Cornell University
FY06 Annual Report for Agricultural Research and Extension Formula Funds

Cornell University Agricultural Experiment Station
NYS Agricultural Experiment Station
Cornell Cooperative Extension
College of Agriculture and Life Sciences
College of Human Ecology
College of Veterinary Medicine

April 1, 2007

FY2006 Annual Report
Cornell University

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Background and Methods

Planning Option: Statewide activities -- integrated research and extension plan.

Period Covered: October 1, 2005 through September 30, 2006

Program Definition and Scope

This report directly reflects our approved plan of work. As indicated in our approved plan, all program descriptions were framed as ongoing major programs. We have not, therefore, separated results into timeframe categories (short-term, near-term, long-term). Data and narrative documentation were collected for the indicators included in our approved plan of work and supplement.

Methodology and General Comments

A variety of data sources and documentation procedures were used to generate this report. For extension, the primary sources were system-wide annual accountability reports and fiscal and personnel accounting records. Extension annual reports include participation data, reports against our approved performance indicators, and program impact statements. For research, The CRIS reporting system, annual faculty activity reports, and fiscal and personnel accounting records were the primary sources. It should be noted that CRIS now tabulates by the updated CSREES goals put in place after the plan of work for FY06 was approved. Conversion back to the older goal framework for this report is less than perfect as pertains to expenditure and effort data.

In lieu of updated guidelines for reporting multistate and integrated efforts, our documentation approach reflects the approved plan directly. For example, as outlined in the plan supplement, we used designated project descriptions and joint extension/research appointments as direct evidence of integrated activity and rely on project reporting and personnel accounting for documentation. Appendix C includes brief narrative descriptions of integrated projects and the roles assumed by those on joint appointments. In the case of multi-state extension activity, we relied on project proposal earmarking by principle investigators and direct reports by faculty on a project-by-project basis. We included “check-offs” and narrative requests in our on-line project documentation and reporting structures to facilitate reporting of multi-state and integrated programming.

For each of the five goals, we provide indicator, expenditure and effort data to reflect the scope and reach of programming in that area. The indicator data represent aggregated statewide reporting of multiple program efforts relevant to each the listed objectives. The CCE system is very diverse from location to location ranging from less than 2 FTE in one county to about 200 in another. Thus, the specific content and methods employed in one given locality may be quite different from another. Similarly, the evaluation methods appropriate for each activity vary but typically include a combination of routine program monitoring and documentation, near-term outcome assessment through observation or direct feedback from participants using standard survey techniques, and targeted follow-up activities to ascertain longer term application and impacts using methods such as phone or mail surveys.

For each of the quantitative indicators, we report results for FY 2006 followed by the plan of work target result. All research indicators were met or exceeded except for the 4.1 (agriculture and

environment) indicator for patents which was 1 instead of the targeted 2. We have experienced wide variation in number of patents from year to year across all goals. Nearly all extension indicators were met or exceeded, some of them significantly. However, two indicators, 2.2.1 and 5.4.3, were not met. Indicator 2.2.1 deals with food security programming. During 2006 there was a significant shift in faculty roles and completion of project work in this area resulting in a temporary decrease in emphasis. Indicator 5.4.3 deals with family care decision making. A key faculty member retired resulting in a lull of programming in this area. Note that the output indicator for 5.4.2 was not met but we did meet the outcome target. This was possible due to a greater focus on train the trainer programming.

Selected impact statements and short program descriptions are included to convey the nature of programming within each goal area. We did not attempt to communicate comprehensively the work within or across goals. Rather, we selected examples to provide a broad view of our efforts related to each goal and to demonstrate influence of stakeholder involvement, the latter a request of prior report reviewers. We received over 600 impact statements from research and extension faculty and off-campus educators via annual reporting. Of these, we selected only about 60 from both research and extension to illustrate primary themes of our work for 2006.

While priority was placed on examples that include firmly documented outcomes and impacts, some partially developed stories are included to illustrate promising new initiatives and/or new program partnerships as evidence of the dynamic nature of our programming. Others are included to demonstrate the value of federal formula funds in "leveraging" broader efforts. It should be noted that the impact statements and program summaries reflect both federal formula funds and associated matching and/or supplemental funding. In many of the examples, Smith-Lever and Hatch funding is significantly enhanced by other sources in carrying out any given project. For CCE, only about 11% of system funding comes from federal sources. Quite a few of the examples included do not reference Smith-Lever support yet that support is essential for system infrastructure and content development.

Although reviewers of our FY05 Annual Report identified no required improvements, there were several comments aimed at strengthening our accountability:

> "We would reiterate that programs of multi-county or state-wide scope that can be aggregated will significantly strengthen the reports in the future. In some examples, research/evaluation results indicated positive changes of impact, but the evaluation design and methodologies were not described."

To that end, we have included a number of examples of multi-county and statewide programs. Titles include *Using IPM Tools to Optimize Pesticide Inputs and Minimize Worms in Apples and Peaches, Field Crop and Vegetable IPM TAg Teams for Amish in SWNY, First Detection of a New Potentially Devastating Onion Disease in North East, Apple Planting Systems, Capital District Pesticide Applicators Recertification Day, Consumer Education Program for Residential Energy Efficiency, Parenting in Context,* and *Engaging Youth in Science*.

Relative to evaluation methods, a number of the examples included do specify evaluation approach…but we still have far to go in terms of standardizing evaluation methods across the system. Structuring of the FY07-11 plan of work around our statewide programs (instead of the CSREES goals) is very helpful in that regard. We expect to continually refine the outcome indicators and recommended evaluation strategies in support of those plans. For example, we currently are working with Dr. Angela Lyons of the University of Illinois to help identify practical

standard evaluation approaches for family financial management programming. For youth programming, we will be incorporating the current national work on youth development outcomes into our plans. Cornell faculty currently are working with CCE educators to refine outcome indicators and evaluation resources for parenting and family care education. We also have initiated an Evaluation Planning Partnership Program in which our local extension staff partner with Cornell faculty and graduate students to develop practical evaluation plans. In 2005 the partnership was limited to our New York City location but in 2006 we added six upstate locations and expect to add a new cohort each year. We see strengthening evaluation practice as a long-term, multi-level capacity building initiative.

In our FY05 report, we noted that we are experimenting with designated signature programs as a vehicle for targeted evaluation and improved data aggregation. Our four initial signature programs are *Enhancing Agricultural and Horticultural Business Vitality, Nutrition and Health, Connecting People to the Land and Their Environments,* and *Youth Community Action.* We asked that impact statements be earmarked against these programs and received 30-60 for each. We also assigned appropriate quantitative indicators included in this report to the four programs. However, since the programs cut across the CSREES goals which provide the structure for this report, we didn't identify a way to incorporate this information in this report without extensive duplication. The signature programs are directly incorporated in our FY07-12 approved plans and will be represented in future reports. (We did use the signature program structure for our in-state extension annual report which is available at: http://counties.cce.cornell.edu/annual_report/CCEAR2006.pdf)

Lastly, reviewers of our FY05 Report requested illustrations where underserved audiences provided input for programming as well as serving as the object of programming. While we believe the significant majority of the examples included involve meaningful input, these in particular represent true collaborative programming with underserved audiences*: Field Crop and Vegetable IPM TAg Teams for Amish in SWNY (a peer-to-peer training model), Facing Food Safety/Food Resource Management Issues within Homeless Shelters, Talking with Kids about HIV/AIDS: Reaching Underserved Audiences in the African American Community, Maternity Visiting Program,* and *Urban Outreach Reaching More Audiences*.

GOAL 1 – AN AGRICULTURAL PRODUCTION SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY

Agricultural production systems in the United States are part of the overall growing global economy of food and fiber products. On a more localized level our production systems are the basis for maintaining the rural economy and providing a safe and nutritious food supply to our diverse population. Our agricultural systems in the northeast are broad and encompass small and large scale plant and animal farming; regional and specialty market production and processing; and, local, national and international marketing. This diversity has enabled our agricultural systems to remain competitive in the global economy. The foundation for this has been our ability to develop and integrate new technology into our agricultural production systems through the combined efforts of fundamental and applied research programs linked with effective extension efforts. However, as the global market changes, we must understand where our opportunities lie.

Although our efforts are extremely diverse, they can be subdivided into the areas of production, protection, processing and marketing.

Production

Improving the yield and quality of plants and animals in agricultural production systems is fundamental to improving our ability to compete in a global economy. These improvements can be accomplished through:

1) traditional and modern breeding programs which select for desired traits (such as yield, flavor and pest resistance) and an understanding of how they can be expressed under different environmental regimes;
2) improving our understanding of the nutritional requirements for plants and animals so that inputs and waste products are minimized;
3) improving our understanding of soils in order to maintain or improve the health of the soil;
4) improving our understanding of the impact of environmental conditions on plant and animal production.

Protection

Plants and animals are stressed by various organisms including insects, pathogens and weeds. Traditional control of these pests through the application of synthetic pesticides has allowed farmers to manage some of these pests, but concerns about their effects on the environment and the development of resistance must be taken into account. Improvements in protection of our production systems can be accomplished through:

1) genetic engineering of plants to express pesticidal traits and the development of management systems which ensure the durability of the deployment of these plants;
2) utilization and/or improvement of insects and microbes which may act as pesticides against insects, pathogens and weeds;
3) improvements in the production systems for mass producing natural enemies;
4) an improved understanding of the non-target effects of pesticides.

Processing

The value of agricultural raw products is multiplied through processing them into foods and fiber which become distributed through wholesale and retail markets traded worldwide. The value of grapes at harvest, for example, is minimal compared with the value of the wines they produce. Improvement of our agricultural production systems on a global market can be achieved through processing which:

1) recovers components from what would be engineering waste and converts them into marketable items (particular enzymes, flavors, bulk materials, etc.);
2) enhances the food product by preserving or increasing the level of nutrients or flavors;
3) maximizes the freshness of the product through minimal processing;
4) minimizes the process of converting the raw product into foods.

Marketing

The competitiveness of our agricultural products is influenced by domestic and international factors and an understanding of the production, distribution and marketing costs will influence what agricultural production systems are most competitive for our region. Improvement of our agricultural production systems on a global market can be achieved through: 1) an understanding of the costs for our production systems compared with other domestic and regional production areas; 2) an understanding of the specific desires of the consumers in various regions of the world economy; 3) an understanding of the political, regulatory and social structures which influence the production and distribution of agricultural products which are produced in other regions.

The agricultural production systems of the northeast are diverse. Over the decades some of our systems have lost their relative strengths compared to other regions while other systems have grown in their relative strengths. The majority of the population of the US is centered in the northeast region and the opportunities for agricultural systems should be high. However, presently we import ca. 80% of our food. In many cases this is the result of more favorable agricultural conditions (lower labor costs, longer season, etc.) outside our region. Future research investments should be directed toward those projects which provide us with the best opportunities to compete both nationally and internationally. Dairy systems, floriculture and ornamental and fresh foods are examples of areas in which northeastern agriculture can effectively compete. The growth of community food systems, such as local and roadside markets, should be encouraged as well. For any of these areas, there will continue to be a need to increase research investments in fundamental and applied sciences to improve the production, protection, processing and marketing of our agricultural products so they can be competitive on the regional, national and international markets.

PERFORMANCE GOALS FOR INITIATIVES RELATED TO GOAL 1

Empower individuals and enterprises in agriculture and food systems to thrive in order to:

- maintain strong, rural communities;
- advance a clean healthy environment;
- promote attractive landscapes;
- assure a safe, nutritious, and abundant local food supply; and
- support a thriving New York State economy.

Indicator Data Specific to Goal 1

(For each indicator, both actual and annual target results are included, the latter in parentheses.)

INDICATOR 1.1 The total number of refereed or peer reviewed articles or materials reporting research on topics related to agricultural production and competitiveness.

Year	# refereed items	# patents, licenses, varieties
2006	1166 (675)	85 (40)

OBJECTIVE 1.1 To produce new and value-added agricultural products and commodities.

INDICATOR 1.1.2 The total number of persons completing non-formal education programs on production of new and value-added commodities and products and the number of these persons who actually adopt one or more recommended practices or technologies within six months after completing one or more of these programs.

Year	Output: # completing programs	Outcome: # adopting practice/ technology
2006	10,827 (5000)	5,617 (2300)

OBJECTIVE 1.2 To annually increase agricultural producer awareness, understanding, and information regarding the production of new and value-added commodities and products in U.S. agriculture.

INDICATOR 1.2.1 The total number of persons completing non-formal education programs to improve the productivity and global competitiveness of the U.S. agricultural production system and the number of these persons actually adopt one or more new production techniques or strategies within six months of completing one or more of these programs.

Year	Output: # completing programs	Outcome: # adopting practice or technology
2006	22,055 (10000)	11,508 (4000)

OBJECTIVE 1.3 To improve decision-making on public policies related to the productivity and global competitiveness of the U.S. agricultural production system.

INDICATOR 1.3.1 The total number of persons annually completing non-formal education programs on topics related to public policy issues affecting the productivity and global competitiveness of the U.S. agricultural production system and the number of those persons make use of such knowledge within six months of completing one or more of these programs.

Year	Output: # completing programs	Outcome: # utilizing information
2006	3,665 (5500)	2,005 (2400)

Resources Allocated to Goal 1 (FFF & Match)

Dollars x 1000 and (FTE) or (SY)

	FY2006 Target	FY2006 Actual
Extension	3,378	3,094
Total	(60.9)	(59.0)
Research	5,200	5,126
Total	(34.1)	(70.3)

Impact Examples Related to Goal 1

Breeding Vegetables for Pest and Stress Tolerance, Reducing Pesticide Use, Improving Yields for Growers, and Enhancing Quality for Consumers (NYC-149485)

Knowledge Areas: 204 Plant Product Quality and Utility (Preharvest); 211 Insects, Mites, and Other Arthropods Affecting Plants
Funding Source: Hatch

This project generated disease resistant breeding lines and varieties, significantly improving flavor and yield for a variety of vegetables important to the Northeast's agricultural economy and to consumer health. The vegetables included many of the most popular varieties of squash, cucumbers, pumpkin, melons and peppers. The breeding program goals were to reduce environmental consequences of agricultural production with regard to pesticide application, to reduce the cost of production, especially important for smaller growers, and to improve food quality and safety for consumers. Emphasis was placed on crops that are important to the Northeast economy. International collaborations with researchers in China and elsewhere contributed to the success of the project.

The research generated broad impact on growers locally, nationally and internationally and improved the quality of products available to consumers. We currently have 47 commercial licenses in force confirming that the products of these breeding programs have broad impact. Licensees include all the largest seed companies and a number of smaller, more regionally focused companies that offer seed produced organically, untreated and treated. We have thousands of material transfer agreements on file, and distribute germplasm globally. We have recruited over 30 companies into our Vegetable Breeding Institute, a consortium of companies interested in vegetable seed production around the world that support our research, breeding and training activities at Cornell. We have also released a number of molecular markers that are widely used in commercial genotyping operations at seed companies and contract genotyping businesses around the world. Because of the work in the cucurbits and Capsicum, many varieties are now in catalogs. With the availability of this germplasm to the public, we see reduced pesticide applications, and improved yields for growers and quality for consumers. The project also launched the Public Seed Initiative, under the umbrella of the Organic Seed partnership, to ensure the delivery of these benefits to growers who use organic production methods and serve local markets.

In 2006, six articles associated with the study were published.

Dairy Cows and Grasses: Harvesting and Feeding New York's Abundant Grasses to Enhance Environmental, Cost and Quality Factors for Farmers and Consumers (NYC-125455)

Knowledge Areas: 204 Plant Product Quality and Utility (Preharvest); 205 Plant Management Systems; 302 Nutrient Utilization in Animals
Funding Source: Hatch

With the expected increases in corn prices as ethanol production expands nationally, it will become even more critical to provide high quality forage to lactating cows, to maximize the amount of forage in the diet. In New York, the dairy industry is a $3.5 billion business and continued

improvements in quality and cost-effective strategies for enhancing value are imperative to a thriving state economy. Currently, there is an immediate need for better manure management options involving grasses, because dairy-forage management decisions are increasingly affected by nutrient management decisions. Mismanagement of animal diets, including excessive addition of nutrients to rations, can negatively impact the environment. This project identified optimum nutrient management, harvest management and feeding management strategies for perennial grass to improve sustainability and profitability of dairy farms.

The research provided the basis for increased use of high-quality grass forage in diets through the development of high-quality varieties, including selection methods, optimal use of animal manure, improved tools for optimum harvest date selection and improved feeding strategies.

In 2006, findings were published in five publications and online resource services.

