

2015 Cornell University Research and Extension and NY State Agricultural Experiment Station Research Combined Plan of Work

Status: Accepted

Date Accepted: 07/14/2014

I. Plan Overview

1. Brief Summary about Plan Of Work

Cornell University Executive Summary - Plan

At Cornell University, Federal Formula Funds are administered strategically to address a wide range of issues in the state and foster integration of applied research and extension programming.

Cornell University Agricultural Experiment Station (CUAES), the New York State Agricultural Experiment Station (NYSAES), and Cornell Cooperative Extension (CCE) work collaboratively to determine planned programs that align with NIFA priority areas and direct funds to research and extension projects as well as those that integrate research and extension. The approach used to integrate the work of the experiment stations and Cooperative Extension is designed to serve the citizens of New York State and improve the human condition through excellence in scholarship; linking research, non-formal teaching and extension to real life challenges and opportunities. Director level staff in CUAES, NYSAES, and CCE meet regularly as an Integrated Program and Research Team (IPaRT) to discuss relevant issues, research and extension projects and new opportunities.

IPaRT recruits and communicates with a group of richly diverse research and extension stakeholders (referred to as the Program Council), who provide input and inform priorities for use of Federal Formula Funds. Program Council reviews proposals which have been submitted through an internal competitive process through which faculty may apply for federal formula funds for projects with research and extension components that match the current priorities. In addition, 31 active Program Work Teams comprised of extension educators, faculty, and stakeholders from across New York State work together to develop, implement, and evaluate priority programs.

This plan documents the intentional planned program for Federal Formula Funds. Planned Programs are addressed collectively by CUAES, NYSAES, and CCE. Planned programs represent priority areas drawn from the National Institute for Food and Agriculture. Each organization is described below to better explain our unique system at Cornell University:

Cornell University Agricultural Experiment Station

The CUAES links Cornell's world-class research facilities with one of the nation's most comprehensive statewide cooperative extension systems. Through this engaged, interactive system we address pressing issues that directly affect the health and welfare of the state and beyond. Many of today's most urgent societal concerns - from childhood obesity to invasive species to global climate change - are not bound by state or national boundaries.

With more than 130 years of experience identifying, quantifying, and responding to emerging issues in an ever-changing world, CUAES directs some of the most important projects in the state on a broad range of topics with six general themes: Global Food Security & Hunger; Youth, Family, & Community; Climate Change; Food Safety; Sustainable Energy; and Childhood Obesity.

The station also manages over 12,000 acres of farms and forests and seven farms, facilities and over 177,000 square feet of greenhouse space, providing critical research services to scientists. Our student-run farm, Dilmun Hill, which uses organic agricultural practices, is a model of a student-run agricultural operation that has been emulated by other organizations and universities. Every aspect of our operation - from staff development to forest management to farm equipment - is viewed through the lens of sustainability.

The Cornell University Agricultural Experiment Station:

- Manages more than \$5.5 million in federal Hatch grants, and in 2013 administered 209 active projects.
 - Annually distributes approximately \$1.5 million to new competitively reviewed projects. Federal formula grants are an essential element of Cornell's research portfolio, supporting applied research that benefits residents of the state, region, and the nation.
 - Manages an operational budget that is approximately \$3.5 million and employs 48 full-time staff including 41 in operations and seven in administration.
 - Operates seven farms with agricultural production and forest acreage across the state, from Willsboro on Lake Champlain to Long Island on the Atlantic Seaboard.

New York State Agricultural Experiment Station

Established in 1880, NYSAES in Geneva has existed for more than 130 years developing cutting-edge technologies essential to feeding the world and strengthening New York economies. The focus of both research and extension programs at NYSAES is on the production, protection and processing of horticulture food crops, turf and hybrid willow for renewable energy. While our programs have traditionally addressed global food security and hunger issues, the Experiment Station is also well positioned to address other challenges identified as high priorities by NIFA.

The New York State Agricultural Experiment Station:

- Operates on a budget that is approximately \$29 million with \$9.1 million funded through SUNY's base budget.
 - Employs 290 staff and 37 tenure-track professors.
 - Partners with Faculty and Extension Associates: on the range of 10 visiting scientists, 10 postdocs, 25 research and extension associates.
 - Extends research and knowledge through students. In recent years there have been 50 to 55 graduate students conducting masters and doctoral studies.
 - Encourages cross departmental/Research Association operations: Our four departments -- horticulture; plant pathology and plant-microbe biology; entomology and food science - have faculty in Geneva and Ithaca. The main focus is on improving the genetics, cultivation, production, protection, handling and processing of fruit and vegetable crops.
 - Partners with the Northeast Center for Food Entrepreneurship (NECFE), at the NY Food Venture Center at Geneva to provide assistance to over 200 food entrepreneurs annually, promoting sustainable economic development in rural communities.

Campus includes:

- U.S. Department of Agriculture's Plant Genetic Resources Unit (PGRU), responsible for the collection of apple, sour cherry and cold-hardy grapes and selected seed-propagated crops, such as onion, garlic, broccoli, cabbage and winter squash; and the Grape Genetics Resources Unit (GGRU), responsible for the national program on grape genetics and genomics.

- A central Geneva campus made up of 20 major buildings, several smaller buildings for farm machinery storage and similar purposes, and 3 houses with rooms rented to graduate students, visiting scientists, and postdocs.
- Two pilot plants -- the Fruit & Vegetable Processing Pilot Plant and the Vinification & Brewing Technology Laboratory -- provide opportunities for entrepreneurs and processors to add value to the state's raw products.
- The NYS IPM Program
- The NYS Seed Testing Laboratory
- IR-4 Field Research Program
- Cornell Agriculture and Food Technology Park adjacent to the main NYSAES campus
- Administers other research/extension laboratories - Hudson Valley at Highland, NY, and the Cornell Lake Erie Research and Extension Laboratory at Portland, NY.
- Operates eleven farms for experimental plot work close to the Geneva campus with a total of 870 acres. There is also one acre of glasshouse space on the campus.

Cornell Cooperative Extension

CCE extends Cornell University's land-grant programs to citizens all across New York State. With a presence in every county and the five boroughs of NYC, CCE puts research into practice by providing high-value educational programs and university-backed resources that help solve real-life problems, transforming and improving New York families, farms, businesses and communities.

County associations of Cornell Cooperative Extension work with their local boards, committees and volunteers to influence decisions on program priorities and delivery. Our county extension associations and multi-county programs are separate 501(c) 3 organizations under the general supervision of Cornell University as agent for the state of New York.

Cornell Cooperative Extension:

- Annually reaches 1.3 million people directly, and 15 million indirectly.
- Employs 1,056 local and regional staff and educators organized around program initiatives and local needs.
- Uses 54 specialists to provide programming in integrated pest management, energy education and vegetable and field crop production and management.
- Extends community work by partnering with over 43,000 volunteers who advise, plan, teach and mentor in all program areas.
- Partners with over 400 Cornell faculty; primarily from the College of Agriculture and Life Sciences and the College of Human Ecology.
- Engages a program development process that relies heavily on county input to identify issues of local importance. Often research is informed by the two-way flow of information and experience.
- Includes 55 distance learning centers across New York State, and is fully equipped to deliver events and instruction through various modes including webinars and on-demand videos to remote audiences, and social media applications.

Collective, planned program areas are described below. Note that planned program areas have changed beginning with FY14. The work that is underway, and the emphasis areas that shape the work, have not changed but the planning and articulation of how that work will be done has shifted to align with the CCE Strategic Plan under the advisement of the CUAES, NYSAES, and CCE Integrated Research and Planning Team.

AGRICULTURE AND FOOD SYSTEMS

CCUAES, NYSAES, and CCE support a NY agriculture industry that is diverse, sustainable, and

profitable, and which produces a safe, reliable, healthy and local food supply. Programs are planned to:

- Boost U.S. agricultural production.
- Improve global capacity to meet growing food demand in spite of changing climate.
- Assure the long-term viability and well-being of the agricultural/horticulture industry and rural communities in New York State.
 - Promote economically and environmentally sound products and practices, and safer and healthier products.
 - Assist producers, horticulture businesses and natural resource managers to optimize production management and improve profitability and sustainability in accordance with their goals.
 - Increase the use of sustainable practices to result in improved or protected soil, air and water quality and production of high quality and safe food and fiber.
 - Improve soil health and productivity, resulting in increased farm profitability and improved environmental quality.

CLIMATE CHANGE

Researchers are exploring the looming challenges, investigating strategies to address expected impacts and developing new resources to reduce the human carbon footprint that adds to greenhouse gas emissions. Multidisciplinary researchers, educators and extension faculty -- from plant biologists to economists to climatologists -- are engaged in quantifying the current trend and predicting future impact, adapting/moderating practices to reduce the human impacts, and communicating/preparing for damage from climate related events. Programs are planned to:

- Reduce factors contributing to climate change at the individual, community, industry and institutional levels.
- Develop an agricultural system that maintains high productivity in the face of climate changes.
- Help producers and communities adapt to changing environments.
- Sustain economic vitality, identify challenges and take advantage of emerging economic opportunities offered by climate change mitigation technologies.

ENVIRONMENT, NATURAL RESOURCES AND SUSTAINABLE ENERGY

With some of the highest energy costs in the nation, New York residents are hungry for information on viable renewable energy options, as well as strategies to promote energy conservation, while farmers, forest owners and agricultural producers in the state are eager to explore new markets.

The state's vast resources of available land and organic waste streams offer opportunities for new, renewable energy initiatives, considered a vital part of forward-looking national energy policy. Equally, programs focussed on conserving and protecting natural resources are necessary to protect environmental health. Programs are planned to:

- Make sure New York leads the country in pursuing the national goal of energy independence
- Encourage communities to focus on locally-produced and owned energy sources and/or lower cost external sources, helping to retain energy dollars within the state
 - Reduce energy costs to boost the economic health of agriculture/horticulture/natural resource and supporting businesses, the financial security of individuals and families and the operations of local governments
 - Improve waste management and waste reduction efforts to enhance and protect the environment, resulting in improved soil, air, and water quality; reduced risk for individuals and families; and an improved economic climate for businesses and government

NUTRITION, FOOD SAFETY AND SECURITY, AND OBESITY PREVENTION

Childhood obesity prevention research and education are based upon an ecological approach,

focusing on individuals and their interactions among the multiple environments that surround them. This approach recognizes that there are inherent multiple levels of influence that affect a child's body weight. Research and Extension topics include nutrition and hunger, nutrition education and behavior, built and natural environments, physical activity promotion, healthful food availability, food product development and health care organization, services and policies. Ensure affordable, available nutritious foods. Programs are planned to:

- Guide families to make science-based decisions about health and well-being.
- Prevent childhood weight problems and reduce long-term risks for chronic disease by encouraging healthy eating and increased physical activity.
- Improve community food security and healthful food-choice options.
- Provide for the nutritional well-being and safety of New York residents by assuring a continuous, reasonably-priced supply of wholesome foods.
- Improve food safety and food-handling practices throughout the food system.
- Reduce the incidence of food-borne illnesses.

4-H YOUTH DEVELOPMENT/CHILDREN, YOUTH, AND FAMILIES

Youth programs focus on life skill development, as well as science, technology, engineering and math opportunities. Family programs emphasize human development and social well-being, economic well-being, and quality of home and work environments. Programs are planned to:

Youth

- Enhance youth development.
- Empower youth to become life-long learners who lead healthy, satisfying, and productive lives.
- Ensure that youth become caring and contributing members of society, enhancing the quality of life for themselves, their families and their communities.
- Prepare the next generation of scientists as youth become knowledgeable, contributing participants in science and technology-related issues in their communities and chosen professions.
- Support youth as community leaders who make decisions and take action on issues of public/community concern.

Family

- Enable vibrant and resilient communities.
- Improve parenting practices that result in better child and youth outcomes.
- Improve parent/caregiving practices, resulting in parents and caregivers reporting increased confidence in their roles.
- Improve financial status of targeted NYS residents.
- Improve indoor air quality in low income households resulting in better health outcomes.

COMMUNITY AND ECONOMIC VITALITY

This plan frames the programs that aim to empower individuals and communities to make sound decisions for the future through access to research, data and resources, best practices, university-based resources and community education.

Community emphases include community and economic development processes, community sustainability and resiliency, agriculture and food systems development, land use and energy, emergency preparedness and to some extent entrepreneurship and workforce development. Cornell has a commitment to New York citizens and local officials to build their capacities so they can solve problems and build strong and vibrant communities. Agriculture and food systems development includes efforts that promote community farmland protection initiatives, promote local foods, supports agricultural

entrepreneurship, public issues education related to specific agriculture/community conflict. Our educational programs support inter-municipal and regional collaborations, and new public-private partnerships that spur innovative strategies to address complex community development issues.

Programs are planned to:

- Develop more resilient communities.
- Ensure that diverse interests and populations in communities are reflected within and engaged as key stakeholders - this includes engaging community networks that link diverse sub-groups.
- Better utilize community resources to improve and sustain quality of life.
- Increased local capacity for management and protection of local environmental resources.
- Avoid or minimize conflicts between agriculture/horticulture/natural resource enterprises and community members and resolve them within communities when they occur.
- View agriculture/horticulture/natural resource enterprises as contributing and positive elements in the community.
- Retirees develop leadership capacity to engage in the application of science-based solutions to environmental problems at the community level.
- Communities experience high quality of life, social cohesion, ecological integrity, effective decision making, and new economic opportunities.
- More sustainable local economies through diversification.
- Institutionalize sustainable practices so that communities actively manage their environments protecting and enhancing financial, infrastructure, human, environmental, and social capitals.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2015	1056.0	0.0	34.0	0.0
2016	1056.0	0.0	34.0	0.0
2017	1056.0	0.0	34.0	0.0
2018	1056.0	0.0	34.0	0.0
2019	1056.0	0.0	34.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Combined External and Internal University External Non-University Panel
- Expert Peer Review

2. Brief Explanation

We will again use one integrated process for merit review for applied research and extension projects, including integrated and multistate activities. Key elements of the process are described here including statistics from the most current proposal cycle for reference.

Review Process (Research Projects and Extension Projects with Designated Funding):

Principal investigators are asked to consult program priorities (established as outlined in the stakeholder involvement section) and develop short pre-proposals for new or revised projects funded by Federal Formula Funds.

