process will also help us to revise and strengthen the Plan of Work.

Program Review Process:

Merit Review

Currently, all new Extension and Research initiatives and programs are reviewed by the respective NJAES Board of Managers committees. The Extension and Research committees of the Board of Managers have been functioning for the past two years and have served as informal agents of merit review. In addition, Rutgers Cooperative Extension county advisory committees review county-based programs.

A more formal structure will be implemented to provide a broad-based merit review process. While the final structure will be determined in the coming year as part of the stakeholder input process, we are currently planning a merit review sub-committee appointed by the Board of

Manager Research and Extension Committees. In addition to this level of review, Cooperative Extension Advisory committees and boards will review the programs for relevance in addressing local needs.

Scientific Peer Review

A scientific peer review process assesses the technical merits of our programs. This current process is described below.

Upon receipt of each project proposal package endorsed by the department chair, NJAES reviews it with respect to the following:

- Completeness of the proposal
- Completeness of the departmental review, and the endorsement of the department chair
- Appropriateness of the proposed research to the research mission, goals, and programs of the NJAES
- Overall feasibility of conducting the research should the project be approved

When a proposal satisfies the above criteria, it is then sent for an external peer review.

Two scientists from outside NJAES who are known to be qualified to review a given proposal are selected. Copies of the proposal and a *"Peer Review Rating Form"* are transmitted to each reviewer. Reviewers are asked to rate and comment on various aspects of the technical and scientific merit of the proposed research including the following:

- Clarity and completeness of the objectives as a logical statement of the aims of the proposed research
- Clarity and completeness of the procedures, work plans, and methods to be used to attain the stated objectives
- Appropriateness of the research design, sampling plan and data analysis
- Feasibility of accomplishing objectives within the planned duration of the project
- Demonstration of an awareness of the current state of knowledge in the subject under consideration
- Overall quality and scientific value of the proposed research

When general agreement exists among the external reviewers that one or more major deficiencies exist, the proposal with the reviewers' ratings and comments is returned to the originating department.

When a project proposal receives generally favorable ratings by external reviewers, or when acceptable modifications have been made by a principal investigator to a proposal originally judged to be deficient, the modified proposal is approved as an NJAES project.

Multi-state Research and Extension Activities:

Hatch Multi-state Research

HATCH MULTI-STATE RESEARCH FOR THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION:

			National Goal
DC304	Fruit and Vegetable Supply-Chain Management, Innovations, and Competitiveness	NJ, OH	1- 50% 2- 50%
NC125	Biological Control of Soil-and Residue-Borne Plant Pathogens	IA, IL, IN, KS, MI, MN, ND, NE, NJ, NYC, OH, WI	4
NC temp1082	Biological Control of Soil-and Residue-Borne Plant Pathogens	IA, IL, IN, KS, MI, MN, ND, NE, NJ, NYC, OH, PA	4
NC136	IMPROVEMENT OF THERMAL PROCESSES FOR FOODS	CA-D, DE, FL, GA, GU, IA, ID, IL, IN, MI, MO, NC, ND, NE, NJ, NYC, NYG, OH, OR, PA, SD, TX, WA, WI, Food and Drug Administration, National Center for Food Safety & Tech./Illinois Institute of Technology, USDA-CSREES-PAS	1
NC140	ROOTSTOCK & INTERSTEM EFFECTS ON POME & STONE FRUIT TREES	AR, CA-D, CO, GA, IA, IL, IN, KY, MA, MD, ME, MI, MN, MO, NC, NJ, NYG, OH, OR, PA, SC, TN, UT, VA, VT, WA, WI, Agriculture & Agri-Food Canada, INAFAP, Southwest Missouri State University, USDA-ARS, USDA/Cornell University, University Auton.De Chih, University of California - Kearney Agric. Center, University of Guelph	1
NC 1001	Systems Analyses of the Relationships of Agriculture and Food Systems to Community Health	IA, MA, MI, MN, MS, NJ, NYC, OH, PA, TX, WA, California-Santa Cruz, Philadelphia School of Public Health	5
NC 1003	Impact Analysis and Decision Strategies for Agricultural Research	AL, AZ, CA-B, CA-D, FL, GA, IA, ID, IL, IN, KS, MD, MI, MO, MT, ND, NE, NJ, NYC, TX, VA, WI, International Food Policy Institute, Washington, DC, USDA-ERS/RED	5