Using IPM Tools to Optimize Pesticide Inputs and Minimize Worms in Apples and Peaches

> **Knowledge Areas:** 211 Insects, Mites, and Other Arthropods Affecting Plants, 216. Integrated Pest Management Systems
> **Funding Sources:** Integrated Pest Management (IPM) program of NYS Department of Agriculture & Markets, funds from processors and growers.

The NY processing apple market (excluding juice) is worth $33 M, and fresh market is worth $137 M. Profitability of the fruit industry in New York is being challenged by a resurgence of codling moth (CM), oriental fruit moth (OFM), and lesser appleworm (LAW) that feed on the flesh of apples, pears, and stone fruit. These pests have been historically controlled by broad spectrum insecticides applied for control of other pests. There is a "zero" tolerance for these larvae in most fruit markets. Three CM larvae were responsible for the Washington apple industry loosing their $47M market to Taiwan for a 5-months in 2005. In Pennsylvania, 2005, these worms are responsible for over 700 truckloads of fruit rejected at processors resulting in a loss to growers of over $1M annually. A 50 bin truckload of Idared apples in NY for processing is worth $3957, but if rejected for juice due to worm infestation, the value is only $1630; with 3400 acres of Idared in NY, that is a potential loss of $7 M. In 2001, there were only 13 truckloads of fruit with a worm detected at inspection, but this increased ten fold in 2002. This established the need for a significant extension response to educate growers on the tools available to help them mange these pests and prevent losses.

Research sources were identified in Pennsylvania, Michigan, and Ontario, Canada to identify Integrated Pest management tools that had already been developed to manage these pests individually. These tools included 1) trap monitoring techniques using sex pheromones, 2) using sex pheromone products to disrupt insect mating and reduce the population, and 3) insect developmental models based on daily mean temperatures to predict the critical window in which insecticide applications are necessary.

Researchers with experience with these pests were included in Winter Fruit Schools in 2002 to describe these techniques IPM tools available to manage these pests. This topic has been included on every winter fruit school and statewide EXPO for several seasons. Three special in-depth workshops have been conducted with a total of 75 attendees including consultants and growers.

Workshops provided in-depth information about the biology of the insects, how to identify the worms, and all methods used of control based on population pressure.

The Lake Ontario Fruit Program collected the worms found in fruit from processors to identify our problem pests to determine the direction for extension and research programs. We identified the worms as primarily oriental fruit moth in 2002. But, codling moth has been playing a bigger role in the complex, as high as 50-65% in 2005 and 2006.

Extension implementation projects were conducted over the past 5 years in grower orchards to demonstrate the use of techniques to optimize spray timings and eliminate fruit infestation at harvest. The information trap information and threshold for actions were passed on to the cooperating growers. The weekly trap information was summarized and disseminated to the fruit industry through faxes, emails, and newsletters so others could see the value of these tools in making spray timing decisions. Spray records were collected to see how closely the recommended timings were followed to control these pests, and fruit was examined at harvest for damage estimates. In 2006, we took an extra step and added another method of reporting pest development on the website.

Outcomes/Impacts:

- 300 growers and consultants have increased their knowledge about identification of the worms and the biology of the pest complex.
- Consultants have intensified their pheromone trap network from installing a few traps for other pests for regional recommendations to more closely monitoring flight activity of oriental fruit moth and codling moth on a farm by farm basis.
- Consultants are incorporating the degree day pest developmental models into the spray timing decisions.
- Consultants and growers are adopting alternative controls for these pests including mating disruption pheromones to reduce the population pressure and "softer" insecticides for control.
- The number of truckloads of fruit infested have been held low compared to neighboring states which total around 700 loads per year. In 2001, 13 loads were affected in New York. In 2002, 113 loads from 48 growers. There were less than 20 infected loads in 2003-4 and and 83 from 45 growers in 2005. The 2006 numbers are approximately 120 loads from approximately 60 growers, most of which had only one load infested.

Demonstrating and Developing Minimum Tillage Systems For Vegetable Growers

Knowledge Areas: 102 Soil, Plant, Water, Nutrient Relationships; 205 Plant Management Systems
Funding Sources: Northeast SARE, Pennsylvania Vegetable Growers Association, New York State Vegetable Growers Association

As production costs continue to increase for vegetable growers due particularly to higher energy costs, vegetable growers are continually searching for alternative production practices. No-till and minimum till in field crops has been very popular for many years. However, vegetable growers have been reluctant to change their production practices because vegetable seeds are much more sensitive to seedbed preparation then field crops. There is need for equipment demonstration and research in reduced tillage systems that can reduce costs and improve profitability for vegetable growers in the Capital District and throughout NY and New England.

The Capital District Vegetable Program has been working with vegetable growers, equipment manufacturers and researchers throughout the Northeast to demonstrate and adopt minimum tillage strategies in vegetable production to reduce costs while maintaining crop quality and profitability. Through local advisory meetings and regional meetings, educators in the Capital District Vegetable Program have been conducting on farm demonstrations of different minimum tillage machinery, and conducting on farm research trials providing information on conventional versus minimum tillage cropping systems for sweet corn, winter squash and pumpkin production.

In 2004, there were no vegetables being grown in the Capital District using strip tillage systems. During the growing season of 2004, minimum tillage machines were demonstrated on several farms in the Capital District. As a result of these demonstrations, in 2005 a strip tillage machine was purchased by a Columbia County vegetable grower and 10 acres of sweet corn and 10 acres of pumpkins were grown using strip tillage systems. Also in 2005, 3 on farm demonstrations using the same minimum tillage unit purchased that was purchased by the grower earlier that season, were completed. In 2006, a total of four strip tillage machines were on vegetable farms growing sweet corn, pumpkins, winter squash and tomatoes. Additionally, during the wet spring of 2006, many growers that currently own or borrowed a minimum tillage machine, have commented that if not for adapting strip tillage into their farm, they would not have been able to plant most of their sweet corn and pumpkins. In 2007 we expect to see the number of machines and acreage of vegetable crops being grown in strip tillage systems to double. By only disturbing a narrow zone, and using one pass, growers can improve soil health and reduce the amount of energy and time consumption it takes to "conventionally" prepare a field for planting. Fewer trips across the field means less fuel is used, soils remain mtopore productive, and planting is quicker allowing growers to have more time for other farm or family activities. On average growers are saving growers $300 - $400 per acre by switching to strip tillage systems, easily paying for the specialized machinery in one year.

Field Crop and Vegetable IPM TAg Teams for Amish in SWNY

> **Knowledge Areas:** 216 Integrated Pest Management Systems; 205 Plant Management Systems; 604 Marketing and Distribution Practices
> **Funding Sources:** Integrated Pest Management (IPM) program of NYS Department of Agriculture & Markets

The establishment of a local produce auction, expansion of farmers' markets, and success of roadside stands in Chautauqua and Cattaraugus Counties has raised the interest of Amish farmers along the border of these two counties in vegetable production. Several farms have taken a portion of their land that was in field crop production and started raising fresh market vegetables. This has presented two challenges to these farms. First, they have limited experience in growing vegetables commercially, creating the need for training on cultural and pest management practices on a variety of vegetable crops. Secondly, they need to make sure they have enough production from their field crops to meet the needs of the farm with reduced field crop acreage.

Amish farmers have been seeking information to help with these two concerns from several sources including agribusinesses, Cornell Cooperative Extension, and other producers. The structure of Tactical Agriculture Teams (TAg) brings these three groups together in an effective peer-to-peer teaching and learning setting. TAg Teams focus on the principles of Integrated Pest Management

(IPM). IPM and TAg provides hands-on training in field crop and vegetable production and pest management. TAg Teams and IPM principles help these farms produce high quality vegetables with minimum costs and environmental impact while successfully balancing the field crop production requirements with the enhanced income potential from fresh market vegetable production for the farm. Additionally, hiring a scout for these farms enhances the overall program and reinforce the IPM principles and concepts at TAg Meetings.

May 2006 an on-farm meeting was held to introduce the program to the local Amish Community. Twenty nine Amish farmers attended that meeting where we discussed the principles of Integrated Pest Management (IPM), soil health, and TAg Teams. This meeting we did hands-on field crop scouting for early season pest in corn, haycrops, and small grains. We also discussed early season scouting for vegetables. Participants were asked if they would like to be part of a field crop/vegetable TAg Team and having regular meetings throughout the season and have a scout regularly check their fields. Eight of the participants signed up to participate. Three were already growing vegetables and field crops, and five were only growing field crops but had an interest in vegetable production.

Over the course of the growing season, the scout visited each farm every ten to twelve days and seven on-farm group meetings were held. TAg Meeting topics were: early season field corn and hay, sweet corn pests, flies in the barn, vegetable diseases (ie. powdery mildew on cucurbits, tomato foliar diseases), field corn pests, and weeds in hay. Specific pest topics were adjusted based on problems observed by TAg Team participants and by the team scout. The scout also took soil samples from a field on each participating farm. One-on-one meetings were held with each farm to go over the soil samples and make recommendations for next year. A "wrap-up" meeting was held in September to answer any outstanding questions and to evaluate the program. All eight farms said they would participate in a similar program in the future, and seven of the eight said they would recommend the program to others.

As a result of these efforts, all eight farms now have a better understanding of not only IPM principles for pest control but of overall field crop and vegetable production practices. Five of the farms had never soil tested before and plan to do more regular testing. Going into this program only two of the farms did any regular scouting for pests and none of them had written pest records from year to year. As a result of this program, five farms are now keeping written pest records, and all farms plan on regularly scouting their crops next season. The five farms that did not grow vegetables this season all state that they now better understand the issues and challenges involved in vegetable crop production. They are looking into marketing opportunities and niche markets before proceeding further.

Raising Agricultural Awareness

Knowledge Areas: 608 Community Resource Planning and Development
Funding Sources: County Appropriations, Farm Credit of WNY, Bank of Castile/Tompkins Insurance Agency, M&T Bank, Southcott Insurance, Farm Family Insurance

Orleans County is a very rural county with deep economic interdependence on agriculture. Situated between three metropolitan areas, the County faces increasing residential development pressure on agriculture. Producers face a variety of challenges in marketing, labor, and regulation. Without a good understanding of these challenges, the interdependence, and the opportunities for the future, local decision makers and non-farm businesses and residents do not necessarily make decisions that will support the long term viability of agriculture upon which the success of the county hinges.

In collaboration with other agencies and organizations such as the Chamber of Commerce, Farm Bureau, Soil and Water Conservation District, Economic Development Agency, and the County Office of Tourism and Planning, events have been organized to expose decision makers, business people, and residents to the true nature of modern agriculture. The Farmer to Neighbor Dinner brings business people and producers together for an evening dinner with a speaker on a topic that informs them about agriculture in a different light. The tour is targeted at town and county officials including assessors, legislators, and school superintendents. At each stop the owner informs the group about the their business investments, business challenges, and their hopes for the future. The stops include a diversity of commodities as well as processing or inputs, to provide a better picture of the breadth that agriculture encompasses in the county.

Seven out of ten Orleans County towns have now adopted a local Right to Farm Law. One Town has posted "A Right to Farm Community" on their entry signs on major state highways. Several towns are conducting reviews of the local zoning laws to determine whether they have agricultural impact. Local media coverage of agriculture sparked by interest in these events has provided even greater exposure to the general public of the nature and scope of Orleans County agriculture. The collaborating agencies are exploring ways to further develop awareness of the importance of agriculture to Orleans County.

Apple Planting Systems

Knowledge Areas: 205 Plant Management Systems
Funding Sources: County Appropriations, Farm Credit of WNY, Bank of Castile/Tompkins Insurance Agency, M&T Bank, Southcott Insurance, Farm Family Insurance

Apple growers in New York State invest $2,400 to over $3,000 per acre annually to grow, harvest and market apples. Approximately two thirds of this investment stays in the local economy. Apple prices have remained stable for the past 20 years while input expenses have steadily increased. Therefore, to remain profitable and competitive NY apple growers must invest in higher value varieties and improve production efficiency and fruit quality. There are approximately 700 commercial fruit farms in the state producing an average of 25 million bushels of apples annually.

Research has been conducted both at NY's Agricultural Experiment Stations and on cooperating growers' farms (demonstration plots) concerning number of trees per acre, tree form (planting

system), yields and fruit quality. A spreadsheet workbook was developed to illustrate factors effecting profitability of various planting systems. The workbook allows a grower to see how changes in inputs, yield, price received (based on variety and quality) and tree density effect the net present value of profitability over a twenty year period. In 2003, we organized a workshop in cooperation with the International Dwarf Fruit Tree Association which was held in at the NYS Agricultural Experiment Station, Geneva. The "Orchard Management Systems" workshop featured leading experts in apple tree management from various regions in the United States, New Zealand, and Germany. Resource materials for the participants included spreadsheets for economic analysis, pruning and training plans, and other written materials based on the previous research work. All this information was compiled in a manual entitled, "Apple Orchard Systems" (Compact Fruit Tree Volume 36, June 2003). This text is now the standard text used in the United States for teaching elements of apple planting systems. In 2004, the workshop was held in Sodus, and Highland, NY; in 2005 the workshop was held in Lockport and Crown Point, NY. In total, more than 250 growers attended. Each of the educators use the educational materials developed for the workshops in individual consultations with growers.

Economic analysis of five planting systems indicates that higher tree density (900 - 2,000 plus trees per acre) is more profitable than lower tree densities (200 - 600 trees per acre). Planting low density orchards is of higher risk to growers than planting 900 - 1,300 trees per acre because it lengthens the time in which it takes the grower to recoup investment and provide cash flow for continued replanting. High density orchards produce higher yields in the early years due to tree numbers per acre which increase cash flow and offset increased investment. Higher density systems may recoup investment three or more years earlier than low density systems. Higher density systems may be up to three times more profitable than the lowest density system (Net Present Value of $3,170 versus $9,689) over a twenty year period.

Results varied by grower:

- Several growers more thoroughly prepared planting sites especially improving soil drainage and pH.
- Several growers changed planting densities which resulted in improved early and ultimate yields per acre.
- Some growers used more appropriate rootstocks for spacing and for disease control.
- Growers selected nursery stock appropriate to planting systems. Large caliper trees with many branches were preferred. One grower convinced a west coast nursery to implement a new tree production practice to increase the number of branches on nursery trees thus increasing potential for early production and returns.
- Growers used support systems appropriate to the system. Some growers are now using taller inline posts and wire which are more cost efficient than a system with individual tree stakes.

First Detection of a New Potentially Devastating Onion Disease in North East

Knowledge Areas: 212 Pathogens and Nematodes Affecting Plants; 216 Integrated Pest Management Systems
Funding Sources: Hatch and Smith-Lever funds, Appropriations from 9 counties

In an era of globalization where produce, seed and transplant material is readily shipped nationally and internationally, it is more important than ever for growers to be aware of pests and invasive species associated with their crops that can cause significant economic damage. Iris yellow spot virus (IYSV) is a potentially devastating disease of onion that has quickly spread to all major onion growing regions in western United States and is a serious threat to the NY onion industry. This disease is spread by onion thrips, a tiny insect pest that is abundant and challenging to manage in New York. Onion bulbs and transplant seedlings are readily imported into NY from states where IYSV is known to occur. Identification of IYSV is very challenging to an untrained eye,and because it is a virus, it can only be diagnosed via expensive and highly technical molecular methods. Identification in NY was critical so that measures could be implemented immediately to alleviate the impact of this disease.

To alert the onion industry of the threat of IYSV, a newsletter article and a factsheet with colored photos and scouting tips were developed and distributed statewide to onion growers, crop consultants and industry representatives. Onion fields were scouted regularly and requests for farm visits were responded to readily, always keeping a watchful eye out for the unusual.

While investigating an onion cull pile in response to an onion grower's complaint about the pile harboring onion insect pests, the CCE specialist noticed lesions that were suspicious of IYSV on volunteer onions growing at the edge of the cull pile. Samples were collected, with all testing positive for IYSV noted. This was the first detection of IYSV in New York and the greater Northeastern United States.

The early detection of IYSV provided leverage for the state to obtain an Emergency registration of the insecticide, Carzol, in a timely manner enabling onion growers to effectively control onion thrips, which spread IYSV. In the previous year, several onion growers were unable to control onion thrips with the currently labeled insecticides, which resulted in approximately a 10% reduction in yield worth an estimated $4.6 million dollars. Cornell vegetable researchers including a virologist, collectively secured joint funding from the Cornell University and New York State Agricultural Experiment Stations to conduct a late-season survey of IYSV in New York. Keen scouting skills yielded the detection of IYSV in 90% of the 41 fields surveyed in Genesee, Livingston, Ontario, Orleans, Wayne and Yates counties. Such widespread occurrence of IYSV in the areas surveyed suggests that IYSV has existed in New York prior to 2005. The detection of IYSV in New York triggered survey and research efforts to address the concern. It also alerted other major onion growing regions in the northeast and central regions of the United States and Canada to thoroughly scout and survey for this disease next growing season.