Pre-proposals will be reviewed for purpose and relevancy by a joint advisory Program Council (see stakeholder involvement section) and other external stakeholders, the principal investigator's department chair, Extension Program Associate/Assistant Directors, and the Agricultural Experiment Station directors (Ithaca and Geneva). Reviews will be submitted via a secure website. See process below:

For research proposals:

1. Pre-proposals are accepted/rejected; Principal Investigators develop accepted pre-proposals into full proposals.
2. The Department Chair recommends two or three peer reviewers to the Director's Office.
3. The Director's Office obtains the necessary reviews in accordance with CSREES rules using standard format.
4. Changes suggested by the peer reviewer are conveyed to the Principal Investigator. Peer reviewer names are not revealed to the Principal Investigator.
5. The revised proposal, with required CRIS forms, is submitted to the Director's Office.
6. The Director's Office submits the package to CSREES along with an attached statement certifying the peer review was completed.
7. Reviews are kept on file in the Director's Office.
8. The Director's Office attaches a statement to the proposal and sends this with the proposal and Form 10 to the CALS Research Office.
9. After approval by CSREES, funds are allocated to the appropriate research account.

For extension proposals:

1. Extension Program Directors rank/recommend extension pre-proposals.
2. Extension Program Directors meet with Agricultural Experiment Station (Ithaca and Geneva) staff to discuss potential R-E linkages among extension pre-proposals.
3. Extension Program Directors finalize Smith-Lever funding recommendations and communicate decisions and needed modifications.

Cornell Review Criteria:

- Anticipated significance of results relative to current priority needs or opportunities
- Scientific merit of objectives
- Clarity of objectives
- Appropriate methodology
- Feasibility of attaining objectives
- Accomplishment during preceding project (for revisions)
- Research performance competence of investigator(s)
- Relevance of the proposed work to regional or national goals
- Level of research-extension integration

For ongoing extension work not captured in current funded projects, we will again rely on our structure of Program Council and Program Work Teams for input and conduct regular

program conferences with academic units to review program progress and direction.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Our multistate, multi-institutional, and integrated activities occur within the same stakeholder involvement and program developments processes as other programs and, as such, are directed to priority needs of priority audiences. Our program development structure for federal formula funds is integrated by definition (see stakeholder involvement and merit review processes). Background information on our program development structure and process is available at: <http://cce.cornell.edu/learnAbout/pcs-pwts/Pages/ProgramCouncilsandTeams.aspx>

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

The great majority of our integrated and multistate expenditures are in the form of funded projects; only the minor proportion is allocated for FTE support. Because they are incorporated in our ongoing program development structures and processes, integrated and multistate projects abide by and benefit from the stakeholder involvement and audience outreach processes outlined in the following section of this plan. We expect all projects to be grounded in relevant needs as articulated through our extensive stakeholder involvement structures and use a wide variety of methods to reach out to under-served and under-represented audiences (again, see stakeholder involvement section). The specific audiences and needs addressed are determined on a project-by-project basis as well as within the broader umbrella of priorities established through our advisory structures.

3. How will the planned programs describe the expected outcomes and impacts?

All projects are expected to outline expected outcomes and impacts and report against them. We require a "statement of relevancy," specific identification of intended outcomes, and descriptions of multistate and integrated activities in our project pre-proposal process and in final project descriptions. Ability to outline relevancy and specific intended outcomes is a primary determinant of funding decisions. Project leaders report against these outcomes and activities annually and upon project completion.

4. How will the planned programs result in improved program effectiveness and/or

The fundamental purposes of these efforts are to strengthen quality of programming by bringing together required disciplines and to ensure efficient use and maximum leveraging of federal formula funds across institutions. For more than 15 years, we have progressively integrated planning and accountability processes for federal formula fund allocation for research and extension, providing greater focus on priority needs and greater efficiencies in program development.

Decision criteria for illustrate the intent of greater effectiveness and efficiency:

- The problem involves evident cooperation and interdependence of disciplinary skills and insights, and their application to its solution.
- Research on the problem requires more scientists, equipment, and facilities than are

generally available at one experiment station.

- The research approach is adaptable and particularly suitable for interstate and federal-state cooperation, resulting in better use of limited resources and a saving of research funds.
- The project attracts additional support for research on the problem that is not likely to occur through other research programs and mechanisms.
- The project is sufficiently specific to promise significant accomplishment in a reasonable period of time (five years or less).
- The project can provide the solution to a problem of fundamental importance or fill an important gap in our knowledge from the standpoint of the present and future agriculture of the region.
 - The project can be effectively organized and conducted on a regional level.

The intent for multistate extension and integrated activities is parallel - greater program effectiveness by drawing on the broader expertise base of the land grant system and greater efficiency by eliminating parallel development of curricular resources and/or isolated research efforts. For some projects, efficiency and effectiveness are primary design criteria, such as for the eXtension effort or support for regional community development efforts. In others, those benefits accrue as a secondary to effective integration and collaboration in program development.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public

Brief explanation.

Gaining stakeholder input and encouraging stakeholder participation is a system-wide expectation of all levels and units. Across the system, all of the stakeholder participation methods listed are employed; no single unit uses them all.

At the state level, we have a single multidisciplinary program council. Membership is intentionally monitored and updated to ensure involvement and ties to traditional and non-traditional constituents and established and emerging partnerships. The council provides guidance for CUAES, NYSAES and CCE by setting broad priorities for applied research and extension programming.

In addition, we have 31 active Program Work Teams (PWTs). PWTs are made up of extension educators, faculty, and stakeholders who work together to develop, implement and determine priority programs within PWTs and to advise IPaRT as needed. PWTs are expected to nurture research-extension integration, to encourage campus-field interactions and collaborations, to take multi-disciplinary approaches, to evaluate their efforts, and to involve their external members in all aspects of their work. More than 1,000 participants were involved in the work of these teams in 2013. Since 2001, forty-nine (48) PWTs have been authorized and supported to develop and deliver integrated applied research and extension programming across the state. As needs change, PWTs are formed or decommissioned once work is complete.

Beyond this state-level program development and stakeholder input structure/process, each of Cornell Cooperative Extension's county extension associations continue to work closely with local stakeholders via participation in their local governance structures, i.e. board of directors, and advisory committee structures. Formal advisory committees are also used to guide New York City Extension programs. In 2013, more than 2,500 board and committee volunteers from diverse backgrounds participated and assisted in the direction, priority setting programs throughout the state, and over 43,000 committed volunteers assisted with program delivery adding to stakeholder involvement.

In counties stakeholder input is sought from all audiences including "under-represented or under-served" audiences. One of the strategies used for gaining input and developing working relationships with new audiences is by networking and partnering with organizations that do have existing and strong relationships with target groups. Local boards of directors and advisory committees also recruit an intentionally diverse membership representative of the people and the needs in the community.

Effective involvement of youth in program determination and implementation is a priority. Our local advisory committees are expected to include youth members as part of the needs assessment and decision making structure. In 2013, more than 7,000 youth served in governance and program delivery roles statewide.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

Across all levels of the system, all of the techniques listed were used; the mix of methods varied from site to site and program to program. All of our units are expected to have active and diverse advisory processes and to intentionally consider audiences not currently served. Activities of our state level councils and PWTS are described in other questions in this section. Needs assessments, focus groups, and use surveys are conducted at the individual level of program units as well as in our statewide plan of work process.

As a method of tracking program needs and input received CCE educators are expected to submit narrative reports of efforts including efforts intentionally planned to engage underserved populations.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

Brief explanation.

All of the techniques listed are used but methods vary from site to site and program-to-program across the system. Structures and processes for aggregating data are addressed in this section. The most active data gathering occurred in three venues - local advisory bodies, PWTs, and the Program Council. Web based surveys; interactive webinars and response to social media also provide programmatic feedback.

Preparing staff to understand how to meet the needs of stakeholders is a priority. We will continue statewide efforts to provide current resources for educators regarding equal program opportunity. In 2013 mandatory staff training on Title VI Civil Rights was offered six times. Additionally six trainings driven by outcomes related to diversity and inclusion were offered to staff across the state via live webinars. Training topics included - Using Socio-Economic Demographics, Accessing & Interpreting Demographic, Enhancing Our Volunteer Profile, What's Cultural Competency Got to do With Me?, Diversity 101 and Creating and Implementing Working Agreements.

In 2012, Cornell Cooperative Extension completed a comprehensive strategic planning process to inform choices about programs and operations. The sample size was roughly

6,000 with participants completing surveys and discussion groups. Input and observations were gathered from multiple perspectives about programs, our effectiveness, opportunities for improvement, and new areas of growth. The Cornell Cooperative Extension strategic planning survey will continue to shape planned programs and efforts.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

Brief explanation.

The stakeholder input process for statewide program development jointly utilized by CUAES, NYSAES and CCE was established in February 2001.

Our Program Council and PWTs work to improve program focus, relevance, and planning activities. Input from PWTs informs federal formula funding priorities and provides project specific input on relevance and value of proposed work. Members of our Program Council have direct input that informs decisions regarding funding of current extension and research projects, contributing ratings of perceived relevance. Our statewide applied research and extension priorities are updated annually, communicated to faculty and staff, and used as a primary criterion in funding decisions.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Agriculture and Food Systems
2	Climate Change
3	Environment and Natural Resources and Sustainable Energy
4	Nutrition, Food Safety and Security, and Obesity Prevention
5	4-H Youth Development/Children, Youth and Families
6	Community and Economic Vitality

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Agriculture and Food Systems

2. Brief summary about Planned Program

Our research and education is directed toward improvement of food system as a whole from "farm to table". Cooperative Extension (CCE) and applied research programs work together to cover multiple aspects of agriculture and food systems such as soil resources and soil health, crop plant genomics, field evaluation of crops, reliable production guidelines, genetic improvement of animals and animal production, economics of production and farm management, integrated pest management, healthy produce, fruit and vegetable production and storage and facilitation of sustainable agriculture. Education complements research by encouraging farmers to grow new crop varieties and employ new production and business practices, through programs for agriculture sector businesses, and by informing consumers about new or improved food products. Research analyses and education also affect policies to reform governmental food and agriculture related programs.

Cornell University has a commitment to agriculture, horticulture, and natural resources enterprises and assisting them in making the best choices when selecting production principles and practices to enhance economic and environmental sustainability. We provide comprehensive research and education programming focused on assessing existing and new production and management practices and techniques with special emphasis on both business vitality and agricultural environmental management. As part of our strategy, we emphasize integration of research and extension to accelerate: identification of problems, focusing scientific effort to resolving problems, field-testing and evaluation of technology and cultural practices, and implementation of environmentally superior innovations/practices for the agricultural, horticultural, and natural resource communities.

As a result of our applied research and cooperative extension efforts, farm businesses, horticulturist, and natural resource managers utilize research-based knowledge to continue producing a stable, safe and affordable food, feed, fiber, and fuel supplies and robust, attractive horticultural plants in economically and environmentally sustainable ways.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%		8%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		5%	
202	Plant Genetic Resources	3%		14%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		4%	
204	Plant Product Quality and Utility (Preharvest)	15%		5%	
206	Basic Plant Biology	10%		2%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		9%	
212	Pathogens and Nematodes Affecting Plants	5%		16%	
213	Weeds Affecting Plants	2%		3%	
215	Biological Control of Pests Affecting Plants	3%		5%	
216	Integrated Pest Management Systems	2%		6%	
301	Reproductive Performance of Animals	1%		4%	
302	Nutrient Utilization in Animals	6%		2%	
305	Animal Physiological Processes	2%		3%	
306	Environmental Stress in Animals	0%		2%	
307	Animal Management Systems	16%		3%	
404	Instrumentation and Control Systems	1%		2%	
501	New and Improved Food Processing Technologies	6%		3%	
503	Quality Maintenance in Storing and Marketing Food Products	10%		2%	
604	Marketing and Distribution Practices	8%		2%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Agricultural and food industries contribute an estimated \$30 billion a year to New York State's economy. Improving production efficiency, quality, and safety of plants and animals in agricultural,

horticultural, and natural resource production systems is fundamental to improving our ability to compete in a global economy. Managers of New York's 35,000+ farms, horticultural, and forestry operations face dynamic and complex production environments. Extensive knowledge and skills are needed for identifying, selecting, and adopting principles and practices that optimize production management and improve profitability and sustainability in accordance with business goals. Technologies such as genetic engineering, satellite imagery and GIS, computer aided management decision tools are readily available today for adoption and use. Technical assistance providers have similar needs to remain up-to-date and able to provide appropriate recommendations for each enterprise.

Program priorities include: protecting and enhancing soil resources, crop plant genomics, field evaluation of crops, reliable production guidelines, genetic improvement of animals and animal production, economics of production and farm management, integrated pest management, healthy produce, fruit and vegetable production and storage, facilitation of sustainable agriculture and analyses of food system policies. Education promotes use or development of new crop varieties and employment of new production and business practices, supports a viable agriculture business sector in the economy and informs consumers about improved food products and how to improve their food security. Promoting understanding of the economic and social roles of agriculture is important to sustainability of the agriculture sector.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- New science is needed for the production and procurement of adequate and acceptable nourishment for the world's population.
- Tackling the issues of agriculture and food systems requires multidisciplinary, multi-institutional and collaborative research and extension efforts.
- Food system research and education must encompass a broad spectrum of from the study of basic plant and animal genomes, to effective and efficient production, to marketing, distribution and consumption practices, to policies affecting the quality and availability of a secure food supply.
- Integrated systems approaches are needed to expand our understanding of trade-offs and develop BMPs that better address current and future challenges as well as food safety.
- Producers, horticultural business people, and natural resource managers often are not fully aware of or skillful in managing production principles and practices that may help optimize their operations for economic and environmental sustainability and/or business management and development needs.
- Many agricultural/horticultural/natural resources businesses have opportunity to strengthen profitability through improved planning and management.
- There is opportunity for growth in the agricultural/horticultural/natural resources sectors through alternative, new, and value added enterprises which may not be apparent to potential investors.

- The supply and effective management of labor resources is a key to the viability of agricultural/horticultural/natural resources enterprises. Producers, horticultural business people, and natural resource managers often are not fully aware of potential environmental impacts of their operations and/or requirements and opportunities of environmental regulations and programs.
- Technical assistance providers relied upon by producers, horticultural business people, and natural resource managers have parallel needs for current information on appropriate production practices.
- In most cases, it is possible to simultaneously meet economic and environmental sustainability goals.