NC 1167	N-3 Polyunsaturated Fatty Acids and Human Health and Disease	CO, IN, KS, MI, MN, MO, NE, NJ, TN, TX, WY, North Carolina - University of North Carolina	5
NE009	CONSERVATION & UTILIZATION OF PLANT GENETIC RESOURCES	CTH, DE, MA, ME, NH, NJ, NYC, NYG, PA, RI, National Germplasm Resources Laboratory, USDA, ARS, USDA-ARS	1
NE059	REGIONAL RESEARCH COORDINATION, NE REGION	CTH, CTS, DE, MA, MD, ME, NH, NYC, NYG, PA, RI, WVA	1,2,3,4,5
NE132	Environmental and Economic Impacts of Nutrient Management on Dairy Forage Systems	IL, IN, MA, MD, MI, NJ, NYC, OR, PA, UT, WA, WI, WVA, U of Penn, USDA-ARS/Pennslyvania, USDA-ARS/Wisconsin	1
NE183	Multi-disciplinary Evaluation of New Apple Cultivars	AL, AR, CTH, IN, MA, ME, MI, NC, NH, NJ, NYC, NYG, OH, OR, PA, UT, VA, VT, WA, WI, WVA	1
NE 186	GENETIC MAPS OF AQUACULTURE SPECIES	AL, CA-A, CTS, NH, NJ	1
NE 187	Best Management Practices for Turf Systems in the East	CTH, CTS, FL, MA, MD, ME, NJ, NYC, NYG, OH, PA, RI, USDA-ARS/Maryland	1
NE503	Development of an Improved Management Program for the Internal Lepidoptera Pest Complex Attacking Apples in the Northeastern United States	MO, NC, NJ, NYG, OH, PA, VA	4
NE 1001	Application of Sewage Biosolids to Agricultural Soils in the Northeast: Long-term Impacts and Benefit Uses	MA, NH, NJ, NYC, PA	4
NE 1005	Management of Wildlife Damage in Suburban and Rural Landscapes	CTH, DE, MA, MD, NJ, NYC, PA, VA, VT, WVA	4
NE 1006	Eradication, Containment and/or Management of Plum Pox Disease (Sharka)	AL, DE, GA, MA, NJ, NYG, PA, SC, WA, APHIS-PPQ-CPHST, USDA-ARS/Maryland, USDA-ARS/West Virginia, USDA/ARS-California, West Virginia State College	1- 50% 5- 50%
NE1012	Sustaining Local Food Systems in a Globalizing Environment: Forces, Responses, Impacts	CA-D, IA, MA, ME, MI, MN, MO, NH, NJ, NYC, OR, PA, PR, VT, WA, WI, WVA	5

NE 1013	Mechanisms of Plant Responses to Ozone in the Northeastern US	AL, CA-R, MA, MD, MN, NJ, NYC, PA, VA, Appalachian State University, Boyce Thompson Institute for Plant Research, USDA-ARS, USDA-ARS Air Quality Research Unit, USDA-ARS Environmental Quality Laboratory, USDA-Forest Service/CA	4
NE1014	Development of New Potato Clones for Improved Pest Resistance, Marketability, and Sustainability in the East	FL, ME, NC, NJ, NYC, OH, PA, VA	1
NE 1015	Biological Improvement, Habitat Restoration, and Horticultural Development of Chestnut by Management of Populations, Pathogens, and Pests	AL, CA-D, CTH, GA, KY, MA, MD, MI, MO, NJ, NYC, PA, TN, WVA, American Chestnut Foundation, Boyce Thompson Institute for Plant Research, Michigan State University, New York - Syracuse University, Tenn. Valley Auth., USDA-FS	4
NE 1017	Developing and Integrating Components for Commercial Greenhouse Production System	AZ, CTH, KY, NH, NJ, NYC, OH, PA	1
S290	Technical and Economical Efficiencies of Producing, Marketing, and Managing Environmental Plants	AL, DE, FL, GA, IL, IN, KY, LA, MI, MS, NJ, NYC, OH, OR, PA, RI, TN	1
S301	Development, Evaluation and Safety of Entomopathogens for Control of Arthropod Pests	AL, AR, AZ, CA-D, CA-R, CTH, DE, FL, GA, IL, KY, LA, ME, MN, NJ, NYC, NYG, OH, PA, SC, TN, TX, VA, VT,USDA-ARS/WA, Department of Agriculture, USDA, USDA Forest Service, USDA-ARS, USDA-ARS/Florida, USDA-ARS/Georgia, USDA-ARS/Maryland, USDA-ARS/Mississippi, USDA-ARS/ND, USDA-ARS/Ohio, USDA-ARS/TX	1- 50% 4- 50%
S 1004	Development and Evaluation of TMDL Planning and Assessment Tools and Processes	AL, AR, FL, GA, IA, IL, IN, KS, KY, LA, MD, MI, MN, NC, NJ, OK, OR, SC, TN, TX, VA, WVA, Alabama A&M University, North Carolina A&T University, USDA-ARS/Georgia, USDA-ARS/Pennslyvania, USDA-NRCS	4