New Farmer Workshop Series

Knowledge Areas: 601 Economics of Agricultural Production and Farm Management; 604 Marketing and Distribution Practices; 608 Community Resource Planning and Development
Funding Sources: NYS Dept. of Ag and Markets Agriculture Worker Certifcation Program (AWCP), County Appropriation

Washington County has always had an agricultural base but encroaching development, loss of smaller farms and an influx of untrained and inexperienced rural landowners may be threatening the economic vitality of agriculture. On a positive note, our county is experiencing growth; we have excellent proximity to large northeastern cities and the influx of rural landowners bring other experiences with them that challenges traditional agricultural thinking.

Cornell Cooperative Extension in Washington County has moved to actively embrace the changing face of agriculture and the new Farmer Workshop Series is one way that we have begun to do that. This workshop series strived to help educate a diverse, highly motivated group of individuals to explore financially successful and gratifying ways of keeping their farmland active and productive.

This series trained 187 different individuals in one or more topics. Many have become repeat clients of Cornell Cooperative Extension programs. A small percentage of participants were currently involved in agriculture and considering a new venture for the farm, but the vast majority was completely new to agriculture, and unfamiliar with CCE. This was an excellent way to reach out to another audience. The CD that was produced is now available to callers that are looking into an agricultural endeavor. This workshop series dovetailed nicely with a similar series that we did several years ago. That series was less comprehensive, but it was supported by a non-profit called Growing New Farmers located in Massachusetts. That grant allowed us to purchase a large amount of resources for the Southern Adirondack Library System and helps us to refer to those resources with confidence that our clients will be able to find them. All of these efforts are part of our commitment to serving the changing face of agriculture.

Of the 187 participants, 12 have started their own agricultural ventures and 32 have continued with their existing, fledgling business. Some specific examples include:

- 12 participants began their own farm enterprise. These include a small livestock (beef) endeavor; two cold hardy grape plantings; four people making cheese for sale; three people started small market gardening operations; one established a Christmas tree enterprise; and one person opened up a B&B with a farm theme.
- Membership in several local producer groups has increased memberships due to exposure at the New Farmer Workshops
- An existing Dairy Farmer has added a beef operation to his business plan.
- The two major farm equipment dealers in the county reported sales of hay equipment more than doubled this past season, despite it being the second wettest summer on record. Several of the buyers reported that they had attended the class on Crops and Pasture Management.

Improving Quality and Stress Resistance of Sweet Corn through Genetic Manipulation (NYC-149469)

Knowledge Areas: 215 Biological Control of Pests Affecting Plants; **203** Plant Biological Efficiency and Abiotic Stresses Affecting Plants
Funding Source: Hatch

Sweet corn, one of the most important US vegetable crops, suffers from damage by both disease and insect pests, particularly the European corn borer and leaf disease. With excessive or deficient rainfall, crops also often suffer nitrogen stress. This project builds genetically-based pest resistance and nitrogen stress tolerance into sweet corn germplasm that also has good eating quality, thus reducing pesticide use and risks from nitrate leaching while enhancing taste and quality for consumers. The project also developed alternatives for weed management in sweet corn.

Results from the 18 or more locations of this trial each year were summarized and provided to the seed industry for their use in choosing appropriate seed treatments. Variety responses to new herbicides were studied in six sweet corn trials. Information from these trials supported refinement of herbicide alternatives for broadleaf weed control in corn, continued work with new herbicides for annual grass control, and screening of multiple fresh market as well as processing varieties.

A new herbicide for annual grass control in corn was registered in 2006. Pest resistance increases the yield potential and quality of the sweet corn hybrids farmers grow and can reduce pesticide use in sweet corn production. Resistance to European corn borer also can increase the durability of Bt-derived resistance and provide an alternative to genetically engineered insect resistance. New sweet corns that are well adapted and high yielding when less nitrogen is used should stimulate the adoption of management systems that reduce the environmental impacts of corn production.

Results were published in several trade journals and were presented at the 2006 national Fusarium Head Blight Forum, December 2006.

Managing Dairy Enterprises to Improve Economic and Environmental Sustainability (NYC-127839)

Knowledge Areas: 302 Nutrient Utilization in Animals; 305 Animal Physiological Processes; 306. Environmental Stress in Animals
Funding Source: Hatch-Multistate

The Environmental Protection Agency is starting to enforce air emissions standards on dairy farms in the U.S. Fifty percent of total ammonia emissions and 25 percent of nitrous oxide emissions are from animals worldwide and nitrous oxide has been implicated as a significant contributor to global warming, having a 310 times more harmful mass-specific effect than CO2 as a global warming agent. Most of this nitrogen from a dairy farm is excreted from cows in the form of urinary urea nitrogen, a very volatile form that is contributing to global climate change. As a result, reducing nitrogen excretion from cows has become an important factor in significantly improving the environmental impact of dairy enterprises.

A study at the Cornell Teaching and Research Farm beginning in August, 2005 included 95 multiparous cows assigned to treatment with different diets formulated using the Cornell Net Carbohydrate and Protein System V5 (CNCPS). In the study, urinary N output was reduced by 28 to 68 percent. This was accomplished with improved understanding of nitrogen metabolism in dairy cattle applied through a field usable nutrition model (Cornell Net Carbohydrate and Protein System). This is a significant reduction in volatile nitrogen excretion and if consistently reproduce in the field would greatly reduce the environmental pressure on the dairy industry to reduce N excretion into the environment.

In 2006, results appeared in five published articles.

Developing new Potato Clones for Improved Pest Resistance, Marketability and Sustainability in the Eastern U.S. (NYC-145823)

> **Knowledge Areas:** 201 Plant Genome, Genetics, and Genetic Mechanisms; 204 . Plant Product Quality and Utility (Preharvest); 205 Plant Management Systems; 211 Insects, Mites, and Other Arthropods Affecting Plants; 212 Pathogens and Nematodes Affecting Plants
> **Funding Source:** Hatch-Multistate

The $2.76 billion U.S. potato industry is highly susceptible to insects, disease and nematodes. Nationally, New York ranks tenth in production of potatoes for the fresh/stored market. In the Northeast, potato growers must use an integrated management strategy to remain profitable and good stewards of the environment. Production constraints include a highly variable environmental and pest and quality factors. This multi-state research project is developing new potato cultivars and associated best management practices to help growers more efficiently address pest, disease, stress and quality concerns. The potato is the number one source of Vitamin C for consumers and as such is an important part of the nutritional well-being of the nation. Improving quality, consistency and taste in potatoes could encourage consumption of this low-fat, vitamin- rich food.

Cornell potato researchers participate in a seven-state Regional Project NE-1014 with goals of multi-state, multidisciplinary research focused on potato variety development with eastern U.S. breeding programs in Maine, New York, North Carolina and the USDA-ARS. This group evaluated material in as many as 15 trials sites distributed among Florida, Maine, North Carolina, New Jersey, New York, Ohio, and Pennsylvania. Objectives sought by the project are: improved yield and quality; enhanced resistance to insects, diseases and nematodes; wider adaptation over multiple eastern locations; improved utilization characteristics; and development of optimal cultural practices for new varieties to aid in their more successful adoption by the Eastern U.S. potato industry.

To increase the consumer's interest in potatoes, new and novel attributes in flavor, skin and flesh color, and eating quality are taken into consideration. This project has identified several round white and red-skinned lines with a range of internal flesh colors which provide a wide spectrum in processing and eating qualities. Selections are also being advanced with disease and insect resistances suitable for organic and sustainable production practices.

As a result of extensive regional testing, Cornell was able to identify and release the chipping variety Marcy in 2006. This new entry has very good resistance to common scab and is golden nematode

resistant. It has very high yield, averaging 122 percent of Atlantic's marketable yield, requires 10 to 20 percent less nitrogen fertilizer, and chips out of long-term storage as good as, or better, than the industry long-term storage chipping standard Snowden. Given these performance characteristics, Marcy will help growers reduce input costs and also spread those costs over higher yield, resulting in significantly improved profitability and sustainability of the regional potato industry.

In 2006, articles appeared in two publications.

GOAL 2 – A SAFE AND SECURE FOOD AND FIBER SYSTEM

To provide a safe and secure food supply our research program currently maintains three broad initiatives: food safety research program, food quality and functionality program and value-added enhancement program. The three programs combine to address the issues of a safe and secure food system.

We improve the safety and nutritional quality of foods to promote wellness and reduce the risk of disease. We identify and study important consumer and processor food safety issues in the areas of microbiological safety, chemical safety and naturally occurring plant toxicants as well as health promoting opportunities from food components.

Our food safety research program includes initiatives to study the agents, environments and controls related to microbial contamination of fresh and processed foods. Expand research on foodborne pathogens, both emerging and long- recognized species. Develop and utilize modern immunological and molecular biological techniques to study the effect of innovative processes and products on microbial growth and survival and to detect microbial contaminants at very low levels.

This program conducts studies to help processors develop HACCP programs. It includes developing computer simulation/modeling systems to improve food quality and safety and models of microbial growth inhibition. Our scientists investigate putative natural toxicants or antinutrients in genetically modified plant and animal foods. We study the chemistry and toxicology of production-enhancement chemicals used in plant and animal production and manifesting themselves as residue or chemical changes in foods. We investigate health-promoting phytochemicals. This program establishes both required and toxic concentrations of consumption. We investigate risks/benefits associated with increased consumption of plant-based foods. In this program we investigate factors that influence bioavailability of nutrients in foods and diets. We study the effects of processing, preservation and storage on nutritional value and quality of foods. We develop improved chemical and instrumental methods for measurement of macro and micronutrients in foods that can be used for analysis in support of nutrition labeling or for process control. We utilize this knowledge to provide direct assistance to companies to insure the processing of safe foods.

Our program on value added processing systems improves technologies and systems that enhance food value including nutritional value, safety and cost thus securing our food system for the future.

In this effort we evaluate new plant and animal foods and food components as well as production management techniques that add nutritional value and economic benefit. We develop new methods for quality assessment and help set goals for plant and animal breeding and selection. We explore process technologies (e.g., fermentation, thermal processing, extraction, concentration, separation, sensor development) and new modeling techniques that can improve the profitability of the food industry. We study methods of minimal processing and packaging of foods. We also study the economic potential of new products and processes. Our scientists develop engineering systems based on microbiology, enzymology and mechanical techniques to minimize waste disposal problems of the industry. This program develops processing methods for fractionating major and minor components of foods. A major effort includes the development and/or evaluation of processes and/or ingredients designed to improve the sensory quality of low fat foods. We seek to generate the

knowledge base to provide leadership in value-added processing for the food manufacturing industry.

Our program on food quality and functionality uses a multidisciplinary effort as we seek to improve the understanding of mechanisms affecting food acceptability and probe the molecular basis of functionality and quality with special emphasis in the areas of biochemistry of plant and animal foods/post harvest physiology, sensory quality of foods, physical/chemical properties of foods and ingredients and microbiology of foods. Quality foods are a key component to ensuring the security of our food system.

In this program on food quality we develop methods to define and improve quality in fresh and processed foods by studying the factors that influence composition, appearance, flavor and texture with a focus on post harvest storage management and enhancement. We study the biochemistry and genetics of plant and animal products that determine appearance, flavor, and texture. We study the microbial population of foods, and their relationship to quality and shelf life. In order to understand food quality we investigate physical and chemical properties of fresh, raw, and processed foods and ingredients. The development of mathematical models of the relationships between product properties, instrumental measurements and human perceptions are key efforts in this program. Industry directly utilizes this research through outreach and advisory programs.

As effective as these initiatives are, numerous issues will combine to affect changes in their direction over the next five years. The emergence of new pathogens is increasing and will demand greater attention by our scientists. Clearly an interrelationship of both water and food safety issues in our food supply will drive an integration of these research areas. Also the need for unique functional ingredients for food manufacture and health will drive research programs in this area. The need for advanced systems to ensure freshness, quality and safety in fresh and minimally processed foods will require highly interdisciplinary teams of scientists.

PERFORMANCE GOALS FOR INITIATIVES RELATED TO GOAL 2

Improves the health, nutrition, and safety of communities and individuals

- Prepare and keep foods safely
- Reduce food insecurity
- Increase citizen participation in local food related policy decisions
- Expand knowledge of health behaviors that effect women’s health status
- Increase fruit and vegetable consumption

Indicator Data Specific to Goal 2

(For each indicator, both actual and annual target results are included, the latter in parentheses.)

INDICATOR 2.1 The total number of refereed or peer reviewed articles or materials reporting research related to a safe and secure food and fiber system and the number of related patents, licenses, or varieties issued.

Year	# refereed items	# patents, licenses, varieties
2006	191 (125)	7 (5)

OBJECTIVE 2.1 To improve food accessibility, affordability, safety, and nutritional value.

INDICATOR 2.1.2 The total number of persons completing non-formal consumer education programs on food accessibility and food affordability, and the total number of these persons who actually adopt one or more recommended practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually Adopt practices
2006	28,855 (20000)	16,490 (14000)

OBJECTIVE 2.2 To increase the effectiveness of constituent and citizen participation on public policy issues affecting food security (i.e., food access, affordability, and recovery).

INDICATOR 2.2.1 The total number of persons completing non-formal education programs on public policy issues affecting food security (i.e., food access, affordability, and recovery) and the total number of these persons who actually become actively involved on such issues within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually become involved
2006	653 (2000)	248 (600)

INDICATOR 2.2.2 The total number of community agencies and organizations that gain awareness of local food security issues and the number that subsequently disseminate information about community and alternative food resources and/or prepare and implement plans to improve local food security.

Year	Output: # agencies/ organizations gaining awareness	Outcome: # agencies/ organizations distributing info or implementing plans
2006	510 (250)	361 (125)

OBJECTIVE 2.3 To annually increase consumer awareness, understanding, and information regarding food safety and food borne risks and illnesses.

INDICATOR 2.3.1 The total number of persons completing non-formal, consumer education programs on food safety and/or food borne risks and illnesses and the total number of these persons who actually adopt one or more recommended food safety behaviors or practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt behaviors
2006	35,958 (30000)	28,292 (17000)

Resources Allocated to Goal 2 (FFF and Match)

Dollars (x 1000) and FTE or SY

	FY2006 Target	FY2006 Actual
Extension Total	2,360 (31.5)	2,084 (30.1)
Research Total	790 (5.2)	523 (8.7)

Impact Examples Related to Goal 2

Enhancing Food Safety Through Control of Foodborne Disease Agents (NYG-623507)

Knowledge Area: 712 Protect Food from Contamination by Pathogenic Microorganisms; Parasites, and Naturally Occurring Toxins
Funding Source: Hatch

This project aims to discover new methods to prevent, reduce or eliminate foodborne disease agents at all points of the food chain, from "farm to fork."

Pathogenic bacteria may enter onto fruits and vegetables through animal manure. This research focuses on preventing the introduction of foodborne illness into the food chain through this route. Additional research has been conducted to assess the potential for ultraviolet light for inactivation of pathogens associated with milk intended for cheese production and fruits and vegetables.

In the fall of 2004, an apple cider outbreak in New York State occurred that was responsible for more than 200 people becoming ill due to contaminated raw apple cider. In response to the outbreak, the researcher provided guidance to the New York Apple Association to propose that all apple cider receive a minimum 5-log reduction through pasteurization or ultraviolet treatment regardless of retail or wholesale production. This motion subsequently became New York State legislation as Senate Bill # 4356-B effective January 8, 2006. The research appeared numerous magazine and newspaper interviews and the researcher was invited presentations to explain the reasoning behind the law and what the law entails. The strain of E. coli O111 that was implicated in the cider outbreak is currently being investigated for its thermal and UV sensitivity to ascertain whether current pasteurization and UV treatments are sufficient to ensure a 5-log reduction as required by law.

As a result of this research, the safety of apple cider will be assured for the benefit of consumers. Consumer, regulatory and production level education will further provide a better understanding of apple cider risks and processing options available to guarantee the safety of this product.

In addition to numerous media contacts and presentations, the research resulted in three new articles published in 2006.

Veg Edge - Farm Food Safety and Quality Assurance Certification Training

Knowledge Areas: 711 Ensure Food Products Free of Harmful Chemicals; 712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
Funding Source: Smith-Lever, County Appropriations, Wegman's Supermarkets

The Cornell Vegetable Program serves a diverse audience of farmers who grow many types of vegetables such as: potatoes, greenhouse crops and dry beans for fresh market and processing, organic and conventional markets, on farms with a few to several thousand acres. We serve a wide area (Erie, Genesee, Monroe, Niagara, Ontario, Orleans, Seneca, Wayne and Yates counties) where a concentrated area of the NY State vegetable production is located. The vegetable industry ultimately

responds to consumer demand. Consumers are becoming more aware of the health of the environment and the safety of their food.