2. Ultimate goal(s) of this Program

- Assure the long-term viability and well-being of the agricultural/horticulture industry and rural communities in New York State.
- Improve global capacity to meet growing food demand in spite of changing climate.
- Promote economically and environmentally sound products and practices, and safer and healthier products.
 - Assist producers, horticulture businesses, and natural resource managers to optimize production management and improve profitability and sustainability in accordance with their goals.
 - Increase the use of sustainable practices to result in improved or protected soil, air and water quality and production of high quality and safe food and fiber.
 - Improve soil health and productivity, resulting in increased farm profitability and improved environmental quality.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	262.5	0.0	11.0	0.0
2016	262.5	0.0	11.0	0.0
2017	262.5	0.0	11.0	0.0
2018	262.5	0.0	11.0	0.0
2019	262.5	0.0	11.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

This is a comprehensive program entailing a wide range of applied research activities and multiple education methods depending on context and need. Campus-based faculty and extension associates, regional specialists and county-based educators all are involved in designing, implementing, and evaluating tailored educational efforts depending on the focus and scope of their role.

Sample Statewide/Regional Initiatives that fall within this Plan of Work

- Capital District Vegetable and Small Fruit Program
- Central NY Dairy and Field Crops Program
- Cornell Vegetable Program (Western NY)
- Finger Lakes Grape Program
- Lake Erie Regional Grape Program
- Lake Ontario Fruit Program
- Northeast NY Fruit Program
- South Central NY Dairy and Field Crops Program
- Harvest NY
- Northwest NY Dairy Livestock and Field Crops Program
- Integrated Pest Management

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (webinars) 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • TV Media Programs • eXtension web sites • Web sites other than eXtension • Other 1 (On-line instruction)

3. Description of targeted audience

Key audiences served, directly and indirectly, in enhancing agribusiness viability include: established producers; new and young producers, consultants and service providers, input suppliers, cooperative directors and managers, marketing firms, governmental agencies, lenders, and local/state/federal governmental leaders.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	(1.1c) # participants documented to have applied knowledge or skills gained to strengthen existing business operations.
2	(1.1d) # participating family-owned agricultural/ horticultural/natural resources businesses that plan for succession, transfer, or sale of their business.
3	(1.1e) # participants reporting improved agricultural/ horticultural business profitability attributed at least in part to program participation.
4	(1.1f) # business owners successfully completing an inter-generational transfer or other desired dispensation of their business attributed at least in part to program participation.
5	(1.3b) # participants who demonstrate knowledge gains related to needs of potential employees and/or availability of qualified employees.
6	(1.3c) # participants documented to have made one or more changes in human resources practices to enhance labor availability or retention
7	1.3d) # producers/ horticultural businesses reporting improved labor availability, performance, and/or retention of higher skilled and more valuable human resource team members attributed at least in part to program participation
8	(1.2c) # participants documented to have adopted innovations in food enterprises including production, allied services, processing, and distribution
9	(1.2d) # participants or producer groups who adopt practices of value-added production through retaining control of their product further in the processing chain, starting their own value added business, or forming alliances.
10	(1.2e) # of new food, horticultural, and agricultural businesses and/or new enterprises within existing businesses reported by program participants and attributed at least in part to program participation.
11	(1.4c) # of producers, horticulture business persons, and/or natural resource managers modifying existing practices and/or adopted new production best practices or technologies to address current issues and improve yield efficiency, consistency and/or quality and/or conservation of resources.
12	(1.4d) # of producers, horticulture business persons, and/or natural resource managers who report improved ability to anticipate and respond to environmental and market variations through alternative production management strategies.
13	(1.4e) # technical assistance providers documented to have incorporated current best management practices in their recommendations.
14	(1.4f) # of producers or horticulture business persons, reporting increased dollar returns per acre or reduced costs per acre.
15	(1.5c) # of producers, horticulture businesses, and/or natural resource managers documented to have assessed potential environmental impacts of their operations and developed and acted on plans to eliminate or minimize those concerns.
16	(1.5d) # of producers, horticulture businesses, and/or natural resource managers documented to have developed and implemented nutrient management and/or waste management plans or modified existing plans to meet production and environmental goals or regulations.
17	1.5e) # of producers, horticulture businesses, and/or natural resource managers documented to meet or exceed current environmental protection standards as a result of participating in relevant educational programs.
18	(1.5f) # resource managers reporting reduced environmental concerns for participating enterprises

Outcome # 1

1. Outcome Target

(1.1c) # participants documented to have applied knowledge or skills gained to strengthen existing business operations.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

(1.1d) # participating family-owned agricultural/ horticultural/natural resources businesses that plan for succession, transfer, or sale of their business.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

(1.1e) # participants reporting improved agricultural/ horticultural business profitability attributed at least in part to program participation.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 503 - Quality Maintenance in Storing and Marketing Food Products

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

(1.1f) # business owners successfully completing an inter-generational transfer or other desired dispensation of their business attributed at least in part to program participation.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

(1.3b) # participants who demonstrate knowledge gains related to needs of potential employees and/or availability of qualified employees.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

(1.3c) # participants documented to have made one or more changes in human resources practices to enhance labor availability or retention

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

1.3d) # producers/ horticultural businesses reporting improved labor availability, performance, and/or retention of higher skilled and more valuable human resource team members attributed at least in part to program participation

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

(1.2c) # participants documented to have adopted innovations in food enterprises including production, allied services, processing, and distribution

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

(1.2d) # participants or producer groups who adopt practices of value-added production through retaining control of their product further in the processing chain, starting their own value added business, or forming alliances.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

(1.2e) # of new food, horticultural, and agricultural businesses and/or new enterprises within existing businesses reported by program participants and attributed at least in part to program participation.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

(1.4c) # of producers, horticulture business persons, and/or natural resource managers modifying existing practices and/or adopted new production best practices or technologies to address current issues and improve yield efficiency, consistency and/or quality and/or conservation of resources.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 204 - Plant Product Quality and Utility (Preharvest)
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 503 - Quality Maintenance in Storing and Marketing Food Products

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 12

1. Outcome Target

(1.4d) # of producers, horticulture business persons, and/or natural resource managers who report improved ability to anticipate and respond to environmental and market variations through alternative production management strategies.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 503 - Quality Maintenance in Storing and Marketing Food Products

- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 13

1. Outcome Target

(1.4e) # technical assistance providers documented to have incorporated current best management practices in their recommendations.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 216 - Integrated Pest Management Systems
- 501 - New and Improved Food Processing Technologies
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 14

1. Outcome Target

(1.4f) # of producers or horticulture business persons, reporting increased dollar returns per acre or reduced costs per acre.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 15

1. Outcome Target

(1.5c) # of producers, horticulture businesses, and/or natural resource managers documented to have assessed potential environmental impacts of their operations and developed and acted on plans to eliminate or minimize those concerns.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 206 - Basic Plant Biology
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 307 - Animal Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 16

1. Outcome Target

(1.5d) # of producers, horticulture businesses, and/or natural resource managers documented to have developed and implemented nutrient management and/or waste management plans or modified existing plans to meet production and environmental goals or regulations.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 17

1. Outcome Target

1.5e) # of producers, horticulture businesses, and/or natural resource managers documented to meet or exceed current environmental protection standards as a result of participating in relevant educational programs.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 216 - Integrated Pest Management Systems
- 501 - New and Improved Food Processing Technologies
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 18

1. Outcome Target

(1.5f) # resource managers reporting reduced environmental concerns for participating enterprises

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy

- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Description

Agricultural/horticultural/natural resources enterprises operate in a complex and volatile context involving susceptibility to weather extremes, changing governmental policies and regulations, competitive land uses and shifting development patterns, evolving consumer demands, and globally influenced markets. During the last couple of years highly damaging flood events damaged crop and forest resources in highly productive areas of New York. Recovery is slow for many areas.

Fundamental change is occurring in the state and regional economies within which agricultural/horticultural/natural resources enterprises operate. The specific implications of these external factors vary greatly by locale and across commodities and business forms in some cases creating new market opportunities and in others erosion of traditional markets. Population and land use changes in farming communities has led in some places to producer/neighbor issues that influence choice of production practices. Economic stress exacerbates issues of food insecurity and hunger and many community organizations are over- burdened and unable to meet demands.

There is a growing interest by consumers, communities and producers to market local foods locally. This interest continues to influence programs, research and funding availability. These trends are expected to continue.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

The evaluation approach included in our plan can more accurately described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders.

Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to influence our evaluation patterns and procedures. CORE has piloted the Evaluation Partnership Project (EPP) over the last decade documenting processes that work for Cornell Cooperative Extension and teaching process. The CORE Evaluation Partnership Project has included intensive program development and evaluation planning with a number of targeted programs and counties.

We employ a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities for each of our planned programs. The results are aggregated in a statewide accountability system which leads to the summary results reported in the State Defined Outcomes in each plan including selected impact statements and success stories from a pool of more than 400 documented narratives.

To strengthen evaluation of commercial agriculture programs, our two commercial vegetable regional specialist teams participated in an Evaluation Planning Partnership with the Cornell Office for Research on Evaluation in 2010 and 2011. Past participation in the EPP continues to drive evaluation efforts. This year the Small Farms Program participated in a self-driven version of the Evaluation Planning Partnership program.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

In the past decade, Cornell researchers have focused on identifying and quantifying the level of climatic disruption caused by heat-trapping greenhouse gasses and the early, measurable impact on weather patterns, geographic bioregions, and living creatures. Now, researchers are exploring the looming challenges, investigating strategies to address expected impacts, and developing new resources to reduce the human "carbon footprint" that adds to greenhouse gas emissions. Multidisciplinary researchers, educators, and extension faculty - from plant biologists to economists to climatologists - are engaged in three vital areas of exploration for the well-being of future generations:

- Climate science: quantifying the current trend and predicting future impact
- Adaptation: moderating expected damage and identifying potential opportunities
- Mitigation: reducing the human "carbon footprint" to slow the pace of climate change

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
104	Protect Soil from Harmful Effects of Natural Elements	7%		1%	
111	Conservation and Efficient Use of Water	15%		4%	
112	Watershed Protection and Management	17%		20%	
125	Agroforestry	5%		1%	
132	Weather and Climate	14%		14%	
133	Pollution Prevention and Mitigation	10%		14%	
135	Aquatic and Terrestrial Wildlife	8%		15%	
136	Conservation of Biological Diversity	15%		14%	
141	Air Resource Protection and Management	2%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	2%		0%	
304	Animal Genome	0%		2%	
315	Animal Welfare/Well-Being and Protection	0%		8%	
405	Drainage and Irrigation Systems and Facilities	5%		0%	
902	Administration of Projects and Programs	0%		2%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Climate data for the last 50 years show dramatic changes in temperature and precipitation at the global, national, regional, and state levels. In New York and elsewhere, global climate change is believed responsible for more erratic weather patterns, warmer temperatures, heavier rainfall, lower snow levels, and altered season length with intensifying impact on humans, wildlife, the economy, and the environment. Without action to reduce heat-trapping emissions today, scientists predict that summer in New York will feel like current summer weather in South Carolina by the end of this century.

Cornell researchers have been at the forefront in documenting climate change and its impact in the living world. New York farmers rely on Cornell research to make crucial decisions about controlling pests, applying fertilizer and optimal planting and harvesting times. CALS integrated pest management specialists say certain crop pests are arriving weeks earlier than they used to. Scientists are studying the worrisome prospect of potential over-wintering by some pest species that normally die out during the

colder months. Scientists have studied the productivity of crop plants and how plants respond to changes in temperature. Water resources issues are closely tied to climate change, including both quantity and quality issues. Higher variability of surface water flows is expected to exacerbate pollution management and mitigation efforts.

Because carbon dioxide emissions are one of the major causes of global climate change, the study of carbon sequestration is a major research emphasis. Cornell researchers are exploring technological solutions to storing excess carbon, biomanipulative approaches to capturing carbon for use as fuel, and forest management strategies. Linking the science to the economic viability of each strategy is an area in which we have tremendous strength.

Climate change also heightens the importance of research and extension on invasive species. Invasives threaten the function and integrity of ecosystems, native species, and agricultural crops. Climate change opens new environments for invasion. Ecologically sound management of invasive species requires significant improvements in our understanding of the ecological impacts of invasives, as well as the effective management of their populations. Research spanning detection, prediction, and management of invasive species is conducted on plants, aquatic invertebrates, fish and insects.

The impact of these stressors to human habitability is borne disproportionately by the most vulnerable of human populations: the poor, the old and the young. Poor populations have limited resources to adapt to changes and stresses. Older populations are among the most at risk due to decreased mobility, changes in physiology, and more limited access to resources, all of which may limit adaptive capacity. Children, who have been underestimated in roles they might play in disaster preparedness, could face undue burdens in adapting to negative events caused by climate change and need tailored communications related to climate change challenges. Vulnerable populations will face adaptive challenges to their new environments, with potentially far-reaching implications for health as well as for societal strategies to cope with climate change effects at both the population and policy level.

Technical knowledge of climate change issues and mitigation strategies is evolving rapidly and there is much confusion and skepticism and limited climate change literacy across audiences. As climate events increase the need for education around flood control and management, soil conservation, storm water management is increasing. Individuals, businesses and communities are seeking current information in order to be better respond to changing needs.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- New science is needed for the reduction and mitigation of climate change.
- Adaptation to climate change is necessary and must continue, especially for climate-sensitive industries and populations.
 - Tackling the issues of climate change requires multidisciplinary, multi-institutional and collaborative research and extension efforts.
 - Integrated system approaches are needed to expand our understanding of trade-offs and develop approaches that address current and future challenges of climate change.
 - Producers, natural resource managers, community leaders and individuals often are not fully aware of potential environmental impacts of their operations and actions and alternatives that would reduce factors that contribute to climate change.
 - Technical assistance providers relied upon by producers, horticultural business people, and natural resource managers have parallel needs for current information on climate change.
 - Residential, institutional and business conservation is a critical component in reducing the human carbon footprint.
 - Knowledge of the interactions of environmental resources, public health, quality of life, and local economies will lead to an involved, proactive citizenry.
 - As incidences of flooding and awareness of climate change increase, there will be a greater general need and request for trusted information about situational and behavioral mitigation.