W 1185	Biological Control in Pest Management Systems of Plants	AZ, CA-B, CA-D, CA-R, CO, GU, HI, ID, KS, MT, ND, NJ, NM, NYC, OR, SAM, UT, WA,USDA-ARS/WA, APHIS-PPQ-CPHST, CABI Bioscience Switzerland Centre Delemont, Switzerland, California Department of Agriculture, USDA ARS EBCL, USDA-ARS, USDA-ARS-Northern Plains Agricultural Research Laboratory, USDA-ARS/Arizona, USDA-ARS/WRRC	1

The following is a list of coordinating projects for the New Jersey Agricultural Experiment Station:

NCR 97	REGULATION OF ADIPOSE ACCRETION IN MEAT ANIMALS
NCR131	ANIMAL CARE & BEHAVIOR
WCC 20	VIRUS AND VIRUS-LIKE DISEASES OF FRUIT
NCR101	GROWTH CHAMBER USE
NCR22	SMALL FRUIT & VITICULTURE REGIONAL COMMITTEE
WRCC58	PRODUCTION, TRANSITION, HANDLING AND REESTABLISHMENT OF PERENNIAL NURSERY STOCK
WRCC99	BROODSTOCK MGMT, GENETICS AND BREEDING

The following multi-state projects with formal memoranda of understanding are on-going collaborations of research, extension and/or teaching:

Mid-Atlantic Regional Tree Fruit Research and Extension Program	MD, NJ, VA, WV, ARS
Regional Honeybee Project	DE, MD, NJ, PA, WV, USDA
Delaware Dairy MOU	DE, NJ
Nutraceuticals Institute	NJ, PA (St. Joseph's University)
Shellfish Aquaculture (Oysters)	NJ, VA
NEREAP-NAPIAP	Northeast States
NEREAP-IPM	Northeast States

Smith-Lever Multi-state Extension

MULTI-STATE EFFORTS FOR RUTGERS COOPERATIVE EXTENSION:

BLACK FLY CONTROL IN DELAWARE RIVER	NJ, PA
MIDATLANTIC DIRECT MARKETING	NJ, MD, DE, PA, VA, NY, NEW ENGLAND
NEREAP-IPM	NE STATES
NRAES	NE STATES
PENN JERSEY EXTENSION	NJ, PA
POA ANNUA CONTROL W/PROGRASS	NJ, PA
RISK MANAGEMENT FOR AG	NJ, DE, MD, PA, NY
TREE FRUIT MANUAL	NJ,DE
TRI-STATE ANNUAL HORTICULTURAL MTG	NJ, PA, DE
VEGETABLE MANUAL	NJ, DE, MD, VA,PA
EPA/CORNELL/RUTGERS ENVIRONMENTAL POSITION	NJ, NY, PR, VI
NATIONAL 4-H JURY REVIEW PROCESS	ALL 50 STATES
FIELD CROP PEST MANAGEMENT MANUAL	NJ, DE, MD, PA, VA, WV
NJ-DE WEED CONTROL MANAGEMENT	NJ, DE
MAAREC	PA, MD, WV, DE, NJ

Integrated Research and Extension Activities:

We focus on integrating research, extension and teaching. Faculty have joint research, teaching and outreach responsibilities. These responsibilities are reflected in two- or three-way line splits in order to provide for better service and accountability. Our integrated model allows us to provide comprehensive service to teaching and extension constituencies while lending relevance to our research program.

Faculty at our "Research and Extension Centers" are part of our integrated model. At these Centers, focused comprehensive research and extension activities occur in a comprehensive manner, providing constituents with better service and relevance.