We provide these farmers with the latest information on science and technology to aid them in improving their production practices to meet the health and safety concerns of consumers. Consumer demand and expectations drive the industry. The food safety scares of 2006 have jolted the grocery chains to demand improvement in food safety from their farmers. Consumers call our Extension offices asking if NY State produce is safe. Through our efforts of educational outreach, we assist farmers in assuring their quality.

This was a new project in 2006. Fifteen farmers attended the first workshop with 12 more calling later to request information. To date, 9 have started writing farm food safety plans as the first step to pursuing Quality Assurance Certification - a USDA initiated certification format that is inspected by third party agencies such as the NY State Dept. of Agriculture and Markets. We are starting to receive calls from farmers (11 to date) requesting recommendations to help them adjust their production practices to meet the food safety requirements.

Facing Food Safety/Food Resource Management Issues within Homeless Shelters

Knowledge Areas: 704 Nutrition and Hunger in the Population; 712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
Funding Source: County Appropriations, Food Stamp Nutrition Education Program

Families and individuals living in homeless shelters have many critical needs that are difficult to address. Their usual support systems have broken down, leaving them homeless. The residents in shelters are transient, leaving just as soon as more permanent housing is found, with new families arriving as space is available. In addition to their special needs related to having lost their own housing and moving to a homeless shelter, they face the more usual needs related to nutrition common to other low income families. Most have very limited education, including little knowledge and skills in the area of food safety and food preparation. All of these issues make their children, especially infants, more likely to become ill because of mistakes in food handling by their parents. One of the shelters that the Nassau DSS refers homeless families to is privately owned and does not provide meals. Instead, the owner equips each family's room with a small microwave, mini refrigerator and a sink; no other cooking appliances are allowed. These residents were relying on unhealthy, expensive microwaveable convenience foods. Other shelters do serve meals, but limit their resident's access to the shelter kitchen. CCE has been approached by agency staff at a number of shelters to provide food/nutrition education classes to help residents better feed themselves and their families. Shelters generally require residents to leave the shelter during the day for mandated activities making it more difficult to successfully schedule classes.

Microwave recipes developed for the first shelter were successfully used with the mothers and children in the first group, with mothers reporting trying these recipes on their own. Three mothers completed the six lesson series, 2 school-age children also completed the 6 session 4-H FSNEP series and most of the other participants moved out of the shelter before the end of the series. The USDA -ERS pre and post surveys completed by the 3 graduates showed that all three improved at least some of their food selection and preparation practices. The Family Self Sufficiency Program staff member has requested that we provide classes for new shelter residents. The women at the third

shelter changed their food handling practices. They learned how to properly sanitize cutting boards, counters and utensils and began working together to keep the shelter kitchen clean. The USDA-ERS surveys revealed that 100% of these women no longer defrost meats at room temperature and or let perishable foods sit out for more than two hours. Baby formula is now kept refrigerated and the formula preparation instructions are now being followed.

Mathematical Modeling of Farm-to-Table Foodborne pathogen transmission.
(NYC-143451)

Knowledge Area: 712 Protect Food from Contamination by Pathogenic Microorganisms; Parasites, and Naturally Occurring Toxins
Funding Source: Hatch

The CDC estimates approximately 5,000 deaths annually from foodborne pathogens. The bacterium Listeria monocytogenes alone causes an estimated 500 foodborne deaths each year. This project is developing mathematical models on farm-to-table transmission of *Listeria monocytogenes* to scientifically define effective intervention strategies to reduce foodborne diseases.

There are three main objectives for the research 1.) To conduct a longitudinal study of *Listeria monocytogenes* transmission on an infected dairy farm.. 2.) Develop a mathematical model of *L. monocytogenes* transmission in dairy herds based on the data obtained in Objective 1. 3.) Integrate data from Objectives 1 and 2 with already existing longitudinal data from food processing plants and human disease cases to develop an overall model of *L. monocytogenes* transmission from farm-to-table. This will help us understand whether and how L. monocytogenes in farm environments contribute to food contamination and human foodborne infections.
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Feed, fecal, environmental, milk, and skin samples are collected every two days for one month and subsequently every month for two years from one typical farm selected from a preliminary study of 42 farms. Samples are tested for the presence of *L. monocytogenes* (LM) 2. A compartmental model of LM transmission between cows of different infection/contamination states (shedders, carriers, resistant animals etc.), environment, milk and animal skin on a dairy farm will be developed using differential equations. 3. The on-farm transmission model will be integrated into a mathematical model on farm-to-table transmission of LM based on published data from processing plants already collected by the Wiedmann Lab.

Based on the published information, we hypothesize that three recent anthropogenic practices increase the load within and transmission among reviewed habitats and host populations: extended refrigerated storage of ready-to-eat foods allowing *L. monocytogenes* growth in foods that are contaminated during production or subsequent handling; feeding domestic ruminants with silage contaminated with *L. monocytogenes*; and dispersal of contaminated products of sewage treatment to agricultural fields and waters. As fecal shedding is an important mechanism of spreading of a number of human and animal pathogens, understanding of the dynamics of pathogen fecal shedding is critical to be able to control or prevent the spread of diseases caused by these pathogens. We developed a model for analysis of the dynamics of pathogen fecal shedding using *L. monocytogenes* in cattle as a model system.

This project has provided important information on transmission of *L. monocytogenes* and other foodborne pathogens, including development of a mathematical model for fecal shedding, an important mechanism for dispersal of many foodborne pathogens. Our project will thus have a major impact on the development of rational approaches to control foodborne pathogens from farm-to-table.

In 2006, two articles published.

Getting Consumers to Pay Attention; Improving the effectiveness of Safe Food Preparation Messages (NYC-131465)

Knowledge Area: 712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins; 723 Hazards to Human Health and Safety
Funding Source: Hatch

Despite public health campaigns, many consumers do not follow recommended safe food preparation practices, resulting in $10-83 billion in medical costs and more than 300,000 hospitalizations a year. The goal of this Hatch project is to design scientifically accurate *and* informative narrative messages to convince consumers not only that there is a problem, but to encourage them to do something about it through adopting safe food preparation and storage measures to prevent illness and death. The consumer research is two fold: to increase the understanding of the risk communication process and, using that information, to design methods for developing more effective health and safety messages**.** The research measures the influences of the mental processing of stories, the impact of stories on memory, beliefs, attitudes and behaviors. This knowledge can be applied to strategic communication in health, the environment and the workplace.

In the last year, Cornell researchers conducted a number of studies and focus groups in four locations. The results indicate that current food safety messages are creating a basic understanding of the recommendations but are less effective in convincing people to adopt safer food practices. The research has uncovered a number of concerns about home food preparation practices and consumer-perceived barriers to adopting recommendations to prevent foodborne disease. The results of the research to date will help project coordinators improve home food safety messages to increase consumer awareness *and* compliance for safe home food preparation and storage. The next phase of the project will be to create more effective home food safety messages aimed at preventing illness and death from foodborne disease.

GOAL 3 – A HEALTHY, WELL-NOURISHED POPULATION

Improving the health of our population through food/nutrient-based strategies will become increasingly important in the next five years in achieving health goals designed to reduce preventable mortality and morbidity in the United States. These strategies will be of special significance to USDA because they will serve as important bridges between the country's food production and health sectors. These strategies will be particularly valuable to approaches that seek to empower individual consumers in taking increased responsibility for their health, assure that our food system is consistent with health goals, and refashion our health system, particularly approaches most concerned with cost containment through prevention of chronic, debilitating diseases.

Research areas of current interest include (1) the study of glucose, lipids, vitamin E and homocysteine in cardiovascular disease, obesity, and/or diabetes, (2) role of various nutrients in fetal neural and cognitive development (e.g. genetic polymorphisms and folic acid metabolism), retinoic acid and gene transcription, (3) nutrition and cancer (e.g. modes of action of selenium and vitamin E, role of predominant plant based diets, and the physiochemical properties of dietary fiber), (4) the role of nutrition in the regulation of inflammation (e.g. effects of dietary fat on the expression of genes during the inflammatory response), (5) maternal nutrition during pregnancy and lactation, (6) postpartum weight retention, (7) fetal metabolic imprinting and its relationship to chronic disease, (8) neurohormonal and psychological influences on eating behavior, (9) food security, (10) domestic and international food and nutrition policy, (11) iron and other micronutrient deficiencies, (12) nutritional impact of parasitic infections, (13) behavioral determinants of food choices, (14) dietary assessments among ethnic minorities, and (15) social patterns of obesity and weight control.

The most recent dietary guidelines reemphasize the increased reliance on plant-based foods as a means of controlling caloric consumption, reducing fat intake, modifying the composition of ingested fats, enhancing the consumption of foods associated with reduced cancer risk, and simultaneously insuring that macro- and micronutrient needs are met. For the first time the dietary guidelines also provide information to consumers who restrict their consumption of animal foods completely or rely on only selected few to meet their dietary needs. Future research activities must explicitly recognize the health goals, policy aims, and consumer practices that support these guidelines.

Thus, future research investments will be made in activities that (1) explore how complex genetic interactions determine developmental and other physiological pathways (and thus specific phenotypes) under diverse nutritional conditions (The impending description of the human genome make this an especially exciting opportunity.), (2) capitalize on an improved understanding of the determinants of human behavior to design effective interventions for behavior change related to nutrition, (3) analyze outcomes of food policy options related to food security, health, and disease prevention, and (4) enhance international collaborations that recognize the globalization of the US food supply.

PERFORMANCE GOALS FOR INITIATIVES RELATED TO GOAL 3

Improves the health, nutrition, and safety of communities and individuals.

- Increase citizen participation in local health and safety policy decisions
- Expand knowledge of health behaviors that effect women's health status
- Increase fruit and vegetable consumption

Indicator Data Specific to Goal 3

(For each indicator, both actual and annual target results are included, the latter in parentheses.)

INDICATOR 3.1 The total number of refereed or peer reviewed articles or materials reporting research on human nutrition and health or health promotion and the number of related patents, licenses, or varieties issued.

Year	# refereed items	# patents, licenses, varieties
2006	256 (300)	38 (2)

OBJECTIVE 3.1 To achieve a healthier, more well-nourished population.

INDICATOR 3.1.2 The total number of persons completing non-formal nutrition education programs on better management of health risk factors (e.g., obesity, hypertension, etc.) and the total number of these persons who actually adopt one or more recommended nutrition practices to reduce health risks within six months of completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually Adopt practices
2006	67,904 (35000)	43,323 (16500)

OBJECTIVE 3.2 To annually increase consumer awareness, understanding, and information on dietary guidance and appropriate nutrition practices.

INDICATOR 3.2.1 The total number of persons completing non-formal nutrition education programs that provide dietary guidance to consumers and the total number of these persons who actually adopt one or more recommended Dietary Guidelines within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt recommendations
2006	69,678 (38000)	51,686 (19000)

OBJECTIVE 3.3 To promote health, safety, and access to quality health care.

INDICATOR 3.3.1 The total number of persons completing non-formal education programs on health promotion and the total number of these persons who actually adopt one or more recommended practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt practices
2006	47,845 (20030)	30,910 (12003)

INDICATOR 3.3.2 The total number of persons completing non-formal education programs on selecting health care options, knowledge of health care issues, and health care rights and responsibilities and the total number of these persons who actually adopt one or more recommended practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt practices
2006	4,885 (12000)	3,514 (6000)

OBJECTIVE 3.4 To annually increase the level of individual and family safety (or reduce risk levels) from accidents in the homes, schools, workplaces, and communities.

INDICATOR 3.4.1 The total number of persons completing non-formal education programs on home and workplace safety and risk reduction and the number who actually adopt one or more recommended practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt practices
2006	5,363 (4500)	3,507 (2003)

OBJECTIVE 3.5 To annually increase the effectiveness of constituent and citizen participation on public policy issues affecting health community decision-making.

INDICATOR 3.5.1 The total number of persons completing non-formal education programs on public policy issues affecting health community decision-making and the total number of these persons who actually become actively involved in one or more public policy issues within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually become involved
2006	1,428 (2500)	1,019 (500)

INDICATOR 3.5.2 The total number of organizations and institutions (schools, government and community agencies and organizations, corporations, etc.) completing non-formal education programs on public policy issues affecting healthy eating practices, improved dietary quality, or increased physical activities and the total number of these organizations and institutions that take action to implement one or more policy/action steps to enhance nutrition and health.

Year	Output: # organizations/ institutions gaining awareness	Outcome: # organizations/ institutions taking action
2006	1,303 (250)	943 (125)

Resources Allocated to Goal 3 (FFF and Match)

Dollars x 1000 and (FTE) or (SY)

	FY2006 Target	FY2006 Actual
Extension Total	3,758 (50.2)	3,440 (48.2)
Research Total	1,295 (8.0)	506 (7.2)

Impact Examples Related to Goal 3

VitaRice, a Novel, Low Cost, Partially-Cooked Fortified Rice (NYC-143413)

Knowledge Areas: 501 New and Improved Food Processing Technologies; 502 New and Improved Food Products; 702 Requirements and Function of Nutrients and Other Food Components.
Funding Source: Hatch

Vitamin and mineral deficiencies affect more than 50 percent of the world population causing increased death rates, impaired cognitive and physical development among children, poor pregnancy outcomes, and lost productivity. Micronutrient malnutrition is widespread among rice eating populations in many countries around the world. For example, more than 70 percent of children under five in India are iron deficient and nearly 60 percent suffer from sub-clinical vitamin A deficiency.

As a major food staple, fortification of rice with micronutrients has the potential to improve global nutritional status. With Hatch grant funding, Cornell researchers are developing and evaluating a novel, cost effective food processing technology that converts *broken rice* kernels into intact, quick cooking rice fortified with iron, zinc, vitamin A, and other micronutrients**.** The process is cost effective because the market value of broken rice kernels is about 30 percent lower than the market value of intact kernels. The technology produces kernels that excellent keeping quality and the same size, shape, and color as conventional polished rice. The advantage of this approach over conventional rice fortification is that nutrients are less vulnerable to oxidation and losses during washing and cooking. The manufacturing uses a modification of a process invented and patented by Wenger, et al. (1988) who are collaborators in this project. We also have a patent for extrusion processing with supercritical fluids (Rizvi and Mulvaney, 1992) which overcomes some of the limitations of the conventional process and will enhance our ability to make VitaRice more acceptable.

This past year, several prototypes of VitaRice have been manufactured in the Cornell University Pilot Plant. The extruded kernels were dried, analyzed for nutrient retention, and evaluated by a 100-member sensory panel. Retention of the vitamins was approximately 50 percent while retention of the iron and zinc was greater than 80 percent. For the sensory evaluation, two extruded samples of rice (fortified and unfortified extruded rice), and two commercial samples of enriched rice (long-grain white rice) were cooked in rice cookers and presented to consumer panelists. Results suggested greater acceptability by the consumer panel for commercial rice samples but the most sizable difference was seen in the appearance attributes. The addition of vitamins and minerals to extruded rice did not appear to have a large effect on sensory acceptability. Our results suggest that VitaRice has great promise as a nutritionally enhanced, low cost rice product that consumers will that will have wide appeal in both the U.S. and in developing nations.

Breastfeeding Among Obese Women: Encouraging the Development of Healthy Infants (NYC-399430)

Knowledge Areas: 702 Requirements and Function of Nutrients and Other Food Components.
Funding Source: Hatch

Although human milk is the best food for infants, not all infants receive it. Unfortunately, infants of obese women are less likely to receive nutrient-rich breast milk because obesity is associated with a reduction in both the initiation and continuation of breastfeeding. In this project we are examining whether offering improved guidance and support for breastfeeding and pumping in the immediate postpartum period are practical and effective public health strategies for improving breastfeeding among obese women.

At present, lactation consultants do not even recognize obesity as a predictor of failure to initiate and sustain breastfeeding and, thus, do not address the special issues associated with obesity and infant care. With the assistance of those who care for newly delivered women, we are developing a program of guidance and support that is tailored to the needs of obese women. We are evaluating the effectiveness of this program compared to usual care in sustaining exclusive breastfeeding among obese women. Similarly, pumping in the early days postpartum has never been used as an intervention to increase the duration of breastfeeding among obese women, so it is not currently known what kind of pump to use, when pumping would need to start or how long it would need to continue to be effective.

Now in the first phase of this project, we are testing the effectiveness of offering obese women improved support for breastfeeding in the immediate postpartum period in a randomized experiment. Recruitment of the 40 subjects in Cooperstown, New York, to be enrolled in this phase of the project, is now nearly complete. In the second phase, we will test the effect of offering obese women access to an electric or a manual breast pump in the immediate postpartum period in another randomized experiment and determine if this affects the duration of breastfeeding. It is anticipated that the pumping will cause the women's milk to come in sooner and will reduce the likelihood that they will terminate breastfeeding prematurely. The protocols for this phase have been developed and recruitment of subjects is about to begin.