2. Ultimate goal(s) of this Program

- Reduce factors contributing to climate change at the individual, community, industry, and institutional levels.
- Develop an agriculture system that maintains high productivity in the face of climate changes.
- Help producers and communities adapt to changing environments.
- Sustain economic vitality, identify challenges, and take advantage of emerging economic opportunities offered by climate change mitigation technologies.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	79.9	0.0	6.0	0.0
2016	79.9	0.0	6.0	0.0
2017	79.9	0.0	6.0	0.0
2018	79.9	0.0	6.0	0.0
2019	79.9	0.0	6.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

The initiative is guided by faculty and staff involved with several programs:

- The Cornell Climate Change Program Work Team (PWT) was formed in 2010 and currently has more than sixty five members comprised of Cornell faculty, staff, Cornell Cooperative Extension educators from around New York State, and external stakeholders who are working to advance climate change research and outreach programs. The PWT provides a mechanism through which faculty and extension educators connect with stakeholders to identify the needs surrounding climate change impacts and opportunities in New York State, create educational materials, and design learning experiences that address these needs. You can view the list of Climate Change PWT members at the Cornell Cooperative Extension website.
- The Institute for Climate Change and Agriculture (ICCA) is focused on supporting farmers of New York and beyond with decision tools for strategic adaptation to climate change, so that they are better able to cope with potential negative effects of climate change, and are better able to take advantage of any opportunities that it might bring.
- The Cornell Cooperative Extension (CCE) system extends Cornell University's land-grant programs to citizens all across New York State.
- The Atkinson Center for a Sustainable Future's (ACSF) Climate Change Focus Group began in 2008 and currently has 17 interdisciplinary faculty members from across campus, representing disciplines such as: climate science, ecology, agriculture, engineering, economics, history, and social sciences, that guide research and teaching at the University.
- NY EDEN <http://emergencypreparedness.cce.cornell.edu/Pages/default.aspx> The New York Extension Disaster Education Network (NY EDEN) is a collaborative educational network based at Cornell University, dedicated to educating New York residents about preventing, preparing for and recovering from emergencies and disasters that could affect their families and communities. NY EDEN is affiliated with both the national USDA EDEN network and with Cornell University Cooperative Extension.
- NYS Integrated Pest Management <http://www.nysipm.cornell.edu/> - Research, demonstrations, education, and outreach are part of a comprehensive plan to make IPM the safe, effective pest management solution for all New Yorkers. Solutions that help protect our health, our economic well-being, and our environment.
- Invasive Species Education and Monitoring Efforts: <http://www.nyis.info/> The Mission of the Clearinghouse is to be a gateway for New Yorkers to access timely, accurate scientific and policy information to assist them in making informed decisions about preventing, eradicating, controlling and managing invasive species in New York State and to focus attention on the need for invasive species prevention, eradication and management in New York. The Clearinghouse also provides information on upcoming invasive species events and invasive species news of interest to New Yorkers. The Clearinghouse has subsumed the National Aquatic Nuisance Species Clearinghouse and its Aquatic Invasive Species Database and has formed linkages with the New York Invasive Species Database (iMapInvasives), the New York Invasive Species Research Institute at Cornell, and numerous State and Federal agency invasive species programs. The Clearinghouse works closely with the State's eight PRISMs (Partnerships for Regional Invasive Species Management - see navigation bar PRISM tab) to support them in their invasive species activities.
- Master Watershed Stewards Program <http://dnr.cornell.edu/outreach/watershedsteward/> The mission of the New York Master Watershed Steward Program is to strengthen local capacity for successful management and protection of watersheds by empowering volunteers.
- Stormwater Management <http://www.clrp.cornell.edu/workshops/stormwater.html> Stormwater management training is part of the the Cornell Local Roads program which provide training and technical assistance to local highway and public works officials in New York State.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Webinars) 	<ul style="list-style-type: none"> ● Public Service Announcement ● Newsletters ● TV Media Programs ● eXtension web sites ● Web sites other than eXtension

3. Description of targeted audience

Key audiences served, directly and indirectly include: agricultural, horticultural and natural resource producers; consultants and service providers, resource managers, governmental agencies, and local/state/federal governmental leaders and policy makers, non-government organizations, individual consumers, and youth.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	(2.1b) # of consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders who demonstrate knowledge gains about on the causes and implications of climate change and adaptive or mitigating strategies.
2	(2.1c) # agricultural/ natural resources producers, organization and business representatives documented to have adopted recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, wetlands, etc.
3	(2.1d) # of agencies/ organizations/ communities documented to have adopted recommended climate mitigation practices and policies.
4	(2.4c) # consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders documented to have modified existing practices or technologies and/or adopted new practices to protect/enhance water resources.
5	(2.4d) # documented instances when consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders have improved and/or protected water resources.
6	(2.7c) # of consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders documented to have modified existing practices or technologies and/or adopted new practices to protect/enhance natural resources and/or enhance biodiversity.

Outcome # 1

1. Outcome Target

(2.1b) # of consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders who demonstrate knowledge gains about on the causes and implications of climate change and adaptive or mitigating strategies.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 125 - Agroforestry
- 132 - Weather and Climate
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity
- 141 - Air Resource Protection and Management
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

(2.1c) # agricultural/ natural resources producers, organization and business representatives documented to have adopted recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, wetlands, etc.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 132 - Weather and Climate
- 133 - Pollution Prevention and Mitigation
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

(2.1d) # of agencies/ organizations/ communities documented to have adopted recommended climate mitigation practices and policies.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

(2.4c) # consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders documented to have modified existing practices or technologies and/or adopted new practices to protect/enhance water resources.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

(2.4d) # documented instances when consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders have improved and/or protected water resources.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

(2.7c) # of consumers, residents, agricultural/ natural resources producers, organization and business representatives, and/or local government and community leaders documented to have modified existing practices or technologies and/or adopted new practices to protect/enhance natural resources and/or enhance biodiversity.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Description

Climate change issues play out in a complex and volatile context involving weather extremes, changing governmental policies and regulations, competitive land uses and shifting development patterns, evolving consumer demands, and globally influenced markets. The specific implications of these external factors vary greatly by locale and across commodities and business forms. Technical knowledge of climate change issues and mitigation strategies is evolving rapidly. Flooding events during recent years continues to elevate consumer and community interest in disaster preparedness and water quality protection for families, communities and farms. The shift in interest, program offerings and campus and research support is evident. These trends are expected to continue.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Typical system evaluation efforts can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders. In support of each of the logic models, we are working to provide educators with recommended evaluation strategies and standard instruments for their use. We will continue our work with the Cornell Office for Research on Evaluation (CORE) to develop these resources.

In 2015, we will continue to review the national outcome framework and connect it, as possible, to our statewide outcome framework. Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to strengthen evaluation practice and build evaluation capacity in CCE. CORE has developed a Protocol for evaluation that takes a systems approach, recognizing that individual programs and their evaluations are part of larger program portfolios and are shaped by needs and context at multiple levels of the Extension system. CORE has tested and refined this Protocol in partnership with CCE programs since 2006. A key step in the Protocol is to develop program models, in both familiar columnar form as logic models and in a visual form called pathway models. These models form the basis for focusing evaluation efforts in Extension programs.

Beginning in 2013, CORE and CCE partnered to initiate program modeling and evaluation planning at the level of the statewide Plans of Work. This effort, which is ongoing, will contribute to a framework for programming and evaluation at multiple levels. The Protocol is also being integrated into professional development in CCE, in collaboration with CCE leadership, to promote consistent approaches to evaluation of county-based, regional, and state-wide programs. CCE organizational development efforts

are also being devoted to organizing common high-quality measures that can be used by a wide range of programs where applicable.

During 2014 and 15 we will continue to work with CORE to expand the Evaluation Partnership Program using the Systems Evaluation Protocol, to be focused around our plan of work. Overall goals include:

- Building evaluation capacity
- Develop networks of CCE staff and associations to review, adapt and model the statewide plans of work
- Develop and implement high-quality evaluation plans around specific programs within plans
- Improve evaluation practices
- Use evaluation to improve programs

The Climate Change plan is focused on helping consumers, residents and producers to adopt adaptation strategies. Our plan focusses on water resource protection/enhancements and protection of natural resources and biodiversity. In addition to outcomes measured around general climate change knowledge, adaptation/mitigation practices and policy changes there will likely be added outcomes that include a way to measure the success of the Master Watershed Steward Program, a newer volunteer-based initiative. Indicators related to this new evaluation effort are emerging.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Environment and Natural Resources and Sustainable Energy

2. Brief summary about Planned Program

This planned program is intended to develop and maintain connections between applied research and Cornell Cooperative Extension (CCE) programs focused on natural resources conservation/protection and sustainable energy education that work toward long term planning for sustainable energy and proper use of natural resources.

Programs in this plan reach varied audiences, addressing agricultural and natural resource producers, community decision makers, businesses, organizations, and individual consumers. The planned program includes applied research and education on natural resources management, inventory and mapping methods; habitat; solid waste management, outreach practices, and sustainable energy.

The outcomes of this plan are for individuals, families, communities, farmers, and businesses to make economically viable, sustainability-based decisions with the help of readily available research based education.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds :Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	18%		28%	
124	Urban Forestry	10%		16%	
401	Structures, Facilities, and General Purpose Farm Supplies	14%		0%	
402	Engineering Systems and Equipment	8%		9%	
403	Waste Disposal, Recycling, and Reuse	25%		21%	
404	Instrumentation and Control Systems	5%		5%	
605	Natural Resource and Environmental Economics	20%		21%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

This planned program includes applied research and Cornell Cooperative Extension efforts related to bio/alternative energy, consumer energy conservation waste management and natural resource conservation.

Sustainable Energy: With some of the highest energy costs in the nation, New York residents, businesses, and organizations need current information and decision-making criteria and approaches for energy supply alternatives and practical energy conservation and cost-saving measures to maintain financial security and vitality. Additionally, with more than 1 million acres of viable and non-food producing land available for production of biomass, and organic waste streams from dairy farms and concentrated urban areas, New York has multiple resource streams to contribute to the small, distributive renewable energy systems that are considered a vital part of forward-looking national energy policy. Producers and community leaders are hungry for information on viable renewable energy production and strategies to promote energy conservation, while farmers, forest owners and agricultural producers are eager to explore new markets.

Our sustainable energy program has two broad emphases: energy and agriculture and consumer and community energy resources. The agriculture program addresses NIFA priorities related to the goal of energy independence, development of biomass for bioenergy, design of optimum forestry and crops for bioenergy production, and production of value-added bio-based industrial products. The program also addresses energy conservation through agricultural applications of additional energy alternatives such as wood and grass pellet fuel production, recycling of vegetable oils as biodiesel, wind and solar energy production. Conversion of corn to ethanol, wind energy and hydro power are currently driving alternative energy systems in the U.S. Longer term, grasses and/or wood products may provide a substantial source of cellulosic ethanol and other bioenergy to meet the world's energy needs. We have research strengths to pursue these opportunities and the agricultural and forestry resources to contribute substantively to energy production.

Waste Management: With a wide range of waste producers, including individuals, agriculture, industry, and government, New York residents, agricultural producers, businesses/industry, and governments need current information and solutions on techniques for managing waste, reducing waste at the source, minimizing energy use and costs, and managing the risk and environmental inequities resulting from waste generation and disposal practices.

Environment & Natural Resources: New York residents rely on a wide variety of natural resources including forested mountains; aquatic environments (wetlands, marshes, estuaries, streams and lakes); and an accompanying diversity of plant and animal species, for recreation, tourism, and raw products. Agricultural and natural resource producers, community decision makers, businesses, organizations, and individual consumers need current information on good management practices, alternative land uses, protection of open space, and development of environmentally-sustainable natural resource-based businesses. Communities need education targeted to their specific concerns, including the interaction of natural resources, the environment, and the economy.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research

- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- The environment and natural resource require protecting and in some cases citizen action for remediation.
 - Producers, local government, individuals, organizations, and businesses often are not fully aware of potential environmental impacts of their operations and/or requirements and opportunities of environmental regulations and programs.
 - Knowledge of the interactions of environmental resources, public health, quality of life, and local economies will lead to an involved, proactive citizenry.
 - It is possible to simultaneously meet economic and environmental sustainability goals; a sustainable, healthy economy depends on a healthy environment.
 - There are new and renewed opportunities for locally owned energy production.
 - Small distributive energy systems may be more economically feasible given biomass characteristics than large-scale production and may have other benefits in terms of local economics and energy security.
 - Energy expenditures on local or in-state owned production alternatives stay in the state and local economies to the betterment of residents.
 - Reduction of energy use provides cost savings to businesses and may retain dollars in the state and local economies.
 - Significant barriers to the widespread adoption of renewable energy technologies - economic, environmental, social, logistic and physical--can be overcome with dedicated research and extension.
 - As a major energy consumer, New York can contribute substantively to energy independence through energy conservation and adoption of renewable energy sources.
 - Producers, local governments, individuals, organizations, and businesses and industry often are not fully aware of potential environmental impacts of their operations and/or requirements and opportunities of environmental regulations and programs.
 - Technical assistance providers relied upon by producers, local governments, individuals, organizations, and businesses and industry have parallel needs for current information on appropriate waste management and reduction practices.
 - Increased adoption of "clean" renewable energy technologies will help mitigate the threat of climate change.
 - We need an energy literate public to move forward responsibly.

2. Ultimate goal(s) of this Program

- Healthy ecosystems
- Youth, families, communities, farms, businesses that engage in long term planning for proper use of natural resources, sustainable energy, and environmental priorities.
 - Natural resources that are protected and available for multiple uses, including agroforestry, fishing, recreation, agriculture, recreation, tourism, and other businesses/industry.
 - The economic vitality of agricultural/natural resources and other businesses is improved, the health of individuals and families are enhanced, and local government operations are made more sustainable through the availability of high quality natural resources.

- Improved waste management and waste reduction efforts will result in an enhanced and protected environment, including soil, air, and water, and reduced risk for individuals and families.
- New York State becomes a leader in pursuing the national goal of energy independence.
- Use of locally produced and owned energy sources and/or lower cost external sources retains energy dollars within the local and state economy providing enhanced economic well-being.
- The economic vitality of agriculture/horticulture/natural resource and supporting businesses, and the financial security of individuals and families are enhanced and local government operations made more sustainable through reduced energy costs.
- Improved waste management and waste reduction efforts will result in an enhanced and protected environment, including improved soil, air, and water quality, and reduced risk for individuals and families.
- The economic vitality of agriculture/horticulture/natural resources and other businesses is improved, the health of individuals and families is enhanced, and local government operations are made more sustainable through waste reduction and economical and safe management of waste.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	51.3	0.0	2.0	0.0
2016	51.3	0.0	2.0	0.0
2017	51.3	0.0	2.0	0.0
2018	51.3	0.0	2.0	0.0
2019	51.3	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

This is a program entailing a wide range of applied research activities and multiple education methods depending on local context and need. Campus-based faculty and extension associates, regional specialists and county-based educators all are involved in designing, implementing, and evaluating tailored applied research and educational efforts depending on the focus and scope of their role.

Topics include: Waste management, wildlife management and forestry, renewable energy resources, energy conservation and efficiency, heating with wood, forestry etc.

