

July 15, 1999

Charles W. Laughlin
Administrator, CSREES
USDA
Washington, DC 20250

Dear Dr. Laughlin:

Attached is our five-year Plan of Work for the New Jersey Agricultural Experiment Station. We are submitting an integrated research/extension/teaching plan that reflects our structure, budget and programs. We have included federal, state and local funds in addition to grant funds in our proposed allocated resources in order to reflect the depth and relevance of our programs. Since these are aggregate figures, they reflect programmatic priorities and emphasis and are not appropriate for accounting or auditing purposes. Allocations relevant for purposes of auditing will be provided at a later date. The FTE units cited in this section represent scientist years for research and professional years for extension activities. As you will see over the coming year, we use this Plan of Work throughout our wider strategic planning process.

Sincerely,

Bruce C. Carlton
Executive Dean
NJAES/Cook College

Zane Helsel
Director
Rutgers Cooperative Extension



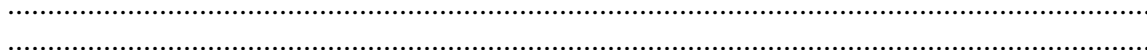
New Jersey Agricultural Experiment Station/Cook College

Plan of Work

Federal Fiscal Years

2000-2004

July 15, 1999



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NJAES/COOK COLLEGE PLAN OF WORK

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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: <i>Foster an agricultural and food system that is highly competitive in the global economy</i>	Program 2: <i>A safe and secure food and fiber system</i>	Program 3: <i>A healthy, well-nourished population</i>	Program 4: <i>Greater harmony between agriculture and the environment</i>	Program 5: <i>Enhanced economic opportunity and quality of life for Americans</i>

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.

Point of Contact:

All correspondence regarding this plan should be directed to:

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Program #1:

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

Statement of Issue:

The stressful context of the agricultural and food system in New Jersey necessitates innovation to survive. High land prices, the highest property taxes in the nation, stringent environmental regulations, and high labor costs are challenges that must be overcome by creating and capitalizing upon unique market opportunities and cost-reducing technologies. As other states move toward similar ends, our work will increasingly have value beyond the borders of New Jersey.

Performance Goals:

Enhance profitability 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

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

Key Program Components:

- New foods and food processing technologies
- Plant and animal genetic enhancements
- Biotic and abiotic stresses affecting plants
- Plant and animal production system performance
- Market opportunities for new and existing agricultural and food products

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:

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- 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
- 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

Linkages with numerous state and federal agencies such as USDA (ARS, AMS), Department of Defense, NASA, NJ Department of Agriculture, NJ Farm Bureau

Target Audiences:

- 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
Hatch	\$10,383 [34]	\$10,695 [34]	\$11,016 [35]	\$11,346 [35]	\$11,687 [36]	\$12,037 [36]
Smith-Lever	\$5,000 [106]	\$ 5,150 [106]	\$ 5,305 [106]	\$ 5,464 [106]	\$ 5,628 [106]	\$ 5,797 [106]

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. 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 (i.e. about pathogens)
- 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 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
- Non-market food distribution to insure security

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:

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- Community food banks
- Restaurant associations
- Food Processors Institute
- Center for Advanced Food Technology
- USDA
- 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
- 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
Hatch	\$1,743 [6]	\$1,795 [6]	\$1,849 [6]	\$1,904 [7]	\$1,961 [7]	\$2,020 [7]
Smith-Lever	\$ 215 [3]	\$ 221 [3]	\$ 228 [3]	\$ 235 [3]	\$ 242 [3]	\$ 249 [3]

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

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:

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- 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
Hatch	\$1,650 [5]	\$1,700 [5]	\$1,751 [5]	\$1,803 [6]	\$1,857 [6]	\$1,913 [6]
Smith-Lever	\$ 515 [9]	\$ 530 [9]	\$ 546 [9]	\$ 563 [9]	\$ 580 [9]	\$ 597 [9]

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

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
Hatch	\$6,064 [17]	\$6,246 [17]	\$6,433 [18]	\$6,626 [18]	\$6,825 [19]	\$7,029 [19]
Smith-Lever	\$ 773 [14]	\$ 796 [14]	\$ 820 [14]	\$ 845 [14]	\$ 870 [14]	\$ 896 [14]

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:

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

Output Indicators:

- Enhanced debt management skills
- Enhanced employability
- Increased competence of caregivers in providing quality care
- Reduced household environmental hazards
- More effective interpersonal skills for families
- Increased opportunities to develop leadership skills
- Enhanced character development

Outcome Indicators:

- Reduced debt
- Reduced poverty
- Improved quality of care for children, the elderly, others with special health needs
- Reduced dysfunction in the family
- Reduced negative health consequences from household environmental injuries or disease
- Increased sense of community

Key Program Components:

- Impacts of technological change and risk perception on individuals and communities
- Effective parenting and care giving
- Workforce development
- Community revitalization and leadership development

- Financial management
- Character development

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:

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- 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
Hatch	\$ 836 [2]	\$ 861 [2]	\$ 887 [2]	\$ 914 [3]	\$ 941 [3]	\$ 970 [3]
Smith-Lever	\$3,697 [78]	\$3,808 [78]	\$3,922 [78]	\$4,040 [78]	\$4,161[78]	\$4,285[78]

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 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 are continuously informed and guided by a series of planning and visioning documents generated, monitored, revised and updated with extensive stakeholder input. *Vision 21: A Strategic Plan for Cook College/New Jersey Experiment Station* resulted from faculty, constituent and stakeholder input in October, 1987. Several of NJAES/Cook College's strong newer programs can trace their roots back to this planning document. *Vision 21* was revised and updated in *Planning for the 1990's: Program Priorities for Cook College and the New Jersey Agricultural Experiment Station*. This September, 1991 publication built upon the principal programs defined in 1987, applying them to emerging needs in the last decade of the 20th century.

In 1994, two additional documents contributed towards defining NJAES/Cook College priorities. *A Report of the FARMS Commission: Into the 21st Century Ensuring a Fertile Future for New Jersey Agriculture* was the result of extensive stakeholder input and set new directions for agriculture in New Jersey given the climate of global competition. (FARMS is an acronym for Future for Agriculture, Resources, Missions, Strategies) Growing out of *The FARMS Commission Report* and building upon *Planning for the 1990's*, our *Looking Forward: A Strategic Plan for the New Jersey Agricultural Experiment Station and Cook College* report further refined the direction of NJAES/Cook College under a new administration. *Looking Forward* was followed by *Moving Forward* in 1995 which reported on progress in our strategic plan. These NJAES/Cook College documents also fed into a University-wide strategic planning effort which resulted in the 1995 *University Strategic Plan*. This plan is continuously monitored and progress reports are published every two years. 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 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.

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.

Future Processes

In the coming year, we will begin a new strategic planning process. Information gathered in this process will inform the 5 year plan of work. In the past, we generally did not have the

research faculty well integrated with the constituents in the planning process. In our upcoming process, we will have faculty and constituents working together to identify needs and goals. We will also structure, organize and locate these sessions in ways designed to reduce barriers to participation by minorities and the handicapped who have been under-represented and under-served in the past.

Our process will include listening sessions followed by an integrating process that establishes statewide issues and provides opportunities for additional feedback from our constituents. Our Plan of Work will then be updated as necessary. A monitoring process will also be put in place to review progress.

Program Review Process:

Merit Review

The quality and relevance of our current and proposed programs and our progress towards our goals will be assessed by our Board of Managers Extension and Research Committees. This will give us broad-based merit review with representation across the State. 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 Plan 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.

Three 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:

NC136	IMPROVEMENT OF THERMAL PROCESSES FOR FOODS	NJ, CA, FL, IN, IA, MI, MN, MO, NE, NC, ND, OH, OR, PA, TX, WA, WI, NYC, NAT'L CTR FOR FOOD SAFETY & TECHNOLOGY
NC140	ROOTSTOCK & INTERSTEM EFFECTS ON POME & STONE FRUIT TREES	AR, CA, CO, GA, IL, IN, IA, KS, KY, MA, MD, ME, MI, MN, MO, NC, NJ, NYC, OH, OR, PA, SC, SD, TN, UT, VA, VT, WA, WI, WV
NC208	IMPACT ANALYSIS & DECISION STRATEGIES FOR AG RESEARCH	AL,CA,FL, GA, ID, IA, LA, MI, MN, MO, MT, NE, NJ, NYC, TX, VA, WI, ERS/USDA
NE009	CONSERVATION & UTILIZATION OF PLANT GENETIC RESOURCES	CTH, CTS, DE, ME, MD, MA, NH, NJ, NYC, PA, RI, VT, WV, USDA/ARS
NE059	REGIONAL RESEARCH COORDINATION, NE REGION	CTH, CTS, DE, MA, MD, ME, NH, NJ, NYC, PA, RI, VT, WV
NE123	FUNCTIONAL PROPERTIES OF FOOD PROTEINS	ARS, CANADA, KY, MI, MI, NJ, NC, NYC, OH, OR, PA, RI, WI
NE132	ENVIRONMENTAL & ECON. IMPACTS OF NUTRIENT FLOWS IN DAIRY FORAGE SYSTEMS	ARS, MD, MI, IL, ID, IN, NJ, NYC, OR, PA, UPENN, TN, WA, WI, WV
NE148	REGULATION OF NUTRIENT USE IN FOOD PRODUCING ANIMALS	CTS, DE, ME, NJ, NYC, NC, PA, MN, MD, CANADA, VT
NE164	CONTROLLED ENVIRONMENT & FACILITIES ENGINEERING FOR GREENHOUSES	CTS, MI, NE, NH, NJ, NYC, OH, PA
NE165	PRIVATE STRATEGIES, PUBLIC POLICIES & FOOD SYSTEM PERFORMANCE	AR, CA, CTS, FL, GA, IL, IN, IA, KS, LA, MD, MA, MI, MN, MT, NE, NH, NJ, NYC, NC, OH, RI, TX, WVA, WI, USDA/ERS, USDA/RBS, USDA/AMS, USDA/PSA, CDCP, FDA, GAD
NE169	INTEGRATED TURFGRASS MGMT. FOR ENVIRONMENTAL ENHANCEMENT & RESOURCE CONSERVATION	ARS, CTH, MA, MD, NV, NH, NJ, NYC, PA, RI, VA

NE171	BIOLOGICAL AND CULTURAL MGMT OF PLANT-PARASITIC NEMATODES	ARS, CTH, FL, MD, MI, NJ, NYC, PA, WV
NE176	CHARACTERIZATION & MECHANISMS OF PLANT RESPONSES TO OZONE IN THE N.E. U.S.	AL, MD, MA, MN, NJ, NYC, PA, TX, VA, BIT, USEPA, USDA/ARS
NE183	MULTIDISCIPLINARY EVALUATION OF NEW APPLE CULTIVARS	AR, CTH, GA, MA, ME, MI, MO, NC, NH, NJ, NYC, OH, OR, PA, VA, VT, WA, WI, WV, PA/RO-DALE, WV (USDA) CANADA
NE184	DEV. OF NEW POTATO CLONES FOR ENVIRONMENTAL AND ECONOMICAL SUSTAINABILITY IN THE N.E.	DE, FL, ME, NJ, NYC, NC, OH, PA, PEI, QUEBEC, VA, USDA/ARS/BARC
NE185	COMMODITIES, CONSUMERS AND COMMUNITIES: LOCAL FOOD SYSTEMS IN A GLOBALIZING ENVIRONMENT	CA, IA, KS, LA, ME, MI, MN, MO, NJ, NYC, NC, PA, PR, TX, WA, WWI, WALLACE INST FOR ALTERNATIVE AG
NE 186	GENETIC MAPS OF AQUACULTURE SPECIES	CT, ME, NH, NJ, AL, LA, VA, CA, WA, ARS, NONSAES:DE, HI, LA, MA, MS, MO, NC, PA, RI, VA, TX, WI, SCOTLAND, ENGLAND & JAPAN
S222	ECONOMIC ISSUES AFFECTING THE US FRUIT AND VEGETABLE SYSTEM	AL, CA, DE, FL, GA, ID, KY,LA, ME, MI,MS, NJ, NC, OK, TN, WA, NFAPP, USDA/ARS
S265	DEVELOPMENT & INTEGRATION OF ENTOPATHOGENS INTO PEST MGMT SYSTEMS	AL, AR, CA, CT, FL, GA, ID,IL, KY, LA, ME, MN, MS, NJ, NYC, NC, PRSC, TN, ARS
W130	FREEZE DAMAGE & PROTECTION OF FRUIT & NUT CROPS	ARS, CA, CO, FL, GA, IN, KS, LA, MI, MN, MS, MT, NJ, OR, UT, VA, WA, WI

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
MONEY 2000	Potential for all States
INVEST FOR YOUR FUTURE: A NATIONAL EXTENSION HOME STUDY COURSE	Potential for all States
NEREAP-FOOD SAFETY	NE STATES
NEREAP-IPM	NE STATES
NREAS	NE STATES
PATHWAYS WORKFORCE PREPARATION	NJ, NY, OCEAN SPRAY
PENN JERSEY EXTENSION	NJ Partnerships, 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
NATIONAL 4-H JURY REVIEW PROCESS	ALL 50 STATES

Other multi-state efforts over the next five years will be discussed in future supplements to this plan of work.

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.