The project is well on its way to designing an interventional program of guidance and support tailored to the breastfeeding of infants by obese mothers. Results are expected to advance healthier lifestyle among overweight mothers, which will be extended to healthier upbringing and growth by offspring.

Talking with Kids about HIV/AIDS: Reaching Underserved Audiences in the African American Community

Knowledge Area: 723 Hazards to Human Health and Safety; 724 Healthy Lifestyle
Funding Source: NYS Department of Health AIDS Institute Grant

The African American population of the Nassau/Suffolk region of NY State (Long Island) is disproportionately infected with HIV/AIDS. According to NYS DOH statistics for the period ending December 2004 (latest available) African Americans make up 8% of the general population in Nassau County. They comprise 42% of the persons living with HIV/AIDS, 45% of those newly

infected, and 60% of the maternal-child transmission. The need for prevention education and support is great. Faith communities are significant institutions in the African American Community. Cooperation with faith communities brings vital prevention messages directly to the heart of this community.

CCE staff have endeavored to introduce the Talking with Kids about HIV/AIDS (TWKAHA) training program to faith communities on Long Island. TWKAHA presents accurate information about HIV infection, transmission and prevention in the context of effective, age-appropriate communication with children. TWKAHA promotes the concept of parents sharing their values with their children, which fits well with faith-based communities. CCE joined the list serve managed by the state coordinator of the Faith Communities Project at the NYSDOH -AIDS Institute. Staff became aware of and attended meetings hosted by the Long Island Regional Committee of the Faith Communities Project.

TWKAHA training fliers that reached a large population within African American faith-based communities. An example spin-off of our training for the regional committee was an invitation to speak at a community event held at Bethel A.M.E. Church in Westbury. Eighty-three people heard about the importance of communicating with youth about HIV/AIDS and the TWKAHA program. Evidence of CCE's expanded outreach with the African American community was documented. In the next training class offered, 12% of the participants had either been at the Bethel A.M.E. Church meeting or had seen the announcement on the list serve. The influence has continued into the next program year. A pastor, who participated at a Long Island Regional Committee community event, requested that Extension staff join the group speaking about HIV/AIDS at the Jamaica-Long Island District Conference of the A.M.E. Church. At least 200 people attended.

New York State Expanded Food and Nutrition Education

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle
Funding Source: Smith-Lever Expanded Food and Nutrition Education Program

Growing up in the context of poverty and food deprivation may well be predisposing today’s children to develop obesity in adulthood. During adult life, food insecurity and other life stresses may trigger a reversion to emotional eating patterns and overeating learned in childhood. The Expanded Food and Nutrition Education Program (EFNEP) aims to enable participants and their families to improve food choices and health in the context of various barriers including limited resources.

During Federal Fiscal Year 2006, 18,209 adults—representing 46,369 family members—participated in nutrition education sessions in 54 counties in New York State. Lessons were provided in a series, delivered over time, allowing participants the opportunity to develop skills, increase knowledge, and incorporate changes into their daily lives. Of the enrolled adults, 13,262 (73%) completed the series of lessons. Additionally, 13,602 youth received education designed to increase their awareness of healthy eating and the benefits of being physically active.

Outcomes

- A cost-effectiveness evaluation of the EFNEP estimated the impact of the program on health outcomes to be as great as for many current health interventions.
- Data indicated that 245 quality adjusted life years (QALY) are saved per year with a cost of $20,871 per QALY.
- Using a societal willingness to pay approach, the resulting benefit–to-cost ratio is $9.58 saved for every $1.00 spent.

Seneca County Cornell Cooperative Extension Eat Smart New York (ESNY)

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle
Funding Source: Eat Smart NY funding, county appropriations

Eat Smart New York (ESNY) is a nutrition education program designed to help Food Stamp recipients (and applicants) in Seneca County to gain the ability and capacity to manage food resources more effectively, properly prepare and store foods and understand the nutritional value of foods. As a result participants in the long-term decrease their risks for illnesses and chronic diseases related to improper food handling and medical indicators such as obesity.

In New York State there are approximately 2,794,560 people living below the federal poverty level. In Seneca County, 3,639 people or 11% of the population are below the poverty level. New York's unemployment rate is 5.8 percent (Seneca County rate 3.2 percent) and an average of 1,598,143 people (Seneca County 960 households) participates in the food stamp program each month. Statewide, 11.3 percent of New York households experience food insecurity.

The USDA Food and Nutrition Service support nutrition education as part of the food stamp program and reimburses states/local counties for the allowable expenditure under current federal regulations. Previous research shows that families with limited resources often experience food insecurity or hunger, and in the most severe cases, both. Limited resources can also lead to poor food choices, and a recent USDA (2000) study showed that "many low-income adults do not know specific facts related to what types of dietary practices are healthful." As a result, many low-income families are at greater risk of developing serious or chronic health problems.

One way to help reduce the short and long term health risks resulting from poor diets is to provide nutrition education to communities, focusing on families who are applying or receiving food stamps. The ESNY program empowers at-risk families by providing nutrition information, and helping participants learn skills needed to choose healthy foods, budget food resources, handle foods safely and prepare healthy meals. The goal of ESNY nutrition education is to foster longer-term changes in dietary practices and promote healthful living for families at risk of food insecurity and/or hunger.

Seneca County ESNY made a positive difference in the lives of many participants through increased knowledge and skills related to the core elements underlying the ESNY programming. Example outcomes during 2006 based on 46 persons completing the program include:

- 38 participants (83%) thaw and stores food properly
- 26 participants (57%) plan meals or compares prices
- 40 participants (91%) read labels or makes healthy food choices

Small Steps Are Easier Together

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle
Funding Source: USDA CSREES and local foundations

Obesity prevention is a priority for postmenopausal breast cancer risk reduction because the relative risk associated with obesity is high; studies have attributed 30 percent to 50 percent of breast cancer risk to obesity. Obesity is a modifiable risk factor in Delaware County where the levels of overweight and obesity exceed 60 percent of the adult population.

Most efforts to combat obesity have focused on individual "diets" that aren't successful at keeping weight off over the long run. Cornell researchers have been working with communities in upstate New York to study a promising new approach that focuses on ways the local community or workplace environment affects the way people eat and how active they are in their community.

Researchers, Cornell Cooperative Extension staff, and community leaders collaborated to conduct a community assessment of social and built environments related to obesity. Assessment tools included: 1) a random sample telephone survey, 2) PhotoVoice imaging activity and discussion of local eating and activity environments, 3) in-depth interviews with community leaders, 4) a local food access and cost inventory, 5) a local physical activity resource inventory, and 6) focused group discussions and with community leaders and key leader trainings. Community leaders and members were involved in choosing locally relevant interventions with high likelihood of impact and community participation.

Outcomes included:

- Healthy options were added to 22 community events during the twelve week project, making it possible for 542 people to choose healthy foods.
- Changes made at Healthy Eating worksite and community events included offering smaller portions, offering water instead of caloric beverages, and adding healthy food options including salads and fruit.
- 383 people (315 or one third of local women and 68 men) expressed interest in the walking program with 155 women enrolling and participating in the ten week walking program. Walkers logged over 79 million community steps which is equivalent to a total of 30,000 miles of people walking together around the world. About 20 percent of the participants met the goal of adding 2000 extra steps at least three times a week during the six week walking program.
- Local funding and enthusiastic support for the project will make it possible to continue the project for another three years.

Cornell Cooperative Extension, Schenectady County WIC Lifestyle Activity Program

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle
Funding Source: NYS WIC Program Healthy Lifestyle grant, county appropriations

Early childhood is a critical time for the development of food preferences and eating patterns. Data from the Feeding Infants and Toddlers Study (FITS, 2002) shows that 18 to 27 percent of infants and toddlers consumed no vegetables and 25 to 33 percent consumed no fruits during a day. Food items high in added fats and sugars, including soda and candy, provided approximately 20 percent of the total energy intake of toddlers. The rates of childhood overweight in Schenectady County are consistent with national trends as approximately 15-17percent of youth have a BMI > 95th percentile. Childhood overweight disproportionately affects minority youth, especially economically disadvantaged youth.

The Schenectady County WIC Program in collaboration with Eat Well Play Hard Schenectady developed healthy lifestyle activity bags that were distributed to over 1,000 WIC families. These bags contained various educational materials that addressed the EWPH initiatives: increasing fruit, vegetable and low-fat dairy consumption and increasing age-appropriate physical activity. The resources within the bag were designed to impact both the children and adults in each household and included pedometers, activity logs, bean bags and scarves and a CD of music that encouraged movement. Through taste testing and other educational efforts, WIC participants over the age of 2 were encouraged to switch their WIC vouchers to low-fat or non-fat milk.

As a result of this project, Schenectady County WIC participants have a better understanding of how nutrition and physical activity impact health. To date, over 60 adult participants and 60 youth have returned physical activity logs, indicating that they increased their physical activity levels to reach the goal of taking over 10,000 steps each day. To acknowledge their efforts, these participants received a twenty dollar gift certificate to a local shoe store, enabling them to purchase new athletic footwear to continue being active. Low-fat milk check issuance has increased from 21 percent to 26.8 percent over the past year with the Healthy Lifestyle and Eat Well Play Hard Initiatives.

Maternity Visiting Program

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle;
805 Community Institutions, Health and Social Services
Funding Source: EFNEP, Eat Smart New York (Food Stamp Nutrition Education Program)

Limited income, undereducated Hispanic women, new to Chautauqua County have a critical need to be connected to obstetric services and nutrition education. CCE's involvement eases the way into services for Hispanic women who are unsure of their health care needs. All low income women are a priority for this effort, but Hispanic women are our highest priority because of the needs created by language and cultural barriers.

CCE has formed a partnership with the maternity service of a local hospital and an obstetrics service. We refer women enrolled in EFNEP or Eat Smart New York to the obstetric service when they become pregnant. The obstetric service notifies us when they see a woman in need of nutrition education. The hospital provides access to all mothers of newborns and CCE staff enroll all moms

who qualify for our program. This "triad" of contact ensures that most limited income women are linked to prenatal care as well as our nutrition education programs. Hispanic women are high priority because of the language barrier and possible cultural differences.

The community partnership that CCE has put in place provides low income pregnant women, especially Hispanic women with a language barrier, both nutrition and food resource management education as well as a comfortable entry to the health care system for their pregnancy and delivery. Women whose language would prevent them from accessing care are now getting consistent care, while the partnership ensures we enroll the highest priority women into the EFNEP and Eat Smart New York.

Focus on Fluids - Senior Nutrition

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle;
Funding Source: Nassau County Department of Senior Citizen Affairs

Adequate intake of fluids is a concern for seniors. Seniors are more likely to become dehydrated and/or constipated than younger adults. This may be due to changes in thirst recognition, decreased capacity to concentrate urine in the kidneys, and self-imposed fluid restriction. Elders who are incontinent may restrict fluid intake consciously, as do those who restrict fluid intake to reduce the need to get up to urinate at night. Seniors should understand why adequate hydration is important, and recognize the dangers of dehydration including constipation, nausea, vomiting, mental confusion, acute renal failure and electrolyte disturbances.

"Focus On Fluids" was presented to approximately 435 seniors to motivate them to monitor their fluid intake and strive to drink enough fluids every day. Learning objectives included learning the importance of obtaining adequate fluids daily, recognizing the complications associated with inadequate fluid intake, identifying appropriate fluid choices and learning the recommend daily fluid intake for seniors. Seniors were encouraged to drink at least one more cup of water or other appropriate fluid every day.

One group of 25 seniors agreed to add their favorite fruit, lemon or lime to a glass of fresh water every day and leave it on the top shelf of the refrigerator as a reminder to drink more fluids. A brief dialogue took place every month, for 7 months, to reinforce the importance of fluids in the diet and ways to make water tasty. 90% of the seniors in this group indicated that they increased their daily intake of water. Another center, representing 60 seniors, began to provide bottled water for seniors.

Eat Well Play Hard Grant

Knowledge Area: 703 Nutrition Education and Behavior; 724 Healthy Lifestyle;
Funding Source: Nutrition Policy and Health Promotion Unit in the NYS Department of Health

Cayuga County (81k population) has higher numbers of overweight/obese adults, 59.2% and 23% overweight/obese children than the NYS averages of 56.7% and 20.6% respectively. Extra weight leads to adult chronic disease patterns in children as young as 10 years old. One in four children either have high cholesterol or high blood pressure. The chronic diseases associated with

overwieght/obesty are stroke, hypertension and diabetes. Overweight children are more likely to be overweight/obese adults.

Eat Well Play Hard (EWPH) supported 23 events/programs in schools that reached 5,259 students and staff. Events included Walk to School, Family Fun Nights, and literacy programs. Daycare/preschool presentations reached 305 persons. Community events reached another 5,000 individuals. The NYS Activ8KiDS! Event has provided a great template to promote lifestyle change within the elementary school framework. The event was so successful in September 2005 (our first year) that the Auburn City schools have adopted the idea and each elementary school (5) will rotate every fall having an Activ8kids Day at their school. The parochial schools have also approached us and asked EWPH to use this template and name for an event this spring. This event involves approximately 500 elementary students and 80 staff per year.

A partnership with the Cayuga County Parks and Recreation Department was successfully formed around the building of a new Disc Golf Course. EWPH participated from the beginning and sponsored two holes. This year in our new grant we will be promoting this sport as one for all ages that is free and promotes not only a healthy lifestyle but also use of our beautiful Emerson Park. The sport of disc golf is being promoted by EWPH through mini-grants to schools of equipment, promotional discs and demonstrations at school and community events. Two county schools are looking at their extra property on the feasibility of building courses for their schools and community.

We now have an EWPH Caolition which has grown in the past year from less than 10 attendees to over 20 at times representing 41 public and private entities. This coalition has incredible passion and committment in their efforts for their county. The EWPH grant was recently awarded funding for 5 more years.

Meeting Consumer Demand and Creating New Business Opportunities for High Protein-Low Fat Foods. (NYC-143425)

Knowledge Areas: 502 New and Improved Food Products.
Funding Source: Hatch

There is an increasing demand for high protein-low fat foods, such as soy and dairy- based products. Most soy and soy protein based foods are not appealing to the American consumer, due to unusual sensory characteristics. The appeal of soy products can be improved through combinations with milk and milk products. This project is enhancing the palatability of mixed soy-dairy formulations, based on a thorough understanding of the interactions between soy proteins and milk proteins. The project also will identify the conditions that allow the development of high protein-low fat dairy-soy food products of desired texture and taste.

Lab testing with soy and milk proteins in the first phases of this research has yielded significant information that will facilitate the development of novel highly nutritious food products based on milk-soy protein mixtures in the final phases of the project. The early-phase research supports the long-run potential of this project to have a positive impact on the nutrition and health of American consumers in general and NY State consumers in particular through the creation of new high protein-low fat foods, which have a 'clean' and healthy image, that taste good and have an appealing texture. The NY dairy industry should benefit by potentially attracting consumers who are not big

dairy consumers but will be intrigued by the enhanced healthy image of the new soy-milk blend products. An overall increase in soy protein consumption will benefit soy producers and processors and provide positive economic impact, by helping the local and national food industry develop nutritious products that are not currently available.

One publication in the Book of Abstracts of the Annual Meeting of the Institute of Food Technologists, Orlando FL, June 2006

Integrated Pest Management for West Nile Virus Mosquitoes in Peridomestic/Residential Settings. (NYC-139410)

Knowledge Areas: 721 Insects and Other Pests Affecting Humans
Funding Source: Hatch

West Nile virus, known since the late 1930s, is widely distributed throughout the world. It was not until this century that epidemics began to occur more frequently with subsequent increases in human fatality rates. As of September 2004, West Nile virus activity had been detected in all of the contiguous 48 states and is now considered endemic.

This research is filling a critical gap in knowledge by provide reliable and highly effective information to the public concerning integrated mosquito management and West Nile virus protection. Source reduction of mosquito breeding habitat is commonly recommended to reduce exposure to mosquito vectors, yet no published studies exist that document whether this practice effectively reduces West Nile virus risk to homeowners. With this research we are(1) systematically surveying, identifying, and characterizing artificial mosquito breeding sites in residential areas; (2) identifying key vector mosquitoes that utilize artificial containers in these peridomestic settings; (3) evaluating the relationship between actual artificial habitats, mosquito production and West Nile virus risk; and (4) extensively disseminating results of our research to homeowners, Cornell Cooperative Extension Educators, master gardeners, and public health departments through educational materials and the medical entomology extension web site http://www.entomology.cornell.edu/MedEnt/index.html).