Sample Statewide/Regional Initiatives that fall within this Plan of Work

- Urban Forestry
- Master Forest Owners
- Private Forest Stewardship Program
- Master Naturalist
- Maple Program
- Farm Energy Audits

- Save Energy, Save Dollars
- Green Building Seminar Series
- Energy Education in Camp
- Master Composters
- Recycling Ag Plastics
- Farm Waste Management

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • TV Media Programs • eXtension web sites • Web sites other than eXtension

3. Description of targeted audience

- Key audiences served, directly and indirectly include: agricultural and natural resource producers; consumers and property owners, businesses and organizations, teachers, youth professionals and volunteers, local/state/federal governmental leaders.
 - Businesses, organizations, and producers are targeted with information about improved management practices and alternative land uses, such as agroforestry. Environmental planners and managers and technical assistance providers, such as foresters, are targeted with in-depth information related to their audiences/constituents. Teachers, youth professionals and volunteers are targeted with in-depth knowledge for youth enrichment.
 - Agricultural/horticulture/natural resource and supporting businesses are targeted both regarding bioenergy production opportunities and information regarding alternative energy sources and conservation. Consumers are targeted for information regarding energy supply alternatives and energy conservation options for residential, facilities, and transportation needs.
 - Residents and property owners are targeted with stewardship and waste reduction and management in their homes and on their properties. Businesses, organizations, and producers are targeted with information about reducing impacts of their operations. Teachers and youth professionals and volunteers are provided with curriculum and training. Youth are targeted with age appropriate education.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	(3.1f) # of producers, economic development organizations and other groups who collaborate to establish bioenergy as a viable alternative crop.
2	(3.1g) # of existing or new producers documented to have modified existing practices or technologies and/or adopted best management practices for bio-energy production, harvesting, and/or storage systems.
3	(3.1h) # of producers, horticulture businesses and/or natural resource managers reporting that cropping for and/or use of bio-energy leads to increased economic returns to their enterprises.
4	(3.2c) # of agricultural/horticultural/ natural resource businesses documented to have adopted appropriate alternative energy sources and/or energy conservation practices.
5	(3.2d) # of producers/horticulture businesses/natural resource managers documented to have improved economic returns to agricultural/ horticultural business profitability and vitality resulting from adopting alternative energy sources and/or energy conservation.
6	(3.3c) # of consumers documented to have adopted appropriate alternative energy sources.
7	(3.3d) # of consumers who report savings on energy costs attributable to adopting alternative energy sources.
8	(3.4c) # of consumers reporting to have adopted appropriate energy cost control and/or conservation practices.
9	(3.4d) # of property managers, and/or housing officials documented to have taken measures to improve energy cost control or efficiency of existing and new buildings.
10	(3.4e) # of consumers who report savings on energy costs attributable to adopting energy conservation measures.
11	(3.5e) # of communities documented to have assessed local energy development proposals and/or the relationships between current policies and regulations and energy conservation.
12	(3.5f) # of community agencies/ organizations documented to have adopted appropriate alternative energy sources.
13	(3.5h) # of communities documented to have established or modified land use and development policies to promote energy conservation.
14	(3.5i) # of community agencies/organizations reporting savings on energy costs attributable to adopting alternative energy sources.
15	(3.5m) # of communities that adapt or revise policies in response to large scale energy development (e.g., Marcellus shale development) and/or include energy as a component of their comprehensive plans.
16	(3.6b) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents who demonstrate knowledge gains about waste management and reduction.
17	(3.6c) agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have modified existing practices or technologies and/or adopted new practices to manage and reduce waste. (150)
18	(3.6d) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have reduced costs through improved waste management practices.
19	(3.7c) agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have modified existing practices or technologies that will assist with natural resources management and the environment

Outcome # 1

1. Outcome Target

(3.1f) # of producers, economic development organizations and other groups who collaborate to establish bioenergy as a viable alternative crop.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

(3.1g) # of existing or new producers documented to have modified existing practices or technologies and/or adopted best management practices for bio-energy production, harvesting, and/or storage systems.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

(3.1h) # of producers, horticulture businesses and/or natural resource managers reporting that cropping for and/or use of bio-energy leads to increased economic returns to their enterprises.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

(3.2c) # of agricultural/horticultural/ natural resource businesses documented to have adopted appropriate alternative energy sources and/or energy conservation practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

(3.2d) # of producers/horticulture businesses/natural resource managers documented to have improved economic returns to agricultural/ horticultural business profitability and vitality resulting from adopting alternative energy sources and/or energy conservation.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

(3.3c) # of consumers documented to have adopted appropriate alternative energy sources.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

(3.3d) # of consumers who report savings on energy costs attributable to adopting alternative energy sources.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

(3.4c) # of consumers reporting to have adopted appropriate energy cost control and/or conservation practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 124 - Urban Forestry
- 403 - Waste Disposal, Recycling, and Reuse
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

(3.4d) # of property managers, and/or housing officials documented to have taken measures to improve energy cost control or efficiency of existing and new buildings.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

(3.4e) # of consumers who report savings on energy costs attributable to adopting energy conservation measures.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 124 - Urban Forestry
- 403 - Waste Disposal, Recycling, and Reuse
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

(3.5e) # of communities documented to have assessed local energy development proposals and/or the relationships between current policies and regulations and energy conservation.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 124 - Urban Forestry
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 12

1. Outcome Target

(3.5f) # of community agencies/ organizations documented to have adopted appropriate alternative energy sources.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 13

1. Outcome Target

(3.5h) # of communities documented to have established or modified land use and development policies to promote energy conservation.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 124 - Urban Forestry

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 14

1. Outcome Target

(3.5i) # of community agencies/organizations reporting savings on energy costs attributable to adopting alternative energy sources.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 401 - Structures, Facilities, and General Purpose Farm Supplies

- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 15

1. Outcome Target

(3.5m) # of communities that adapt or revise policies in response to large scale energy development (e.g., Marcellus shale development) and/or include energy as a component of their comprehensive

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Research

Outcome # 16

1. Outcome Target

(3.6b) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents who demonstrate knowledge gains about waste management and reduction.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 17

1. Outcome Target

(3.6c) agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have modified existing practices or technologies and/or adopted new practices to manage and reduce waste. (150)

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 18

1. Outcome Target

(3.6d) # of agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have reduced costs through improved waste management practices.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 19

1. Outcome Target

(3.7c) agricultural/natural resources producers, organization and business representatives, community leaders, and/or residents documented to have modified existing practices or technologies that will assist with natural resources management and the environment

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Description

The interaction between natural disasters, the economy, and energy costs is well documented. Weather in particular has interrupted supplies and dramatically influences heating and cooling costs. Appropriations, public policy, and regulations directly affect the ability to pursue energy source alternatives, including bioenergy development, and to implement energy conservation alternatives, particularly for low-income households. Government regulation and policies driven by public priorities can change the circumstances of personal finances and the energy market. Public and private funders and CCE may have fewer fiscal resources and other resources to devote to energy matters although government incentives might offset that.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Typical system evaluation efforts can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination

of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders. In support of each of the logic models, we are working to provide educators with recommended evaluation strategies and standard instruments for their use. We will continue our work with the Cornell Office for Research on Evaluation (CORE) to develop these resources.

In 2015, we will continue to review the national outcome framework and connect it, as possible, to our statewide outcome framework. Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to strengthen evaluation practice and build evaluation capacity in CCE. CORE has developed a Protocol for evaluation that takes a systems approach, recognizing that individual programs and their evaluations are part of larger program portfolios and are shaped by needs and context at multiple levels of the Extension system. CORE has tested and refined this Protocol in partnership with CCE programs since 2006. A key step in the Protocol is to develop program models, in both familiar columnar form as logic models and in a visual form called pathway models.

These models form the basis for focusing evaluation efforts in Extension programs. Beginning in 2013, CORE and CCE partnered to initiate program modeling and evaluation planning at the level of the statewide Plans of Work. This effort, which is ongoing, will contribute to a framework for programming and evaluation at multiple levels. The Protocol is also being integrated into professional development in CCE, in collaboration with CCE leadership, to promote consistent approaches to evaluation of county-based, regional, and state-wide programs. CCE organizational development efforts are also being devoted to organizing common high-quality measures that can be used by a wide range of programs where applicable.

During 2014 and 15 we will continue to work with CORE to expand the Evaluation Partnership Program using the Systems Evaluation Protocol, to be focused around our plan of work. Overall goals include:

- Building evaluation capacity
- Develop networks of CCE staff and associations to review, adapt and model the statewide plans of work
- Develop and implement high-quality evaluation plans around specific programs within plans
- Improve evaluation practices
- Use evaluation to improve programs

The focus of the Environment and Natural Resources plan is on helping farms, families and communities evaluate energy and waste management options and adopt appropriate measures to improve costs and efficiency, encouraging bioenergy production and alternative energy adoption as appropriate. Continued general efforts on evaluation capacity are expected.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Nutrition, Food Safety and Security, and Obesity Prevention

2. Brief summary about Planned Program

Programs that are framed by this plan include research and extension linked to childhood obesity; youth, family and community nutrition; food security and food safety.

Childhood Obesity Prevention: Childhood obesity prevention research and education are based on an ecological approach, focusing on individuals and their interactions among the multiple environments that surround them. This approach recognizes that there are inherent multiple levels of influence that affect a child's body weight. Research topics include nutrition and hunger, nutrition education and behavior, built and natural environments, food psychology, physical activity promotion, healthful food availability, food product development and health care organization, services and policies.

Cooperative Extension programs are designed to 1) connect research and practice, 2) result in behavior change, 3) build on the strengths of families and youth, 4) develop strong collaborations resulting in community changes for optimal health promotion and 5) provide policymakers with the knowledge to develop appropriate policies to promote healthy lifestyles. Extension programs target children, families and the community at large, with an emphasis on low- and moderate-income audiences. The programs are collaborative and work directly with key community organizations.

Food Security: Cornell Cooperative Extension programs address access to food, certainty of availability and access to food, sufficiency of food, social and cultural acceptability of food, and nutritional quality and safety of food. Work in this program area ties well with our work in agriculture, and youth, families and communities.

Food Safety: Cornell's statewide food safety research and education program serves a broad constituency including food producers, processors and retailers, as well as consumers and research scientists. The program encompasses the National Institute of Food and Agriculture food safety components: investigating causes of microbiological contamination and microbiological resistance, educating producers, consumers and food safety professionals and developing food processing and storage technologies.

Programs are developed and delivered through many channels, including workshops, research-based publications and ongoing, technical support for policy makers and regulators.

For example, Cornell's National Good Agricultural Practices Program provides growers, packing house operators, government officials and industry trade association personnel with information and strategies to protect consumer health and reduce hazards and risks in the production of fresh fruits and vegetables. Educational materials designed and developed at Cornell are being used by collaborators in 25 states to provide farmers with a better understanding of good agricultural practices related to food safety.

Consumer education programs focus on safe handling and preparation of foods, conveying important practices in preventing illness along with avoiding food cross-contamination. Programs target moderate and low income adults, 4-H and other youth.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
303	Genetic Improvement of Animals	0%		1%	
311	Animal Diseases	0%		21%	
312	External Parasites and Pests of Animals	0%		6%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%		2%	
502	New and Improved Food Products	5%		3%	
603	Market Economics	0%		2%	
607	Consumer Economics	0%		1%	
701	Nutrient Composition of Food	15%		1%	
702	Requirements and Function of Nutrients and Other Food Components	15%		10%	
703	Nutrition Education and Behavior	40%		12%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%		2%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%		11%	
721	Insects and Other Pests Affecting Humans	0%		5%	
723	Hazards to Human Health and Safety	0%		3%	
724	Healthy Lifestyle	25%		14%	
903	Communication, Education, and Information Delivery	0%		6%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Nutrition and Obesity Prevention: Nearly one-fifth of children in the United States are overweight and have a greater risk for health problems that are placing a major strain on the U.S. health system and economy. Obesity is positively correlated with increased risk of chronic diseases such as cardiovascular disease, diabetes, stroke, hypertension, and some forms of cancer. An estimated 61% of overweight young people have at least one additional risk factor for heart disease, such as high cholesterol or high blood pressure. There is an increasing frequency of type 2 diabetes in children, even pre-adolescent children. Overweight children are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems such as stigmatization and poor self-esteem.

Factors contributing to obesity in children include unhealthy dietary behaviors such as high consumption of sweetened beverages, low fruit, vegetable and dairy consumption and limited physical activity. Healthy lifestyle habits, including healthy eating and physical activity, can lower the risk of becoming overweight and developing diseases associated with increased obesity. Food insecurity and obesity or overweight can exist at the same time. This necessitates addressing hunger issues for some populations within programs on childhood obesity.

At the individual child level, both psychosocial influences (including food norms, preferences, knowledge, attitudes, skills, supports and role models) and biological influences (including: age, gender, genes, and physiology) interact within the child to direct eating and activity behaviors. The individual child is also interacting within a family that brings another level of influences on behaviors that include feeding practices, parent and childcare provider interaction related to feeding, family attitudes and attention to health care. At the community and organizational level, the interaction between the individual environment that children are in when not at home further influences their behaviors. Factors such as access to healthy and unhealthy foods in schools and after-school programs, access to healthy foods and activity opportunities in the child's community, local public health programs and policies will all impact the child.

Effective programs are those that target children's eating and activity-based behaviors through approaches aimed at children directly, as well as parental and community involvement, and environmental change. By taking an ecological approach to childhood obesity prevention, CCE professionals consider the many factors associated with childhood obesity and determine how to best create many points of impact that can result in positive change. In some communities, CCE may be a leader and form a coalition to take action on childhood obesity. In other locations, CCE will join existing coalitions and augment projects to increase effectiveness and target populations reached.

Food Safety: The food supply must be safe to ensure a healthy, well-nourished population. While the United States has one of the safest food supplies in the world, each year about millions of illnesses occur, more persons are hospitalized, and many die from foodborne illness. Food-borne illnesses cost the United States \$77.7 billion annually in health care and other losses. Center for Disease Control compiled data indicate that known pathogens account for an estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths. An untold number of foodborne illnesses go unreported because people may not seek medical attention and due to varying capabilities of local and state health departments to collect and report incidences. Food contamination also affects the viability of firms in the food system, from small, to regional to international companies. Safety from farm to retail and then in the home can be improved through research and its application to training, collaboration among all involved in the food system, and information sharing.