We have made significant progress on this project in the last year, with two resulting manuscripts for publication. A knowledge, attitudes, and practices (KAP) questionnaire combined with entomological surveys of residential mosquito breeding sites were conducted in two Upstate New York neighborhoods. We tested the hypothesis that correct West Nile virus (WNV) knowledge and perceptions correspond with the use of practices that prevent mosquitoes from breeding and biting. Our results demonstrate that perceptions of WNV relate to the number of positive containers in yards and the use of mosquito prevention and control measures. We conclude that more training and education programs should focus on WNV control strategies in residential yards. This is the first study to directly investigate the relationship between KAP and breeding of WNV vectors in residential yards. We also conducted a study on perceptions, strategies and needs for mosquito surveillance and control. We explored the processes by which mosquito surveillance and control decisions are made on the state and local level, especially in regards to West Nile virus.

Our research to date has provided new ideas and methods for prevention and control of these medically important mosquitoes. We have demonstrated associations between human practices, knowledge and perceptions and presence of West Nile vectors breeding in communities. We have

also documented container types and abundance of different mosquito species as a basis for estimating risk and targeting key container types. We have provided information to the New York State Department of Health and initiated a dialog and relationship with professionals working on control of vector borne diseases. We plan to continue disseminating our results for groups to employ in their surveillance and control activities.

A Darwinian Approach to Medicine: Allergies and Protection Against Cancer (NYC-191402)

Knowledge Areas: 712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins; 723 Hazards to Human Health and Safety.
Funding Source: Hatch

Darwinian Medicine is an exciting, new interdisciplinary field that takes an evolutionary approach to human health and disease. Investigations focus on determining which symptoms and behaviors serve useful purposes (adaptations) and which do not (pathologies). Whereas medical researchers traditionally study how symptoms are brought about (their underlying mechanisms) and attempt to design more effective ways to eliminate them, from a Darwinian perspective the questions are why particular symptoms occur (their reproductive consequences) and whether it is advisable to eliminate them. Decisions about whether or not to suppress particular symptoms or behaviors should take into account whether or not they are functional (whether they evolved to aid the individual or are impairing health and hindering recovery). These two approaches are complementary, not alternative. The promise of Darwinian Medicine is that it will lead to better informed medical practices throughout the world, because in order to fix something it is imperative to know what it was designed (by natural selection) to do and why it was designed to do it that way. For example, our finding that allergies can help protect against certain types of cancers calls into question the commonly held belief that allergies are simply immune system disorders. In turn, this raises the issue of whether allergies should be routinely suppressed, or worked with to the benefit of patients. Our results thus have important practical implications, and point the way to further research in this area.

More than 90 million U.S. citizens suffer from allergies, and treatment costs exceed $19 billion annually. Why do we have allergies? Are they simply disorders of the immune system, or might they provide some benefit? This year's research focused on determining whether allergies are related to protection from cancer. Research involved comprehensively reviewing all published information. We located 119 papers (1955-2005), which reported results of 278 studies of individual types of allergies and 129 studies of multiple allergies combined in relation to cancers of 19 specific tissues and organ systems or multiple cancers combined. Our results suggest that normal (sub-lethal) allergy symptoms help protect certain tissues from cancer, especially tissues that are routinely exposed to environmental toxins, microorganisms, and particulate matter such as dust, pollen, smoke, and mold to which mutagenic chemicals may be adhering. In addition, allergy symptoms may function as personal 'smoke detectors,' indicating what environmental chemicals and particles a given individual should avoid contact with (i.e., breathing, eating, or drinking).

Different aspects of the research appeared in four publications in 2006.

How Do Labels Influence Serving Size Perceptions and Calorie Intake? (NYC-121346)

Knowledge Areas: 703 Nutrition Education and Behavior
Funding Source: Hatch

People generally do a poor job estimating how many calories they consume during a specific consumption experience, such as a meal, or snack. The consumption or intake underestimation of calories – people essentially eating far more calories than they are aware -- is often cited as a contributing factor to obesity. The purpose of this project is to determine how marketing vehicles, such as product labeling, influence psychological processes, which then influence consumption. The upshot of this will be to provide government and industry with packaging, labeling, and advertising recommendations that would "de-bias" packing information and lead to more healthy consumption. The project also includes a comprehensive outreach program targeted to illiterate consumers and to a larger population of inner city consumers.

The project seeks to better understand how labels influence people's perception of serving size and how calorie underestimation is related to obesity. We are also examining how social context and activity influences caloric estimation. There are large implications for how obesity is clinically addressed. At the end of this multi-year project we will suggest specific labeling and advertising changes that can help both literate and illiterate consumers more accurately estimate and control what they eat and we will show consumers the contexts and situations where they are most prone to underestimate calories and situations where they need to be more careful.
The research work in the Food and Brand Lab has been credited with improving the deeper scientific understanding of food eating and food shopping as well as the discovery of the 100 calorie packs and some simple everyday insights:

- A person will eat an average of 92% of any food they serve themselves.
- The average person makes an excess of 250 decisions about food each day.
- The Nutritional Gatekeeper of a home influences an estimated 72% of all of the food their family eats.
- Because of visual illusions, people (even bartenders) pour 28% more liquid into a short wide glasses than tall ones.
- Half (50%) of the snack foods bought in bulk (such as at a warehouse club store) are eaten within 6 days of when it is purchased.

The results of these projects have been reported in USA Today, New York Times, 20/20, Good Morning America, The Today Show, and other various local, regional, and national television and newspaper outlets. In addition, both mindlesseating.org and foodpsychology.cornell.edu contain teaching modules and tips that educational professionals can use to educate their students about how their environment (i.e., marketing vehicles) can bias their selection and consumption of different foods. It is expected that through dissemination of results of these studies through media outlets and the, consumers will be better able to recognize environments that lead to unwanted selection and consumption of foods.

GOAL 4 – GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT

Improving the integrity of our environment and maintaining the ecological systems that enable human prosperity will continue to be high priorities of society, and therefore high priorities of its publicly supported research and educational institutions for the next five years. Growing human populations cause growing consumer demands on the agriculture and food system, which magnifies the challenges of balancing agricultural production and food processing with stewardship and protection of the environment.

CUAES has invested heavily in science to avoid and mitigate impacts of agriculture on the environment. We view the long-term sustainability of agriculture as being inexorably linked to environmental quality. As part of our strategy, we are emphasizing a higher level of 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 introduction of environmentally superior innovations/practices to the agricultural community.

The research program is necessarily broad, with complementary thrusts in:

Minimization of chemical inputs--(a) research to improve pest management in plant agriculture, (b) development of viable biological control of pests, (c) improved cultural practices (plant systems management), (d) plant and animal breeding research to improve pest resistance and minimize nutrient inputs, (e) soil-plant systems investigations to improve nutrient management, and (f) technological innovations to reduce pathogens associated with animal agriculture.

Development of agricultural practices that minimize negative impacts on other natural resource values—(a) protect the integrity of water quality, fish and other aquatic resources, wetlands, terrestrial wildlife habitat, forests, and aesthetic considerations; (b) minimize consumption of energy and petroleum-based materials on farm.

Development of environmentally friendly and profitable alternative agricultural products—(a) identify new products and production methods that result in less impact on the environment, (b) develop markets and design marketing strategies that increase profitability of environmentally friendly agricultural products.

Improvement of waste management associated with the agriculture and food system–(a) reduce quantity of on-farm waste, (b) improve management of farm-produced waste, including quality and disposal, (c) reduce quantity of waste in food processing, (d) improve management of waste produced in food processing, including quality and disposal, (e) develop scientific understanding of potential for use of agricultural land for environmentally safe application of municipal sewage sludge.

Future research investments will continue to be made in fundamental and applied science areas leading to improvements in chemical management, nutrient management, waste management, and habitat protection on the farm; energy conservation on farm and in food processing; waste management associated with food processing; and natural resource stewardship.

Issues, Opportunities and Constraints

Issues--Accelerated time frame of society's expectations for "cleaning up agriculture" versus reality of pace of science progress, especially given modest funding levels; public image of agriculture and AES system

Opportunities—Keen interest of excellent scientists to address the problems and discover solutions; public support for this kind of work; graduate student interest is high

Constraints—Lack of sufficient federal funding directed at this area so that science can be accelerated (need facilities improvements, fellowships for best grad students, research operating dollars, etc.)—society's desire for improvements in this area are not matched with financial commitments required to do the job at the rate we all would like; AES's can move some FFFs to this need, but many other agricultural production needs exist that make it very difficult to redirect large portions of the FFF research portfolio.

PERFORMANCE GOALS FOR INITIATIVES RELATED TO GOAL 4

Improves the quality and sustainability of human environments and natural resources.

- Ensure quality and conservation of water supply
- Promote environmental stewardship and sound decision making about the management of natural resources
- Promote community, agricultural, and residential environmental enhancement
- Prepare youth to make considered environmental choices
- Enhance science education through the environments

Indicator Data Specific to Goal 4

(For each indicator, both actual and annual target results are included, the latter in parentheses.)

INDICATOR 4.1 The total number of refereed or peer reviewed articles or materials reporting research on agricultural, natural resource, and environmental policies, programs, technologies and practices and the number of related patents, licenses, or varieties issued.

Year	# refereed items	# patents, licenses, varieties
2006	492 (255)	1 (2)

OBJECTIVE 4.1 To develop, transfer, and promote adoption of efficient and sustainable agricultural, forestry, and other resource policies, programs, technologies, and practices that protect, sustain, and enhance water, soil and air resources.

INDICATOR 4.1.2 The total number of persons completing non-formal education programs on sustaining and/or protecting the quantity and quality of surface water and ground water supplies and the total number of these persons who actually adopt one or more water management practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually Adopt practices
2006	47,543 (15000)	22,477 (5000)

OBJECTIVE 4.2 To annually increase producer adoption of agricultural production "best practices" that conserve, protect, and/or enhance the soil resources on or adjacent to agricultural production sites or land uses.

INDICATOR 4.2.1 The total number of persons completing non-formal education programs on conserving, sustaining, and/or protecting soil resources and the total number of these persons who actually adopt one or more soil conservation practices within six months of completing one or more non-formal education programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt practices
2006	20,853 (6500)	7,675 (3250)

OBJECTIVE 4.3 To annually increase the effectiveness of constituent and citizen participation on public policy issues affecting agricultural production, the environment, and ecosystem integrity and biodiversity.

INDICATOR 4.3.1 The total number of persons completing non-formal education programs on public policy issues affecting agricultural production and ecosystem integrity and biodiversity and the total number of these persons who actually become actively involved in one or more public policy issues within six months after completing one or more of these programs.

Year	Output: # persons completingprograms	Outcome: # who actually become involved
2006	12,210 (30000)	5,842 (2000)

Resources Allocated to Goal 4 (FFF and Match)

Dollars x 1000 and (FTE) or (SY)

	FY2006 Target	FY2006 Actual
Extension Total	3,184 (50.4)	2,858 (48.0)
Research Total	2,150 (13.6)	2,067 (17.6)

Impact Examples Related to Goal 4

New York's Maple Sugar Industry as a Model for the Nation: Constructing Collective Capabilities for Stewardship Enterprises (NYC-147406)

Knowledge Areas: 123 Management and Sustainability of Forest Resources; 125 Agroforestry; 608 Community Resource Planning and Development
Funding Source: Hatch

The maple sugar industry has the potential to be one of the fastest growing agricultural sectors in New York State. New York Maple syrup production rose 14 percent in 2006 from 2005, due in part to favorable conditions and an increase in the number of taps. Only two states, Vermont and Maine, produced more syrup. A vibrant maple sugar industry can contribute to both economic development *and* forest conservation policy goals. In the context of opportunities to expand the NY maple industry and advance its contribution to working landscapes, relatively little is known about the structure of the industry, who participates, how, and with what results.

Through a mail survey and a series of case studies, we sought to support New York maple syrup producers and enhance forest conservation through advancing entrepreneurship, professionalization of the maple sector and public policy innovation. While our empirical work is focused on maple sugar, we view maple as a lens through which to consider the broader processes underlying the service turn or the amenity turn that is widely recognized as underlying rural restructuring in advanced societies confronting globalization and rising demand for environmental and ecological services from landscapes. The survey of New York State producers of maple syrup and related products was conducted in the winter of 2004/2005. We obtained 265 responses and a response rate of 66 percent. The data are organized into five sections: I. sap and syrup production, II. maple products and marketing, III. sugarbush and forest management, IV. informational and managerial resources, V. producer demographics. This range of topics allows us to address a set of issues important to economic, social and ecological dimensions of maple production at the level of individual producers, as well as at the level of planning and facilitating development of the sector as a whole.

Presently, sugar bush management is not geared toward environmental conservation. Our research has, however, stimulated and advanced a discussion about maple sugar as a stewardship enterprise. Positive environmental benefits of a healthy sugaring industry were not actively discussed prior to our pushing this question in our case study research. There is new attention to the opportunity to produce public benefits and to be rewarded for doing so -- payments for ecosystem services -- among leaders in the industry. Our research has produced statistical evidence that value-added maple enterprises are more active stewards of forest health than maple producers not engaged in adding value. This suggests the possibility that there are complementarities between efforts to advance value adding (candy making, agrotourism, on-site sales, etc.) and efforts to promote ecological stewardship through integrated sugar bush management. This is a potentially important example of how commercial strategies of entrepreneurs (i.e., private goods production) can advance social objectives (i.e., public goods production). We have demonstrated a relationship between changes in production behaviors and the organization of the innovation system supporting maple sugaring in New York. Our analysis of the institutional arrangements underlying what we identify as movement toward professionalization of the New York maple industry is of value to leaders of the maple sugar industry, rural development interests more generally, and scholars of rural restructuring.

Healthier Cows, a Cleaner Environment: Feeding Strategies for Dairy Cows to Reduce Nutrient Excretion into the Environment (NYC-127435)

Knowledge Areas: 302 Nutrient Utilization in Animals; 307 Animal Management Systems
Funding Source: Hatch

Given the importance of the dairy industry to New York economy – $1.9 billion annually in milk produced on dairy farms – cutting-edge research in creating healthier livestock and a cleaner environment is a focus of Cornell researchers and Hatch grants, with applicability nationwide. Several projects underway are examining the ways to reduce the environmental consequences of dairy farming and produce cost-effective, better management practices to aid farmers.

In one Hatch-funded project, researchers focused on evaluating methods of altering animal diets to reduce the excretion of nitrogen and phosphorus, the current focus of CAFO (confined animal feedlot operations) regulations. The results showed that a small change in unit decrease of ammonia emissions from dairy cattle could have a positive impact on the environment. Through multi-year testing of several different herds, with different grain formulation and grazing mixtures, researchers identified levels of nitrogen by measuring Milk Urea Nitrogen. A higher MUN level indicates the cow is emitting greater excretion of nitrogen into the environment.

The primary impact from improving the efficiency of nitrogen (N) use in dairy cattle will be a decrease in the quantity of N excreted into the environment. Milk urea nitrogen (MUN) is one index that can be used to assess the efficiency of N use in dairy cattle. Higher MUN values indicate greater excretion of N to the environment. The potential quantity of urinary N excreted per cow per day can be predicted from MUN using published regression equations. The predicted grams of urinary N excreted per day for Holstein cows with MUN values of 11, 13 or 15 mg/dl are 171, 202 and 233. Lowering the average MUN value by 2 units, would decrease yearly N excretion by 21 lbs/cow based on a 305 day lactation. If the average MUN value was lowered by 2 units for 25 percent of the dairy cows in New York, the quantity of Nitrogen excreted into the environment would decrease by 3.4 million pounds. The predicted quantity of ammonia emitted from manure is 3.3, 3.9 or 4.5 gN/hour for MUN values of 11, 13 or 15 mg/dl. A 2 unit decrease in MUN would equal 10 pounds less ammonia emitted in a 305 day.

One new publication reported in 2006

Benefits and Costs of Natural Resource Policies Affecting Public and Private Lands (NYC-121414)

Knowledge Areas: 605 Natural Resource and Environmental Economics
Funding Source: Hatch

Attaching an economic value to Public and Private lands – and the public policies that impact them – is critical to public understanding and political decision making. Criterion validity research is central to the continuing debate over the validity of survey techniques to value public goods and whether these methods should be used in Federal and State benefit-cost analyses. This research undertakes to conduct benefit cost analyses of changes in Federal rules and regulations as required under Executive Order 12866, estimates of benefits need to be accounted for, including those associated

with environmental and other non-marketed public goods. This research is directed towards improving the accuracy and testing the validity of benefits (and damage) estimates of environmental quality. 1) Estimate the economic benefits of ecosystem management of forests and watersheds. 2. Estimate the economic value of changing recreational access for motorized and non-motorized recreation. 3. Calculate the benefits and costs of agro-environmental policies. 4. Estimate the economic values of agricultural land preservation and open space. Such tests involve comparing hypothetical valuation survey responses with actual contributions to public goods. One area of ground-breaking research is developing and implementing a property price valuation study to examine how open space and agricultural lands affect housing prices in rural areas of New York.

This research benefits researchers working in non-market valuation and provides input into policy decision making. Economic values derived from this research have been used in public rule making by the EPA and other Federal Agencies. As an example, the research on groundwater damages associated with agricultural practices was fundamental to EPA/USDA rulemaking, serving as the basis for the $30.9-45.7 million annual "Reduced nitrate contamination of private wells" benefits estimate used in the benefit-cost analysis of the recent CAFO rules. (Federal Register, 68 no. 29, 2-12 03 p. 7235). Researchers are also working with colleagues in Pennsylvania and Europe, expanding the global reach of this Hatch grant.

A paper from this research was presented at the Northeastern Association of Agricultural and Resource Economists in 2006. The PI also participated in a published U.S. EPA conference on valuation.

Controlling Weeds in Turfgrass using Environmentally Friendly Crop and Groundcover Selection (NYC-145407)

Knowledge Areas: 213 Weeds Affecting Plants
Funding Source: Hatch

There is great interest in reducing application of herbicides in landscape and turf settings, resulting in a strong need for alternative pest management strategies that work in these landscapes. Due to the lack of availability of effective organic products of alternative strategies for weed management in turfgrass settings, the selection of crops and groundcovers which are inherently weed suppressive is of increasing importance. Utilization of low maintenance weed-suppressive turfgrasses and sods is of great interest to commercial turfgrass and sod producers, landscape managers, golf courses and public parks managers, departments of transportation and home and commercial landscapers. This project represents a novel approach to development of alternative weed management strategies for horticulture cropping systems.

This research involves developing alternative weed management strategies in landscape and turf settings with the use and implementation of novel bio-control practices which can provide efficacious control over the course of the growing season. One approach which shows strong potential is studies to date is the selection, development and use of allelopathic or weed-suppressive turfgrasses or groundcovers to naturally control annual weeds in the landscape or turf, without the use of herbicides. An understanding of the basic mechanism of root exudate production and expression in allelopathic species will allow us to further manipulate the production of bioactive exudates for weed suppression and pest management. Natural products that are isolated or released from plant residues have potential to be used as bioherbicides within horticultural cropping systems.

Alternatively, these secondary products could serve as templates for new products with novel modes of action to be developed by the chemical industry. Interest currently exists for both scenarios. The development of cover crops or smother crops for weed suppression in or between rows of horticultural crops is under investigation throughout the U.S.

This Hatch-grant focuses on a diverse group of crops plants and invasive weeds which exhibit allelopathic activity and inhibit the growth or development of surrounding plant species, including weeds. We have developed a specialized capillary mat system to produce large quantities of living root tissues of sorghum and fescue spp. which exude bioactive root exudates. The mat system has allowed us to fully characterize the chemical components of the exudates and examine cultivar differences. Multiplex differential display coupled with the use of species specific primers or root specific probes has allowed us to isolate novel genes involved in root exudation, specifically those associated with sorgoleone production in sorghum. Sorgoleone is a potent inhibitor of photosystem II in higher plants. Currently several genes associated with sorgoleone production have been isolated and sequenced. Several of these genes are novel and root specific. Research with fescue germplasm is now underway in an attempt to isolate root exudation genes in fine leafed fescues as well.

13 articles reported published in 2006

Understanding Pollutant Transport by Runoff in New York State (NYC-123406)

Knowledge Areas: 112 Watershed Protection and Management
Funding Source: Hatch

Runoff processes in New York are fundamentally different from the Midwest, yet until this research, the most commonly used predictive models and tools for runoff are based on the Midwest runoff processes. With this project, more appropriate and physically correct runoff tools were developed specifically geared toward New York for managing watersheds. This project provides watershed managers appropriate tools to predict runoff primarily for use in controlling non point sources of water pollution. Our objectives are to 1) determine under what conditions surface runoff is generated by precipitation excess and saturated excess processes. 2) develop methods, tools and guidelines for field practitioners interested in predicting runoff from upstate New York watersheds.

Through field and laboratory studies, researchers quantified the processes generating runoff, with particular emphasis placed on the impacts of land use, topographic position, season, infiltration capacity, hydraulic conductivity, water-holding capacity, climate, and vegetative cover. Simultaneously to the field and laboratory studies, computer models and other tools were developed to capture the physical understanding of the systems leading to runoff.

This project has contributed to more than 40 peer-reviewed publications, two Internet Mapping Tools, and re-conceptualization of two widely used non-point source pollution models (SWAT and GWLF). We developed multiple methods of bridging the gap between our early theoretical work about physical hydrological processes controlling runoff, primarily saturation excess runoff, and usable tools for management applications. The Soil and Water Lab website (http://soilandwater.bee.cornell.edu/) provides links to several prototype Internet mapping tools for identifying hydrologically sensitive areas (HSAs), i.e., areas most prone to generate runoff, by linking landscape characteristics, i.e., topography, soil depth, etc., with modeled risks of runoff

generation. We have and continue to develop methods for modifying existing water quality models, like SWAT and GWLF, so that they can meaningfully simulate saturation excess processes. Other important progress includes mechanistic models of: solute (e.g., phosphate) and transport from manure and soil into saturation excess overland flow, particulate (e.g., sand) transport in precipitation excess overland flow, and fine sediment transport by rain on saturated soil. On-going modeling work includes formally modifying and testing SWAT in the context of saturation excess runoff and improving phosphorus transport routines into our mechanistic hydrologic model, SMR. The work was foundational in securing grant funds to continue related research and we are seeking funding to specifically expand development of our web resource for will identify HSAs to cover New York State. This project played a central role in fostering collaboration between the Cornell Soil and Water Lab and numerous agencies (e.g., US Geological Survey, USDA-NRCS, USDA-ARS, New York City Dept. of Environmental Protection, Tompkins County Department of Planning).

This project is clearly contributing to changes in the conceptual basis for widely used water quality models, making them more appropriate to areas where runoff is controlled by variable source area hydrology. We have received positive feedback from a number of agencies, including, the NYC-DEP, NYS-DEC, USDA-NRCS, USDA-ARS (Penn State Univ.), several watershed councils and planning groups, Tompkins County's planning department, and the Soil and Water Conservation Society. During this project, several states explicitly included hydrologically sensitive areas into their phosphorus index tools. The concepts and tools developed by this project are being incorporated into water quality plans.

Seven new publications were recorded in 2006 related to this project.

Improving Water Resource Management for Roadside Ditch Systems and Implementation of EPA Stormwater Regulations (NYC-147473)

Knowledge Areas: 133 Pollution Prevention and Mitigation
Funding Source: Hatch

Networks of roadside ditches are an unrecognized contributor to problems with sediment loading and stormwater flooding in streams. This project is investigating how different factors, such as type of ditch management practice, influence the contributions of water, sediment, and associated contaminants from roadside ditches to streams.

The overall goals for this second year of the roadside ditch program have been to conduct the bulk of the ditch water sample data collection and to increase our extension efforts to professionals and K-12 educators. The roadside ditch project has two main research objectives that build consecutively on each other in spatial scale. Our research efforts this past year have focused on the finest scale, documenting within ditch processes and, specifically, the discharges and loadings of suspended and dissolved materials originating from ditches that vary in their extent of exposed substrate. This data collection has been highly successful, with ditch monitoring and sample processing throughout the Doolittle Creek system, a tributary to the Susquehanna River, nearly completed. Approximately 800 water samples have been collected from our 8 ditch sampling stations and the downstream creek site, across a total of 25 days representing 17 storm events. We have started the data summarization which shows significant increases, by several orders of magnitude, in total suspended sediment load,

from less than 0.01 mg/L to as much as 25 mg/L with an increase in the percent scraped or exposed substrate in the ditches, as well as very high bedloads moving during large storms. These results suggest that ditch management practices may be a significant contributor to degraded water quality in downstream receiving waters. Phosphorus and trace metal analyses, both dissolved and adsorbed, are still being conducted. We have completed the field-based, GPS mapping of all the ditches in the Doolittle Creek basin. These data are being processed using GIS analyses to determine the total contribution of ditches to the stream network.

The preliminary results from the work have been presented at the annual conference of the American Water Resource Association in Baltimore (Nov. 2006), on our K-12 ditch curriculum website, as well as at more than 20 workshops to town planners and highway departments across New York in order to get this issue before stakeholders as they work on meeting EPA Phase II Requirements in 2008.

The results show that roadside ditches are a significant contributor to degraded water quality and flooding in the downstream receiving waters in our studied watersheds. Even in the largely agricultural and forested watershed of Doolittle Creek, roadside ditches intercept a major percentage of shallow storm runoff from the landscape and shunt it rapidly downhill where it is discharged, faucet-like, into the stream. When ditches are scraped and left with exposed substrates, they are a source of considerable erosion and suspended sediment that is transported during storms to the creeks where they discharge. Less obviously, these ditches are also a source of considerable bedload that is deposited as deltas along the stream edges. These findings provide new insights into the factors driving increased flooding and water quality degradation in watersheds across the United States and have important implications for the success of the ongoing EPA Phase II Stormwater Regulations. We have given presentations of these preliminary findings, along with a draft list of recommendations, to over 1000 town planners and highway staff across New York state during the past year.

Securing Farmland in Onondaga County (update of story included in 2005 report)

> **Knowledge Areas:** 131 Alternative Uses of Land; 136 Conservation of Biological Diversity; 608 Community Resource Planning and Development
> **Funding Source:** Syracuse-Onondaga County Planning Agency, county appropriation

Onondaga County (Syracuse area) continues to loose farmland as people move from the suburbs and urban areas to live in rural areas. For every acre of farmland lost to development, another acre is abandoned. People who move into agricultural areas become concerned about odors, dust, herbicide applications and other accepted agricultural practices. This leads to farm/non-farm conflicts.

Agricultural property owners, in areas with development pressure, are interested in a mechanism to protect farmland for agricultural use. Local municipalities were not interested in holding the conservation easements and no local land trust (with a mission to protect farmland) was available to hold the conservation easements. Farmland owners have to identify the organization that will hold the conservation easement in order to apply for funding for the purchase of development rights. The Town of Lysander was interested in the concept of transfer of development rights (TDR) as they were looking for more flexibility in securing farmland within the town.

CCE had the lead for the Onondaga County Agriculture and Farmland Protection Plan which made the County eligible to receive funding for the Purchase of Development Rights from NYS Dept. of Agriculture and Markets. This document was approved the the Onondaga County Legislature. CCE also developed a Municipal Reference for Agricultural Land Use in Onondaga County, which strengthened relationship with Syracuse-Onondaga County Planning Agency and local municipalities. The reference also explained potential conflicts that can result from the farm/non-farm interface and acted as a bridge between possible town regulatory decisions and NYS Agriculture and Markets, Agricultural Districts Law 25-AA, New York State's "Right to Farm."

CCE staff versed in land valuation and concept of development rights were able to explain complex concepts to property owners, government officials, and Agriculture and Farmland Protection Board members. Seminars and technical assistance were provided to property owners, government officials and the Agriculture and Farmland Protection Board about purchase and transfer of development rights. Familiarity of concepts allowed for informed decisions by property owners as to their willingness to participate in the program and assisted Agriculture and Farmland Protection Board members in determining which properties should be forwarded to the state.

CCE staff acted as liasion with NYS Dept. of Agriculture and Markets on behalf of Farmland Protection Board and local farmland property owners which facilitated completion of projects. CCE staff assisted in the formation of the NYS Agricultural Land Trust. As a result of this initiative 3,480 acres have been secured for permanent farm use and property owners have received $5.8 million in compensation for the purchase of development rights. The Lysander project is the first TDR project to be funded through the NYS Dept. of Agriculture and Markets and is the first TDR project in NYS to use the concept of a "bank" for the development rights and the process of "auctioning" the development rights to developers to continue to fund the transfer of development rights in the Town. This will allow property owners to sell their development rights but realize some of the appreciation in value of development rights through time. Other communities in NYS are monitoring the progress that the Town of Lysander is making to determine if transfer of development rights is feasible within their local community.

Capital District Pesticide Applicators Recertification Day

> **Knowledge Areas:** 216 Integrated Pest Management Systems; 723 Hazards to Human Health and Safety
> **Funding Source:** NYS Department of Environmental Conservation

New York State Private and Commercial Certified Pesticide Applicators must attend approved training sessions to continue to upgrade their knowledge and skills in relation to pesticides, pesticide application and Integrated Pest Management (IPM). To ensure that Certified Pesticide Applicators in the Capital District receive the training that is needed, Cornell University Cooperative Extension holds a full day recertification class every year where applicants can earn up to six recertification credits. Over the past four years, the Capital District Recertification Day has provided educational information and recertification credits in the following categories for both private and commercial application: Ornamental and Turf; Agricultural Plant; Structural and Rodent/Termite; Public Health; and three core credits each year.

A yearly Pesticide Recertification Course is offered every March before the spring and summer spraying begins. Most participants who attend the recertification day feel these sessions are most helpful in keeping them up to date with the changing rules and regulations related to pesticide application and remind them each year about the importance of handling pesticides safely.

As a result of offering this course each year to pesticide applicators, five hundred eleven (511) certified applicators have received up to twenty four credits which provide more than the total credits needed to maintain their license. By maintaining their licenses, applicators are kept in the system where they receive educational information on a yearly basis which helps to protect themselves, the public and the environment while maintaining pests at an acceptable level.

Pesticides and pesticide applicators are highly regulated in NYS and across the country. In NYS part 325 Rules and Regulation relating to the application of pesticides are constantly changing. As a result of attending these recertification days, applicators are educated about the changes and what they must do to keep their farm or business in compliance, reducing the possibility of miss use of, storage or transportation of pesticides. Pesticide safety is stressed each year to attendees. As a result, applicators return to their farm or business ready to implement many of the no cost safety guidelines discussed, resulting in a safer environment for all who use and benefit from the use of pesticides.

Agricultural Flood Damage Assessment and Restoration

Knowledge Areas: 112 Watershed Protection and Management
Funding Source: New York City Department of Environmental Protection

On June 27 and 28 Delaware County and the south-central southern tier of New York experienced a devastating flood of historic proportions. Over half of June's 18 inches of rain fell in two days, producing a 146-year rain event destroying bridges, roads, homes, farmland and farm infrastructure. Dairy farmers were already stressed due to a long period of depressed milk prices and high input prices. Farmers and landowners needed information and financial support to recover from the unprecedented disaster.

A Command Center and Emergency Agricultural Flood Response Team were established with Cornell Cooperative Extension in Delaware County (CCEDC) serving as coordinator. The team consisted of over 60 staff from the USDA Farm Service Agency and Natural Resources Conservation Service, Delaware County Soil and Water Conservation District, Watershed Agricultural Council, and CCEDC. The New York City Department of Environmental Protection (NYC DEP) collaborated with the Response Team and authorized DEP funded staff to participate in the response effort.

A Rapid Assessment phone survey for all identified Delaware and Susquehanna River basin farmers in Delaware County determined the extent of agricultural damage and prioritized farms for on-site assessment. Of 369 farms surveyed, mostly within in 72 hours, 265 reported damage. Over half reported significant impact including crop, cropland, stream and best management practice damage. A Targeted Field Assessment on 238 farms determined the nature and extent of damage and the need for technical and financial assistance. Assessment training included the stages of grief, fact sheets, potential financial assistance and safety. Fact sheets were distributed to farmers and landowners on

topics including financial assistance to repair flood damage, handling damaged crops, emergency crop options, stream debris removal regulations, etc.

Data were tabulated and reported to policy makers and agency leaders. Cropland restoration was estimated at 1.1 million dollars; the total cost of repair to 138 BMPs is estimated at 450,000 dollars. Nearly 300 emergency highway protection sites were identified requiring 57,000 feet of streambank Restoration with an estimated cost of 25 million dollars. A DVD of flood damage was created and distributed.

Restoration projects were prioritized and scheduled. FSA has allocated 776,000 dollars in ECP funding for cost share reimbursement for farmers to restore cropland; 242 applications have been received. NYC DEP agreed to pay for BMP restoration on watershed farms; funding for stream intervention was obtained from Delaware County, the Delaware County SWC D and NYC DEP. Cornell Cooperative Extension cooperated with an anonymous donor to distribute funding of $1,000 to each of seven farmers in Delaware County that were identified as those exceptionally hard hit by the flooding. Emergency Watershed Protection (EWP) program funding is pending.

All damaged BMPs are scheduled for repair; 27 of 64 BMP repair projects scheduled for 2006 are complete. Stream intervention projects are planned for 19 farms; over 12,470 feet of streambank intervention has been completed. Personal consultation and assistance was provided farmers to help them apply for financial assistance and to acquire needed winter forage.