A variety of good agricultural and manufacturing practices can reduce the spread of microbes among plant foods and animals and prevent the contamination of foods at retail. The safety of prepared foods is also of concern given the important proportion of foods consumed away from home and purchased already prepared. Targeted training for food producers, preparers and retailers is a priority. In addition, consumer education on proper food handling and preparation in the home is a vital component to ensuring food safety. Consumers continue to improve their food safety practices but some are still unknowingly practicing

some unsafe behaviors.

Food Insecurity: Food insecurity, as defined by the USDA, refers to sustained access at all times to food adequate in quantity and quality to maintain a healthy life in socially acceptable ways. Hunger is the uneasy or painful sensation caused by a lack of food, and is a potential although not necessary, consequence of food insecurity. Having enough calories is not sufficient to assure nutritional adequacy. Foods available may not provide essential nutrients for health. Called "hidden hunger," this type of malnutrition affects more than 3 billion people in developing countries. In developed countries, the problem of overweight may be characterized by high caloric consumption but inadequate levels of important nutrients. It is a priority of this plan to work with vulnerable populations to educate families and influence policies that will allow youth, families and communities to make sound nutritional decisions on a tight budget.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Childhood overweight and obesity is best addressed ecologically through support of integrated community and family systems. These systems are necessary to promote improved eating and physical activity behaviors of New York State children and to reduce the prevalence of childhood obesity.

The National Institute of Food and Agriculture supports childhood obesity research and education programs on affordable and available nutritious foods and guidance for individuals and families enabling science-based decisions about health and well-being. In New York State, research on the etiology of obesity and chronic disease is applied by Cornell Cooperative Extension (CCE) to locally based nutrition and wellness education developed in partnership with families, youth, health and wellness professionals, and other community-minded individuals and groups. Cornell and other academic research are applied to CCE programs promoting healthful and secure community food systems to address childhood obesity. Neighborhood and community resources complement federal, state, and local government support to implement this outreach.

- Food safety can be increased by improving: agricultural practices before harvest; how foods are processed, stored and marketed and how foods are handled and served in the home and commercially.
 - Cornell and other research on food contamination will be applied to education on effective food safety practices.
 - Policies and practices across the food system affect the safety of foods and can be better coordinated.

- Community, federal, state, and local government support will be provided to implement extension outreach.

2. Ultimate goal(s) of this Program

- Affordable, available nutritious foods.
- Guidance for families to make science-based decisions about health and well-being.
- Prevention of childhood overweight and reduction of long term risks for chronic disease by encouraging healthy eating and increased physical activity.
 - Provide for the nutritional well-being and safety of New York State residents through helping to assure a continuous, reasonably priced supply of wholesome foods.
 - Improve food safety and food-handling practices throughout the food system.
 - Reduce incidence of food-borne illnesses.
 - Improved community food security and healthful food-choice options.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	206.3	0.0	2.0	0.0
2016	206.3	0.0	2.0	0.0
2017	206.3	0.0	2.0	0.0
2018	206.3	0.0	2.0	0.0
2019	206.3	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

This is a statewide multi-disciplinary extension program with emphases cutting across many content areas and audiences. Campus-based faculty and extension associates provide leadership and participate in work teams with CCE educators. Programs draw upon Cornell and other academic research. All are involved in designing, implementing and evaluating tailored outreach. Trained Extension nutritionists and parenting and 4-H educators lead local program activities. Researchers in horticulture and agricultural economics and marketing investigate options for improving local production and direct marketing of fresh produce into areas where they are currently lacking.

Programs for children and youth are delivered through a variety of settings: 4-H camps, clubs, fairs and afterschool as well as through child-parent/grandparent involvement projects and in-school student education. Family-focused programs promote a positive parent/care-giver-child feeding relationship and planning for good nutrition and physical activity. Extension staff collaborate with community leaders to improve the local environment for healthy eating and active living. Activities include sequential learning

events, "community workshops" and engagement with community and civic leaders to improve the environment for nutrition and wellness and support of the local food system.

Food safety activities provide educational programs in collaboration with regulatory agencies involved with assuring the safety and wholesomeness of food processed, prepared, sold and handled and consumed by the public in New York State. They are delivered via courses, presentations and materials, support transfer of new research-based information for appropriate applications in the agricultural production, manufacturing, retailing and food service industries.

Sample Statewide/Regional Initiatives that fall within this Plan of Work:

- Choose Health at 4-H Camps
- Choose Health Officers (CHO)
- Choose Health: Fun, Food & Fitness (CHFFF)
- Choose Health Action Teens (CHAT)
- 4-H Produced in New York (PiNY)
- Adopting Healthy Habits (AHH)
- Collaboration for Health, Activity, and Nutrition in Children's Environments (CHANCE)
- Cornell Healthy After School Self-Assessment (CHASE)
- Cornell Farm to School Research and Extension Program
- Cornell Farm to School Research Program
- Creating Healthy Places to Live, Work, and Play
- Eat Smart New York (ESNY)
- Expanded Food and Nutrition Education Program (EFNEP)
- Families Growing Together for Healthy Living
- Farmers Market Nutrition Program
- Youth Healthy Eating and Active Living Program Work Team (YHEAL PWT)
- Cornell NutritionWorks
- Supplemental Nutrition Assistance Program Education (SNAP-Ed)
- Small Steps Worksite Wellness
- Good Agricultural Practices (GAPS)
- Master Food Preservers

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • TV Media Programs • eXtension web sites • Web sites other than eXtension • Other 1 (On-line Instruction)

3. Description of targeted audience

- Audiences reached include: moderate and low income families; 4-H youth; children in and out of school; nutrition, health, and family professionals; front-line family workers; school food service staff; community leaders; and government and agency leaders at the local, state, and federal level.
- Food safety audiences reached include: processors, producers and consumers with targeted programs for moderate and low income families; 4-H youth; nutrition, health, and family professionals; front-line family workers; food service and food production staff and their managers and directors; and government and agency leaders at the local, state, and federal level.
- Food security and hunger programming addresses individuals and families, caregivers, nutritionists, community leaders, human service providers and food policy makers at the local, state, and national levels.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	(4.1d1) of children and youth who demonstrate knowledge or skill gains related to healthy eating and active living
2	(4.1g) # of youth program participants documented to have applied healthy eating and/or active living, recommendations
3	(4.1h) # of adult program participants documented to have applied healthy eating and/or active living, recommendations
4	(4.2c) # of program participants who adopt food resource management and/or food security practices
5	(4.2d) # of program participants documented to have improved food resource management and/or food security
6	(4.3c) # of program participants documented to have increased involvement in public/community childhood obesity prevention actions
7	(4.3d) # of participating schools and/or communities documented to have made practice and/or policy changes to promote healthy eating and active living
8	(4.1d2) # parents/caregivers and other adults who demonstrate knowledge or skill gains related to healthy eating and active living
9	(4.4e) # of program participants who have acted to improve their food security status.
10	(4.4f) # of community action plans implemented as a result of community based assessment.
11	(4.4g) # of individuals or households documented to have improved food security status.
12	(4.5b) # of consumers who demonstrate knowledge or skill gains related to reducing food safety and/or foodborne risks and illnesses including recommended purchasing, handling, storage, and preparation practices
13	(4.5c) # of consumers documented to have implemented new and/or increased application of ongoing safe food purchasing, handling, storage, and preparation practices.
14	(4.6c) # of producers/ processors/food service providers documented to have implemented new and/or increased application of ongoing safe food production, processing, storage, handling, marketing, and preparation practices.
15	(4.7c) # of communities/ firms/or organizations documented to have assessed practices or food safety policies as a result of participating in relevant educational programs.
16	(4.7d) # of communities/ firms/or organizations documented to have implemented improved practices or food safety policies as a result of participating in relevant educational programs.

Outcome # 1

1. Outcome Target

(4.1d1) of children and youth who demonstrate knowledge or skill gains related to healthy eating and active living

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

(4.1g) # of youth program participants documented to have applied healthy eating and/or active living, recommendations

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

(4.1h) # of adult program participants documented to have applied healthy eating and/or active living, recommendations

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

(4.2c) # of program participants who adopt food resource management and/or food security practices

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

(4.2d) # of program participants documented to have improved food resource management and/or food security

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

(4.3c) # of program participants documented to have increased involvement in public/community childhood obesity prevention actions

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

(4.3d) # of participating schools and/or communities documented to have made practice and/or policy changes to promote healthy eating and active living

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

(4.1d2) # parents/caregivers and other adults who demonstrate knowledge or skill gains related to healthy eating and active living

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

(4.4e) # of program participants who have acted to improve their food security status.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

(4.4f) # of community action plans implemented as a result of community based assessment.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

(4.4g) # of individuals or households documented to have improved food security status.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 12

1. Outcome Target

(4.5b) # of consumers who demonstrate knowledge or skill gains related to reducing food safety and/or foodborne risks and illnesses including recommended purchasing, handling, storage, and preparation practices

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 13

1. Outcome Target

(4.5c) # of consumers documented to have implemented new and/or increased application of ongoing safe food purchasing, handling, storage, and preparation practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 502 - New and Improved Food Products
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 14

1. Outcome Target

(4.6c) # of producers/ processors/food service providers documented to have implemented new and/or increased application of ongoing safe food production, processing, storage, handling, marketing, and preparation practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 502 - New and Improved Food Products
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 15

1. Outcome Target

(4.7c) # of communities/ firms/or organizations documented to have assessed practices or food safety

policies as a result of participating in relevant educational programs.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 16

1. Outcome Target

(4.7d) # of communities/ firms/or organizations documented to have implemented improved practices or food safety policies as a result of participating in relevant educational programs.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Description

The scope and scale of outcomes is greatly enhanced by augmenting Federal Formula Funds with external sources of support. However, external grant funds may only support certain activities or aspects of this plan. Local governments, an important funder for local extension staff, face diminished revenues and increased mandated costs outside of the non-mandated extension programs. Thus having professionals available to implement new research-based programming is not always possible. A very slow recovery from the recession and pockets of high unemployment in the state affect how public and private funds are allocated to educational activities. In some instances, family subsistence will be a higher priority than improved nutrition and opportunities for physical activity. As an example of the latter, in New York State, cost cutting proposals include closing some public parks and reducing recreational physical activity programs. Some decision-makers and others in the community may not agree with all aspects of an ecological approach to childhood obesity prevention. They may disagree with community or institutional policy changes such as eliminating non-nutritious snacks from after school activities and place all responsibility on the individual and within the family, disregarding most environmental factors outside the family.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Typical system evaluation efforts can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders. In support of each of the logic models, we are working to provide educators with recommended evaluation strategies and standard instruments for their use. We will continue our work with the Cornell Office for Research on Evaluation (CORE) to develop these resources.

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During 2014 and 15 we will continue to work with CORE to expand the Evaluation Partnership Program using the Systems Evaluation Protocol, to be focused around our plan of work. Overall goals include:

- Building evaluation capacity
- Develop networks of CCE staff and associations to review, adapt and model the statewide plans of work
- Develop and implement high-quality evaluation plans around specific programs within plans
- Improve evaluation practices
- Use evaluation to improve programs

The Nutrition, Food Safety and Security and Obesity Prevention plan includes food and nutrition programs for youth and families, food security planning aimed at decision makers, and food safety programs intended to help families and business/agricultural practices. Continued general efforts on evaluation capacity are expected. Additionally a more thorough evaluation of the Choose Health Food Fun and Fitness program designed for youth is expected. Indicators related to this new evaluation effort are emerging.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

4-H Youth Development/Children, Youth and Families

2. Brief summary about Planned Program

This plan frames applied research and Cornell Cooperative Extension (CCE) programs connected to 4-H Youth Development/Children, Youth and Families.

Youth development is defined as an ongoing process that enables individuals to lead a healthy, satisfying, and productive life as youth and later as adults, because they gain the competence to earn a living, to engage in civic activities, to nurture others and to participate in social relations and cultural activities; Youth development is also defined as an approach emphasizing active support for the growing capacity of young people by individuals, organizations, and institutions, especially at the community level. The practice of youth development refers to the application of principles to a planned set of practices, or activities, that foster the developmental process in young people (Hamilton, Hamilton, & Pittman, 2003). Positive youth development is an approach that assumes all young people have assets regardless of their socio-economic status, race/ethnicity and gender.

The Youth Development program applies positive youth development including life skill development to the 4-H national mission mandates of science, technology engineering and math (STEM), civic engagement (citizenship), and healthy living (Components of the latter focused on healthy eating and active living are described in the Childhood Obesity and Nutrition Plan of Work). Each Youth Development mandate has NYS and national logic models to guide program priorities and to identify youth outcomes.

The family emphases in this plan include human development and social wellbeing, economic wellbeing, and quality of home and work environments. This emphasis area includes parenting and care practices, and care programs and policies affect the quality of life for children, youth, elders and their families. Cornell Cooperative Extension parenting and dependent care programs are designed to integrate research with community education on parenting and infant/child care-giving practices and policies. Current research focuses include behavioral and psychological development from conception through later life.

Also included in this plan is an emphasis on family economic security. This emphasis aims to increase our service to and empower low and moderate-income households who are especially vulnerable to financial setbacks and have less disposable income to commit to savings. The effort includes education to low-income households who often live in poor-quality housing that has high levels of radon, carbon monoxide, lead, asbestos, and basement mold. Research draws on a broad-based and diverse set of social science and design methodologies to understand how planning, design and management of the built environment affects individuals, groups, organizations and communities, and how this knowledge can generate innovative design solutions for pressing social and cultural issues.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
124	Urban Forestry	0%		4%	
131	Alternative Uses of Land	3%		6%	
134	Outdoor Recreation	1%		11%	
511	New and Improved Non-Food Products and Processes	3%		0%	
607	Consumer Economics	7%		0%	
608	Community Resource Planning and Development	15%		0%	
610	Domestic Policy Analysis	4%		10%	
611	Foreign Policy and Programs	0%		2%	
801	Individual and Family Resource Management	8%		2%	
802	Human Development and Family Well-Being	12%		37%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	7%		0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	4%		10%	
805	Community Institutions, Health, and Social Services	6%		0%	
806	Youth Development	30%		18%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Youth development through experiential learning is the foundation of 4-H programming. Participation in high quality out-of-school programs is linked with a lower incidence of problem behaviors, such as decreased academic failure, substance abuse, and delinquency (Lerner, Lerner, & Phelps, 2008). Relative to science literacy, in international comparisons, U.S. student performance in mathematics and science is at or below levels attained by students in other countries in the developed world (Provasnik et al 2012). Science (or STEM) literacy is routinely identified as a key to our economic future and a significant public value of 4-H STEM programming. The National Academy, Learning Science in Informal Environments (2009) report links experiential learning with higher student performance in mathematics and science.

Effective parenting practices differ across several developmental stages of childhood, and include a range of outcomes, some of which can be customized to meet special needs, address cultural differences and still be sensitive to the needs of particular family structures. There is a continuing need for education

on what constitutes high quality child care to help parents and guardians select and monitor their children's care, and targeted education for other stakeholders and decision-makers affecting these issues. Economic security, financial and other household resource management are educational priorities. There are a multitude of economic challenges facing communities in New York State and the nation as well.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Youth

- Curricula, programs, and learning experiences incorporate evidence and best practices for building life skill competencies (i.e., college and career readiness). Best practices related to specific delivery methods provide rich opportunities for deep impact.
- Program educators and volunteers working with youth receive professional development and support on how to incorporate research findings and evaluation plans into program design. These efforts focus on best practices to meet the needs of youth at various stages of their development.
- Youth have different interests and needs; therefore, they may respond differently to the same opportunities. Youth should have choices about activities in which they participate, including the chance to help shape those activities.
- Many opportunities exist to connect youth to the educational resources of Cornell University and other Land Grant Universities in the area of STEM, Healthy Living, and Civic Engagement.

Family

- Most parents and relative caregivers want to do the best they can for their children.
- Parenting and child development knowledge and skills are applicable to many family situations and can improve parent-child interactions and child nurturance over time.
- Selection of high quality childcare can be improved through education.
- Increased household disposable income and improved indoor environments will result in improved quality of life for individuals, more prosperous communities and overall improvement in the NYS economy.

2. Ultimate goal(s) of this Program

Youth

- Facilitate programming that promotes positive youth development
- Prepare youth for success in 1) postsecondary education and 2) career pursuits by engaging children and youth in a variety of learning opportunities
- Youth lead healthy, satisfying, and productive lives

- Youth become caring and contributing members of society
- Youth become life-long learners
- Youth become knowledgeable, contributing participants in STEM, Healthy Living, and Civic Engagement issues in their communities

Family

- Improve parenting practices that result in better child and youth outcomes.
- Improve parent/care giving practices resulting in parents and caregivers reporting increased confidence in their roles.
 - Improve financial status of targeted NYS residents.
 - Improve indoor air quality in low income households resulting in better health outcomes.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	287.0	0.0	3.0	0.0
2016	287.0	0.0	3.0	0.0
2017	287.0	0.0	3.0	0.0
2018	287.0	0.0	3.0	0.0
2019	287.0	0.0	3.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Youth: 4-H Youth Development is a comprehensive, statewide positive youth development program. 4-H entails a wide variety of applied research and educational methods based on need and local context. Campus-based faculty and Extension Associates, Program Work Teams (PWTs), State Office staff, the New York State Association of CCE 4-H Educators (NYSACCE4-HE), and county-based educators are all involved in designing, implementing, and evaluating program efforts.

A variety of educational strategies are used to support county educators and volunteers. Professional development goals include assisting colleagues in gaining the knowledge and skills necessary to assess the ranges of possibilities that exist within and among initiatives (i.e., Mission Mandates). Trained 4-H educators and staff, volunteers, youth, schoolteachers, community agency staff and others lead youth in 4-H projects.

4-H projects are a planned series of experiential learning opportunities in a variety of settings. Through their projects, youth develop knowledge, practical skills, and life skills (e.g., robotics, self-awareness, public presentation, responsible decision-making).

Delivery Modes

4-H takes place in a variety of settings including: after-school programming, camps, 4-H clubs, school

enrichment activities, camps, and community events.

Family: This is a comprehensive, statewide educational program entailing multiple education methods depending on local context and need. Campus-based faculty and Extension Associates and county-based educators are involved in designing, implementing, and evaluating tailored (as well as state-wide) educational efforts depending on the focus and scope of their role.

Sample Statewide Program Initiatives that fall within this Plan of Work:

- Events: 4-H Career Explorations Conference, Capital Days, State Teen Action Representative Retreat (STARR), National 4-H Conference, Dairy Discovery Days, Animal Crackers, Public Presentations, State Fair, etc.
 - 4-H and NYS Library Partnership
 - Operation Military Kids
 - Public Presentations
 - 4-H National Mentoring Program
 - ACT (Assets Coming Together) for Youth
 - Children, Youth, and Families at Risk Program (CYFAR)
 - Cornell Early Childhood Program
 - Cornell Research Program on Self-Injurious Behavior
 - The Parenting in Context Initiative
 - PROSPER
 - The Role of Grandparents in the Lives of Adolescent Grandchildren
 - Family Economics and Resource Management
 - Design & Environmental Analysis: knowledge, ideas, and designs that contribute to improving the places in which we work, live, learn, heal, and play
 - Volunteer development opportunities and events

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • TV Media Programs • eXtension web sites • Web sites other than eXtension

3. Description of targeted audience

Youth

- Young people ages 5-19: Cloverbuds (5-8), pre-teens (9-12), and teens (13-19)
- Youth development educators, staff, and volunteers
- Families, parents, and guardians
- Youth-serving organizations

- Teachers and schools (elementary, middle, high school)
- Community leaders
- Priority audiences include youth not formerly served and military youth and families

Family

- Parents, grandparents and other caregivers
- Child care providers
- Community stakeholders such as employers, leaders and policy makers at local/state levels
- Low and moderate-income households who are especially vulnerable to financial setbacks and have less disposable income to commit to savings
 - Low-income households living in poor-quality housing

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	(5.1f) number of youth participants who demonstrate ability to express their ideas confidently and competently.
2	(5.1g) number of adult volunteers documented to mentor and advise youth and other adult volunteers in an effective and positive manner.
3	(5.1h) number of youth participants documented as serving in age-appropriate leadership roles.
4	(5.1i) increased number of youth organizations/programs documented as incorporating youth voice to reflect youth needs, interests, and excitement for learning in programming.
5	(5.2d) number of participants demonstrating increased awareness of STEM, improved STEM skills including scientific methods, knowledge of specific sciences, and/or increased awareness of opportunities to contribute to society using STEM skills.
6	(5.2e) number of participants that report improved success in school achievement or have been observed to improve academic improvement, success in school science and/or increased interest in STEM.
7	(5.2f) number of youth applying STEM learning to contexts outside 4-H programs, e.g., school classes, science fairs, invention contests, etc.
8	(5.2g) number of youth expressing interest/demonstrating aspirations towards STEM careers, e.g., career fairs, job shadowing, volunteer work or internships.
9	(5.2h) number of youth adopting and using new scientific methods or improved technology.
10	(5.4e) number of participating infant and child caregivers reporting to have applied positive care-giving practices.
11	(5.4f) number of participating persons with care-requiring dependents reporting to have used child care quality characteristics in their care selection.
12	(5.4g) number of participating persons with care-requiring dependents reporting positive change in child care as a result of participating in educational programs.
13	(5.5c) number of program participants reporting to have been involved in community level assessments of family care needs.
14	(5.5d) number of communities documented to have taken action to address family needs that can be related to educational programs and/or critical community collaborations provided.
15	(5.6c) number of parents and other adults providing parental care adopting development-ally appropriate and effective parenting methods.
16	(5.6d) number of parents/ relative caregivers reporting to have experienced positive change in parent-child relationships and child nurturance that they attribute to implementing new parenting behaviors learned in educational programs.
17	(5.7c) number of program participants reporting they are practicing improved money management skills such as comparison shopping, paying bills on time, paying more than minimum payment, checking credit report, and reviewing and understanding bills/statements as a means to meeting financial goals.
18	(5.7d) number of program participants reporting to have met day-to-day financial obligations while also progressing on future goals for home ownership, savings, retirement accounts, etc.
19	(5.7e) number of program participants reporting to have reduced debts and/or increased savings.
20	(5.8c) number of program participants documented to have taken measures to prevent or remediate indoor air quality issues.
21	(5.3f) number of youth documented to have practiced life skills in authentic decision-making partnerships with adults as a result of participating in the program.
22	(5.3g) number of adults documented to have applied knowledge, skills and abilities and behaviors necessary as they assist youth developing into productive community members as a result of participating in the program.
23	(5.3h) number of documented instances in which youth and adults partner to improve quality of life within a community as a result of participating in the program.

Outcome # 1

1. Outcome Target

(5.1f) number of youth participants who demonstrate ability to express their ideas confidently and competently.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

(5.1g) number of adult volunteers documented to mentor and advise youth and other adult volunteers in an effective and positive manner.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

(5.1h) number of youth participants documented as serving in age-appropriate leadership roles.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

(5.1i) increased number of youth organizations/programs documented as incorporating youth voice to reflect youth needs, interests, and excitement for learning in programming.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

(5.2d) number of participants demonstrating increased awareness of STEM, improved STEM skills including scientific methods, knowledge of specific sciences, and/or increased awareness of opportunities to contribute to society using STEM skills.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

(5.2e) number of participants that report improved success in school achievement or have been observed to improve academic improvement, success in school science and/or increased interest in STEM.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

(5.2f) number of youth applying STEM learning to contexts outside 4-H programs, e.g., school classes, science fairs, invention contests, etc.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

(5.2g) number of youth expressing interest/demonstrating aspirations towards STEM careers, e.g., career fairs, job shadowing, volunteer work or internships.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

(5.2h) number of youth adopting and using new scientific methods or improved technology.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

(5.4e) number of participating infant and child caregivers reporting to have applied positive care-giving practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

(5.4f) number of participating persons with care-requiring dependents reporting to have used child care quality characteristics in their care selection.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 12

1. Outcome Target

(5.4g)) number of participating persons with care-requiring dependents reporting positive change in child care as a result of participating in educational programs.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 13

1. Outcome Target

(5.5c) number of program participants reporting to have been involved in community level assessments of family care needs.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 14

1. Outcome Target

(5.5d) number of communities documented to have taken action to address family needs that can be related to educational programs and/or critical community collaborations provided.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 15

1. Outcome Target

(5.6c) number of parents and other adults providing parental care adopting development-ally appropriate and effective parenting methods.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 16

1. Outcome Target

(5.6d) number of parents/ relative caregivers reporting to have experienced positive change in parent-child relationships and child nurturance that they attribute to implementing new parenting behaviors learned in educational programs.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 17

1. Outcome Target

(5.7c) number of program participants reporting they are practicing improved money management skills such as comparison shopping, paying bills on time, paying more than minimum payment, checking credit report, and reviewing and understanding bills/statements as a means to meeting financial goals.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 18

1. Outcome Target

(5.7d) number of program participants reporting to have met day-to-day financial obligations while also progressing on future goals for home ownership, savings, retirement accounts, etc.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 19

1. Outcome Target

(5.7e) number of program participants reporting to have reduced debts and/or increased savings.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 20

1. Outcome Target

(5.8c) number of program participants documented to have taken measures to prevent or remediate indoor air quality issues.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 21

1. Outcome Target

(5.3f) number of youth documented to have practiced life skills in authentic decision-making partnerships with adults as a result of participating in the program.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 22

1. Outcome Target

(5.3g) number of adults documented to have applied knowledge, skills and abilities and behaviors necessary as they assist youth developing into productive community members as a result of participating in the program.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 23

1. Outcome Target

(5.3h) number of documented instances in which youth and adults partner to improve quality of life within a community as a result of participating in the program.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Description

Youth

Fiscal pressures internal to Extension and among community organizations influence the scope and quality of programming available to youth. Increasing diversity of our populations creates need for a broader array of program materials, strategies and for a focus on multicultural competencies. Changing educational standards influence acceptability of existing curricula. Regional demographic differences and differences across communities influence both needs and program strategy; demographics shifts and under-served audiences will require professional development to build staff competencies for working with non-traditional populations.

Family

The economic, political and governmental sectors affect the quality, availability and accessibility of childcare. The growth of aging and minority populations in the US means more diverse cultures and values related to parenting, childcare, and family care giving. Natural disasters and the economy affect household financial status and impact energy issues. They also affect the quality of the indoor air environment. Government regulation and policies driven by public priorities can change the circumstances of personal finances, the energy market and the quality of the indoor household environment. Public and private funders and CCE may have fewer fiscal resources and other resources to devote to the quality of life in financial, energy and indoor air quality matters.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Typical system evaluation efforts can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders. In support of each of the logic models, we are working to provide educators with recommended evaluation strategies and standard instruments for their use. We will continue our work with the Cornell Office for Research on Evaluation (CORE) to develop these resources.

In 2015, we will continue to review the national outcome framework and connect it, as possible, to our statewide outcome framework.

Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to strengthen evaluation practice and build evaluation capacity in CCE. CORE has developed a Protocol for evaluation that takes a systems approach, recognizing that individual programs and their evaluations are part of larger program portfolios and are shaped by needs and context at multiple levels of the Extension system. CORE has tested and refined this Protocol in partnership with CCE programs since 2006. A key step in the Protocol is to develop program models, in both familiar columnar form as logic models and in a visual form called pathway models. These models form the basis for focusing evaluation efforts in Extension programs.

Beginning in 2013, CORE and CCE partnered to initiate program modeling and evaluation planning at the level of the statewide Plans of Work. This effort, which is ongoing, will contribute to a framework for programming and evaluation at multiple levels. The Protocol is also being integrated into professional development in CCE, in collaboration with CCE leadership, to promote consistent approaches to evaluation of county-based, regional, and state-wide programs. CCE organizational development efforts are also being devoted to organizing common high-quality measures that can be used by a wide range of programs where applicable.

During 2014 and 15 we will continue to work with CORE to expand the Evaluation Partnership Program using the Systems Evaluation Protocol, to be focused around our plan of work. Overall goals include:

- Building evaluation capacity
- Develop networks of CCE staff and associations to review, adapt and model the statewide plans of

work

- Develop and implement high-quality evaluation plans around specific programs within plans
- Improve evaluation practices
- Use evaluation to improve programs

This plan is focused on the positive youth development impacts of the NYS 4-H Program, the quality of child caregiving and parenting as a result of training offered, and improving family life by helping families to assess and address money management practices and indoor air quality issues. In conjunction with the new 4-H Common Measures being piloted nationally, NYS 4-H Youth Development is focused on documenting impact, identifying best practices, and building capacity for more precise evaluation methods within the system. Additionally a more thorough evaluation of the Teen Leadership and workforce development is expected. Indicators related to this new evaluation effort are emerging.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Community and Economic Vitality

2. Brief summary about Planned Program

This plan frames the programs aimed at empowering individuals and communities to make sound decisions for the future through access to research, data and resources, best practices, university-based resources and community education.

Community emphases include community and economic development processes, community sustainability and resiliency, agriculture and food systems development, land use and energy, emergency preparedness and to some extent entrepreneurship and workforce development. Cornell has a commitment to New York citizens and local officials to build their capacities so they can solve problems and build strong and vibrant communities. Agriculture and food systems development includes efforts that promote community farmland protection initiatives, promote local foods, supports agricultural entrepreneurship, public issues education related to specific agriculture/community conflict. Our educational programs support inter-municipal and regional collaborations, and new public-private partnerships that spur innovative strategies to address complex community development issues.

This plan also includes the Master Gardener Volunteer (MGV) Program. Programs developed by MGVs are managed by individual Cornell Cooperative Extension (CCE) and applied research associations and are related to local needs, talents and interests. Because the focus is very multidisciplinary it doesn't fit neatly into one of the other planned programs, but instead is looked upon as a community vitality initiative.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%		6%	
131	Alternative Uses of Land	25%		0%	
134	Outdoor Recreation	5%		0%	
602	Business Management, Finance, and Taxation	5%		16%	
608	Community Resource Planning and Development	45%		21%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%		14%	
805	Community Institutions, Health, and Social Services	10%		43%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Our focus is on developing capacity among citizens, leaders, and local officials so they are better prepared to address challenges and opportunities, improve quality of life, and build strong and vibrant communities. Building local capacity for governance, enhancing local economies, and investing in human capital by providing research-based knowledge, public issues education, and education and training are keys. We work toward the long term sustainability and well-being of communities through collaborations and partnerships and promote active and representative participation toward enabling all community members to shape their collective future. Even in the most rural areas, changing populations and land use patterns often bring agriculture/horticulture/natural resource enterprises in contact with neighbors or visitors who do not understand or appreciate the nature of their operations and contributions to the community. Local municipal leaders must balance private property rights, community growth, quality of life issues and environmental protection. Partnerships, based on mutual respect and trust, unleash community potential of and provide a powerful tool to create positive and lasting change for communities.

2. Scope of the Program

- In-State Extension
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- The institutional capacity and needs of New York's smaller and rural local governments are far different than is often defined by larger municipal and state government organizations.
- When a number of communities have a common goal, but each is unable to pursue it separately,

collaboration may be a possible solution.

- Local governments experience a "boundary problem" when each community operating alone cannot see the problem nor identify what needs to be done because the problem has a multi-jurisdictional nature.
- Knowledge of the interactions of environmental resources, quality of life, and local economies will lead to an involved, proactive citizenry.
- Citizens are concerned about the impacts of a variety of decisions on the environment and on quality of life issues, and citizens want to pay attention to the connection between work, civic life, and residential patterns.
- Collaboration between agriculture/horticulture/natural resource enterprises, community leaders and members can lead to identification of mutual interests and minimization or resolution of conflicts.
- Economic development occurs in a different context than in the past.
- There is increased interest in community readiness and resiliency, especially in efforts to adapt to a changing climate.
- Communities that utilize a community development approach to areas like ag and food systems, land use and energy will learn to use that approach for other community issues.

2. Ultimate goal(s) of this Program

- More resilient communities.
- Ensure that diverse interests and populations in communities are reflected within and engaged as key stakeholders - this includes engaging community networks that link diverse sub-groups.
- Better utilize community resources to improve and sustain quality of life.
- Increased local capacity for management and protection of local environmental resources.
- Avoid or minimize conflicts between agriculture/horticulture/natural resource enterprises and community members and resolve them within communities when they occur.
- View agriculture/horticulture/natural resource enterprises as contributing and positive elements in the community.
- Retirees develop leadership capacity to engage in the application of science-based solutions to environmental problems at the community level..
- Communities experience high quality of life, social cohesion, ecological integrity, effective decision making, and new economic opportunities .
- More sustainable local economies through diversification.
- Institutionalize sustainable practices so that communities actively manage their environments protecting and enhancing financial, infrastructure, human, environmental, and social capitals.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	99.7	0.0	1.5	0.0
2016	99.7	0.0	1.5	0.0
2017	99.7	0.0	1.5	0.0
2018	99.7	0.0	1.5	0.0
2019	99.7	0.0	1.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

CCE, CUAES and NYSAES have a commitment to the people of New York to build self-capacity among citizens, leaders, and local officials so they are better positioned to address challenges and opportunities, improve quality of life, and build strong and vibrant communities. Through integrated research and extension agendas, we can help develop effective and collaborative agriculture, energy, emergency management, and land use/natural resource management approaches and policies that enhance economic, environmental and social connections. Program staff work with a variety of state and local groups to tackle projects that vary in nature from applied research to pilot projects or case studies. These activities, which are demand driven (locally or regionally initiated usually with sponsored or self-financing), provide valuable insights, resources and materials for extension education.

Sample Statewide/Regional Initiatives that fall within this Plan of Work

- Agriculture and Food Systems Development: Community and Economy
- Community and Energy
- Leadership Development
- Workforce Development
- Community Capacity Building
- Land Use Education
- Regional Economic Development
- Sustainable and Resilient Communities
- Training for Local Officials
- Entrepreneurship
- New York Extension Disaster Education Network (NY EDEN)
- Master Gardener Volunteer Program

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (webinars) • Other 2 (corresp courses/instruction) 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • TV Media Programs • eXtension web sites • Web sites other than eXtension • Other 1 (e- news)

3. Description of targeted audience

- Elected officials, community leaders, business and economic leaders, not-for-profit agencies, schools, environmental groups, agribusiness leaders, etc.
- Retirees and other elders who have time to engage in community stewardship
- Engaged community citizens
- Communities as whole: youth and adults organizations, businesses, schools, and other institutions

- Agriculture/horticulture/natural resource enterprise managers, community residents and visitors, youth, local media, local officials, and local planning and economic development staff
- Workforce development specialists

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	(6.1f) number of communities who plan for and implement initiatives on community based agricultural economic development, land use, energy, workforce development, business and entrepreneurial development and assistance, non-profit sector development and/or other elements of sustainable growth.
2	(6.1g) number of residents and/or community leaders, who plan for and initiate steps to enhance facilities, and/or other community resources or services
3	(6.1j) number of communities establishing an infrastructure and climate to support entrepreneurs, local farms and agribusinesses attributable at least in part to initiatives of the program.
4	(6.1k) number of communities documenting improvements in facilities and/or other community resources or services.
5	(6.2c) number of communities instituting new or enhanced participatory processes related to economic development
6	(6.2e) number of documented instances in which a community effectively resolves a need or strengthens community assets attributable at least in part to participation in the program.
7	(6.3c) number of communities and municipalities that address the connection between their land base and possible energy scenarios
8	(6.3d) number of sustainability initiatives adopted
9	(6.3e) number of communities that incorporate energy use and development in their comprehensive plans
10	(6.4c) number of community leaders documented to apply community economic development and quality of life indicators to support decision-making.
11	(6.4d) of communities implementing projects that enhance community sustainability and/or protect public health and community well-being through sound environmental management
12	(6.5a) # of municipalities adopting land use planning tools that incorporate environmental dimensions and/or develop new institutional arrangements to support land use planning and environmental management.
13	(6.5b) # of communities adopting or updating farmland preservation and/or agricultural economic development plans
14	(6.6b) # of residents and/or community leaders, who plan for and initiate steps to enhance public spaces
15	(6.6c) # of new or enhanced community organizations or networks linking diverse sub-groups and focused on enhancing community sustainability.
16	(6.6d) # of communities documenting improvements in public spaces.
17	(6.7c) number of instances in which producers/ horticulture businesses/ natural resource enterprises, residents and community leaders work together to address issues
18	(6.7d) number of documented instances in which agriculture/community conflicts are resolved locally.
19	(6.8e) number of communities that assess how current policies and infrastructures sustain or impede agriculture/ horticulture/natural resource enterprises (such as farmland protection or including such enterprises in economic development planning) and how the enterprises are affected by public policy.
20	(6.8f) number of communities that initiate specific plans to address agriculture/ horticulture/ natural resource enterprise related issues or capitalize on new opportunities including community agriculture initiatives.
21	(6.8g) number of communities documented to adopt, maintain, or expand policies supportive of appropriate agriculture/horticulture/ natural resource enterprise development and/or community agriculture.
22	(6.9f) number of community residents practicing management tactics in residential landscapes and homes that work to sustain or enhance a healthy community and environment.
23	(6.9g) number of community residents with improved availability and access to fresh fruits and vegetables.
24	(6.9h) number of community education/demonstration food gardens established or maintained

Outcome # 1

1. Outcome Target

(6.1f) number of communities who plan for and implement initiatives on community based agricultural economic development, land use, energy, workforce development, business and entrepreneurial development and assistance, non-profit sector development and/or other elements of sustainable growth.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

(6.1g) number of residents and/or community leaders, who plan for and initiate steps to enhance facilities, and/or other community resources or services

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

(6.1j) number of communities establishing an infrastructure and climate to support entrepreneurs, local farms and agribusinesses attributable at least in part to initiatives of the program.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

(6.1k) number of communities documenting improvements in facilities and/or other community resources or services.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

(6.2c) number of communities instituting new or enhanced participatory processes related to economic development

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

(6.2e) number of documented instances in which a community effectively resolves a need or strengthens community assets attributable at least in part to participation in the program.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

(6.3c) number of communities and municipalities that address the connection between their land base and possible energy scenarios

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 131 - Alternative Uses of Land
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

(6.3d) number of sustainability initiatives adopted

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

(6.3e) number of communities that incorporate energy use and development in their comprehensive plans

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

(6.4c) number of community leaders documented to apply community economic development and quality of life indicators to support decision-making.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

(6.4d) of communities implementing projects that enhance community sustainability and/or protect public health and community well-being through sound environmental management

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 12

1. Outcome Target

(6.5a) # of municipalities adopting land use planning tools that incorporate environmental dimensions and/or develop new institutional arrangements to support land use planning and environmental management.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 13

1. Outcome Target

(6.5b) # of communities adopting or updating farmland preservation and/or agricultural economic development plans

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 14

1. Outcome Target

(6.6b) # of residents and/or community leaders, who plan for and initiate steps to enhance public spaces

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 15

1. Outcome Target

(6.6c) # of new or enhanced community organizations or networks linking diverse sub-groups and focused on enhancing community sustainability.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 16

1. Outcome Target

(6.6d) # of communities documenting improvements in public spaces.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 17

1. Outcome Target

(6.7c) number of instances in which producers/ horticulture businesses/ natural resource enterprises, residents and community leaders work together to address issues

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 602 - Business Management, Finance, and Taxation
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 18

1. Outcome Target

(6.7d) number of documented instances in which agriculture/community conflicts are resolved locally.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 19

1. Outcome Target

(6.8e) number of communities that assess how current policies and infrastructures sustain or impede agriculture/ horticulture/natural resource enterprises (such as farmland protection or including such enterprises in economic development planning) and how the enterprises are affected by public policy.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 20

1. Outcome Target

(6.8f) number of communities that initiate specific plans to address agriculture/ horticulture/ natural resource enterprise related issues or capitalize on new opportunities including community agriculture initiatives.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 608 - Community Resource Planning and Development
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 21

1. Outcome Target

(6.8g) number of communities documented to adopt, maintain, or expand policies supportive of appropriate agriculture/horticulture/ natural resource enterprise development and/or community agriculture.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 608 - Community Resource Planning and Development

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 22

1. Outcome Target

(6.9f) number of community residents practicing management tactics in residential landscapes and homes that work to sustain or enhance a healthy community and environment.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 23

1. Outcome Target

(6.9g) number of community residents with improved availability and access to fresh fruits and vegetables.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 134 - Outdoor Recreation
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 24

1. Outcome Target

(6.9h) number of community education/demonstration food gardens established or maintained

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Description

Communities operate in a complex and volatile context involving susceptibility to weather extremes, changing governmental policies and regulations, land uses demands and shifting development patterns, evolving consumer demands, and globalization related economic

factors. Weather related disasters can greatly impact communities in terms of infrastructure damage and direct costs. The global, statewide, and regional economies directly impact local economies. Fundamental change is occurring in the state and regional economies. The specific implications of these external factors vary greatly by locale and across regions.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Typical system evaluation efforts can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders. In support of each of the logic models, we are working to provide educators with recommended evaluation strategies and standard instruments for their use. We will continue our work with the Cornell Office for Research on Evaluation (CORE) to develop these resources.

In 2015, we will continue to review the national outcome framework and connect it, as possible, to our statewide outcome framework. Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to strengthen evaluation practice and build evaluation capacity in CCE. CORE has developed a Protocol for evaluation that takes a systems approach, recognizing that individual programs and their evaluations are part of larger program portfolios and are shaped by needs and context at multiple levels of the Extension system. CORE has tested and refined this Protocol in partnership with CCE programs since 2006. A key step in the Protocol is to develop program models, in both familiar columnar form as logic models and in a visual form called pathway models. These models form the basis for focusing evaluation efforts in Extension programs.

Beginning in 2013, CORE and CCE partnered to initiate program modeling and evaluation planning at the level of the statewide Plans of Work. This effort, which is ongoing, will contribute to a framework for programming and evaluation at multiple levels. The Protocol is also being integrated into professional development in CCE, in collaboration with CCE leadership, to promote consistent approaches to evaluation of county-based, regional, and state-wide programs. CCE organizational development efforts are also being devoted to organizing common high-quality measures that can be used by a wide range of programs where applicable.

During 2014 and 15 we will continue to work with CORE to expand the Evaluation Partnership Program using the Systems Evaluation Protocol, to be focused around our plan of work.

Overall goals include:

- Building evaluation capacity
- Develop networks of CCE staff and associations to review, adapt and model the statewide plans of work
- Develop and implement high-quality evaluation plans around specific programs within plans
- Improve evaluation practices
- Use evaluation to improve programs

The Community and Economic Vitality plan concentrates on helping communities to use the community

development process to support and sustain community growth and economic wellbeing. This plan aims to help decision makers and community members seeking to make well thought out decisions as they relate to energy, land use and agriculture/community conflicts. This plan also includes the Master Gardener Volunteer program as a community development/sustainability centered volunteer force. Continued general efforts on evaluation capacity are expected. CCE staff will be participating with the Northeast Regional Center for Rural Development to work on developing common indicators this region for assessing the impact of Extension's community development programming. The work will draw on the program modeling and evaluation planning undertaken by the Community Economic Vitality program working with CORE. Additionally a more thorough evaluation of the Growing upstate NY Food Hubs is expected. Indicators related to this new evaluation effort are emerging.