Composting Dairy Manure

> **Knowledge Areas:** 133 Pollution Prevention and Mitigation; 112 Watershed Protection and Management
> **Funding Source:** NYS Energy Research and Devevlopment Authority, county appropriations, Smith-Lever

Rising fuel costs and increasingly strict environmental regulations are issues that all dairy farms have to deal with. The two largest fuel cost related items on a dairy farm are the cost to haul manure as a typical dairy cow produces over 120 pounds of manure each day and the cost of nitrogen fertilizers as it takes 40,868 cubic feet of natural gas to make one ton of nitrogen fertilizer.

Composting of dairy manure has been suggested as one possible solution to this problem as composted dairy manure has half the volume (causing fewer trips to haul to spread on fields) or raw manure and composting converts the available ammonia in manure to an odorless stable organic form (Ammonia is a source of unpleasant odor as well as a potential contributor to air and groundwater pollution). The barrier that limited farms from implementing composting systems was that to compost you need a compost turner costing over $20,000; an investment in unproven technology that farms could not afford to make.

To address this challenge, eight central New York farms, two non-profit environmental groups, the Cornell Waste Management Institute, and Cornell Cooperative Extension formed the Northern Forest Compost Collaborative. This group was able to obtain a $125,000 grant from NYS Energy Research and Devevlopment Authority to pursue a two-year research project where we purchased a

compost turner and evaluated the impacts/economics of adopting a compost system.

Economic analysis demonstrated that a farm could profitably adopt a compost system while gaining environmental benefits. Of the 11,908 tons of compost this project created, we were able to eliminate 71.48 tons of ammonia from being released into the environment. This had the benefits of not annoying neighbors with manure odors, not polluting the environment, and it helped lower fertilizer bills on farms because they were better able to utilize the resources they already had. By converting 71.48 tons of ammonia to stable organic nitrogen, we saved the need to spread 170 tons of urea, which would have cost farmers $59,500 and required the use of 2.92 million cubic feet of natural gas to create.

Addressing a New Threat to Long Island Flowers: the Q-Biotype Whitefly

> **Knowledge Areas**: 216 Integrated Pest Management, 205 Plant Management Systems
> **Funding Source:** The Floriculture and Nursery Research Initiative (USDA-ARS), the USDA IR-4 Program, and Fischer USA.

Greenhouse growers, Suffolk citizens and others who grow or purchase Suffolk-grown greenhouse flowering plants such as poinsettias are concerned with or affected by new pest threats, which diminish quality and marketability of local produce. The new Q-biotype whitely is notoriously difficult to control and was first found here in Suffolk in 2006 causing serious headaches for several affected businesses.

The issue has been addressed on several fronts. First, we confirmed the first infestations of this new threat in several locations around Long Island by collecting samples from operations reporting problems and shipping for analysis to a designated test lab in California. Second, we immediately began trials to compare performance of standard and 'biorational' or naturally derived products for control of the pest, to show the 'standard' treatments were not effective and to find acceptable materials that were effective and safe. Third, we addressed the issue at the regional level, alerting growers to raise awareness of the possible problem, through newsletters and educational presentations. Fourth, the Entomology Program participated at a national level to develop a 'best management practice' guide ("Management Program for Whiteflies on Propagated Ornamentals with an Emphasis on the Q-biotype" http://mrec.ifas.ufl.edu/LSO/bemisia/bemisia.htm) and dialogue with plant propagators who ship plant material around the country, including Long Island. Fifth, we invited a speaker from UMass's successful biological control program for whiteflies here to Suffolk to speak about their experience, then began a pilot program to implement a similar program in local greenhouses. Finally, we continue to publicize the issue and monitor whitefly infestations for potential new cases of this Q-biotype whitefly.

Participating growers now understand the importance of a biotype analysis in making appropriate choices concerning controls for this pest. This includes the need to rely less on use of imidacloprid, a potential groundwater concern. We have shown that some naturally derived materials such as abamectin and insecticidal soap can be quite effective. Lower rates of insecticidal soap are still effective while providing an increased margin of plant safety. Some materials such as the jojoba oil-based E-Rase are also effective even at the lowest tested rate, but need to be used infrequently to minimize risk of plant damage. Biological control with Eretmocerus, a tiny beneficial insect, can be at least partially effective released into the greenhouse and will probably work very well where good

quality control and a proper environment are provided.

No Q-biotype whiteflies have been detected in NY and especially in Suffolk County on poinsettia this year and there have been extremely few detections around the country, which reflects the greater awareness of propagators who are now shipping very 'clean' starter plant material to Suffolk and other growers.

Certified Nursery Professional Education

Knowledge Areas: 205 Plant Management Systems
Funding Source: NYS Department of Agriculture Markets

The mission of the NYS Certified Nursery Professional (CNP) program is to raise and improve the professional standards of the nursery, landscape and garden center industries. A CNP is an individual who has demonstrated a high level of competence in the principles and practices of the green industry. To earn the CNP designation, the individual must have graduated from a recognized 2 or 4 year college with a degree in a horticultural field and have at least one year of related work experience, or have completed three years of related green industry work experience. A NYS monitored certification exam must be successfully completed and 10 or more hours of educational credits must be earned each year after certification. CNPs have attained a high level of recognition by both the gardening public and the entire green industry. Individuals that are interested in this program come from different educational backgrounds and many are far removed time-wise from "formal" education. The certification exam is comprehensive and covers a wide range of topics. A training manual is available and is part of the registration package for the exam. The exam can be passed successfully utilizing the information in the manual. However, many of those interested in taking the exam expressed a desire to have some sort of review program offered as an educational tool to learn the material, both for the valuable information to be used in day-to-day working and to be successful in passing the examination.

Cornell Cooperative Extension of Nassau County, in cooperation with the Long Island Nursery and Landscape Association (LINLA), offered a review program in February 2006. The review was a 30-hour educational program over a 5-day period. CCE planned the program, including distributing flyers, taking registration and obtaining instructors. In addition, CCE staff provided a portion of the education. Other instructors included CCE and Cornell staff from other counties and experts from the industry. Topics covered all chapters in the training manual provided to the students. These included: Soils and Fertilizers, Insects and Diseases of Ornamental Plants, Planting and Maintaining Trees and Shrubs, Site Assessment, Pruning Ornamental Plants, Turfgrass Culture and Problems, Basic Botany and Plant Identification. One 3-hour session on Tree and Shrub Identification was held in the field at a local arboretum. The others were classroom sessions. Registration fees were kept relatively low due to additional funding from the Department of Agriculture Markets. There were 20 students in the class from many different areas of the industry and varying educational backgrounds. All were enthusiastic and anxious to learn. Although these sessions were primarily used as preparation for the exam, the information is very practical and useful in the students' field of work. Students certainly gain knowledge that they can use on a daily basis in their jobs. To retain CNP status, 10 hours of continuing education credits must be obtained each year. This review program and the entire CNP Program has proven to be an excellent opportunity to raise the standards of the "green" industry.

The CNP Program is an established program that is worthwhile to the nursery industry. The review program was well received and all participants were enthusiastic. It provided more of those interested in becoming CNPs the knowledge and confidence needed to successfully pass the examination. It also provided them with very valuable information, useful in their day-to-day work lives. All 20 of the students successfully passed the examination, a substantially higher success rate than historical records for for groups not participaing in a review session.

Certified Tree Steward Program

Knowledge Areas: 124 Urban Forestry
Funding Source: County appropriation

In 2006, several severe storms, including a tornado not far from the Cooperative Extension office, hit a number of communities hard in Westchester County. In addition to cleaning up the damage, these communities found themselves faced with evaluating hazardous trees, challenging pruning situations, and replanting decisions. Municipal departments charged with these responsibilities often lack employees who have formal training in public tree care. Wrong decisions can cost the municipality and taxpayers money, and put the public at risk.

In response to this need, CCE Westchester County organized a Certified Tree Steward Program in the fall of 2006 to train municipal employees in proper tree care. Participants who pass an exam will be awarded a patch that they can wear on their uniforms indicating that they are Certified Tree Stewards.

Twenty-six people representing sixteen municipalities (and over fifty percent of the land area of the county) and three Master Gardener Volunteers completed the program yielding a pool of qualified tree care providers. There is a waiting list for the next class.

Cayuga County Recycles

Knowledge Areas: 133 Pollution Prevention and Mitigation, 403 Waste Disposal, Recycling, and Reuse
Funding Sources: NYS Department of Environmental Conservation, Environmental Protection Agency, Cayuga County Legislature, NUCOR Steel Auburn, City of Auburn, New York State Conservation Committee

Americans generate approximately 1.6 million tons of household hazardous waste, 2 million tons of electronics waste and 250 million discarded tires each year! When these items are disposed of improperly by they create risks to people and the environment. To reduce the potential affects of improperly disposed of household hazardous waste, Cornell Cooperative Extension of Cayuga County in conjunction with local agencies and businesses coordinated county-wide recycling events. Cornell Cooperative Extension of Cayuga County's role involved educating County residents about the danger of improperly disposing household hazardous waste, electronics, and tires as well as promoting and coordinating events.

This year marks the 10th anniversary of Cayuga County Recycling events. The first event was a Clean Sweep held in 1996. Clean Sweeps are events where farms, greenhouses, schools and golf courses have an opportunity to dispose of hazardous materials, especially pesticides. A similar opportunity for County residents arose in 1997 when Cayuga County began household hazardous waste collections. In 2002 electronics collections, many of which included the collection of propane tanks, also became available for County residents. Finally, in 2003, Cayuga County began tire round-up events for residents.

Since the program began, more than 3,200 households and nearly 100 farms have participated in clean sweeps and household hazardous waste events. 191,000 pounds of hazardous waste has been collected by contractors and disposed of properly. More than 100,000 pounds of home electronics and 1,900 propane tanks have been collected and disposed of properly. Three annual tire round-up events collected and recycled 40,000 tires totalling about 1.2 million pounds of recycled materials!

Onondaga Earth Corps (Community Forestry Education in Natural Resources)

> **Knowledge Areas:** 806 Youth Development, 124 Urban Forestry
> **Funding Source:** Central New York Community Foundation, The Rosamond Gifford Foundation

This program was developed to address several issues: 1) meaningful employment for youth in urban neighborhoods, 2) exposure of underrepresented populations to environmental careers, 3) interest by residents to increase low tree cover and improve physical environment of their neighborhoods, and 4) increasing resident involvement in reestablishing community forests.

Several homeowner and block associations from the Syracuse Southside approached CCE asking about how they could increase tree cover. CCE then partnered with the Southside Neighborhood Action Group (SNAG) to enhance their existing youth employment program. SNAG recruited, counseled and paid youth and CCE provided educational programs for work on public spaces.

CCE trained 11 youth how to reestablish and care for their urban forest. Youth learned and practiced professional pruning standards and mulched 150 trees. Youth also installed a brick sitting area in a community garden they started caring for the previous year with facilitation from a resource person from Cornell's Horticulture Department. In the Fall, CCE worked with 7 youth to identify planting sites select species for the planting of 60 trees in their neighborhood.

Youth organized people and tools, learned how to plant trees, and then trained others to do so. Youth worked in teams with adult volunteers from CCEs tree steward program to organize and implement the planting day. Young people conducted door to door outreach to find volunteers and homeowners interested in receiving a tree. As a result of their efforts, 12 additional youth and residents from the neighborhood came to help plant trees.

Other neighborhoods are now contacting the parks department expressing their desire to implement large-scale street tree planting in their neighborhood. After consulting with the City Arborist, one Westside neighborhood association provided $5000 as a match to plant 100 bare-root trees in their neighborhood over the next two years following the model started by Onondaga Earth Corps.

GOAL 5 – ENHANCED ECONOMIC OPPORTUNITIES AND QUALITY OF LIFE FOR AMERICANS

Economic and social well-being are deeply intertwined through opportunities for healthy human development that is nurtured by strong families and communities. Over the next five years, the significance of the local community in economic and human development will become increasingly important as federal and state governments continue to devolve authority and accountability for employment, education, public health, social services and general enhancement of a more self-reliant population.

Cornell's research program in these areas includes faculty from the College of Human Ecology and the College of Agriculture and Life Sciences. Their interests are in economic development (especially in rural communities), human development from pre-natal through elderly stages of the life-course, and design that centers on human environment, health, and well-being. Research areas of current interest include the following:

The Economy

- Collaboration with New York State business and industry in fiber science such as ceramic composites, adhesion problems in fiber glass reinforced circuit boards, and fatigue of joints in plastic pipes, and application of computer-assisted design and manufacturing to the textile and apparel industry through the Apparel Industry Outreach that provides educational programming to firm in the New York metropolitan area and throughout New York State;
- Health and welfare economics, local economic effects of changes in the health sector including mandated managed care for Medicaid and Medicare recipients, consumer behavior in medical care choice and disease prevention, effects of taxation policies on alcohol consumption, health impact of unemployment, and the effects of public finance policies on low-income households and development of human capital;
- Family-based businesses and the interplay between family dynamics, inter-generation transfer of ownership, and economic viability, and time-use in households as it affects household and non-household productivity;
- Management of the nonprofit sector including improved techniques for planning and evaluation, inter-organizational collaboration at the community level, strengthened volunteer involvement in local communities, and organizational change.

Family and Community

- Human development and family functioning, including cognitive and personality dynamics, biological bases of personality and abnormal development, language development and intellectual growth in infancy and early childhood, the effects on human growth and development of parenting practices, family and school environments and child care programs, and the impact rural work opportunities and community resources on retirement and life-transition decision making;
- Health care cost and quality including finance and organization of health care, employer-financed health insurance, the effects of managed care on service quality, equity and access, and Medicaid and Medicare policy, health and menopause among rural women;
- Social welfare and family policies and programs including issues of child support, foster care, adoption of hard-to-place children, the effects of divorce on children, and management,

leadership and evaluation of human service organizations, food security and food resource management;
- Rural economic and community development including local government and business collaborations on job development and community decision making, rural housing quality and community vitality including issues of affordability, energy efficiency and structural integrity, rural housing conditions and children's psychological development, youth development and mentoring, housing for the elderly and disabled, interior design including furniture and facilities for the elderly, Alzheimer's patients, and child care facilities.

The Human Environment
- The effects of the physical environment on the workplace and employee including innovative workplace design, non-territorial offices, technological infrastructure, work processes, and formal and informal organizational policies and practices, home-based telecommuting and virtual work environments, the effects of ergonomic factors such as office lighting, computer stations and ventilation systems on employee health and productivity, impact of environmental toxicants such as low-level lead exposure on child development, air and water quality and toxic substance safety for households and communities;
- Innovative uses of computers in design decision making and design education, creative problem solving, human/computer interface issues, and visual, historical and cross-cultural bases of interiors, apparel and textiles;
- Health and safety issues including apparel design that protects employees from workplace contaminants and injury including HIV and other blood borne pathogens, development of new methods to determine skin exposure from pesticide contaminated clothing;
- Fiber science applications to understand the mechanics of fibrous materials, the micromechanics of failure processes, plasma surface modifications, and the development of fiber-based synthetic prostheses and surgical aids.

Future investments in research should be targeted at efforts that (1) link empirical findings to planned economic development and other extension programs; (2) integrate economic with other social science perspectives for a deeper understanding of the influence of family, organizational and community factors on long term development of human capital; (3) integrate biological and psychological approaches to healthy human development; (4) strengthen collaboration among and between business and community organizations in furtherance of economic development and the quality of community life; (5) speed the diffusion of scientific innovation to commercial development that benefits small business and community-based enterprise, (6) integrate the social sciences with information science and its application.

PERFORMANCE GOALS FOR INITIATIVES RELATED TO GOAL 5

Develop the competence and character of youth and adults in families and communities.

- build strong families;
- develop capable, responsible, and caring young people;
- promote healthy, supportive communities;
- increase financial well-being
- support informed housing choices

Strengthen the economic and social vitality of communities.

- empower communities so that they are viable, dynamic, and sustaining;
- expand skills of both the current and future workforce;
- leverage and apply private and public sector resources wisely;
- enhance small business development and management; and
- develop, enhance, and retain a strong agricultural industry.

Indicator Data Specific to Goal 5

(For each indicator, both actual and annual target results are included, the latter in parentheses.)

INDICATOR 5.1 The total number of refereed or peer reviewed articles or materials reporting research on community or family economic or social well being.

Year	# refereed items
2006	431 (200)

OBJECTIVE 5.1 To increase the capacity of communities and families to enhance their own economic well-being.

INDICATOR 5.1.2 The total number of public officials and community leaders completing non-formal education programs on economic or enterprise development and the total number of these public officials and community leaders who actually adopt one or more recommended practices to attract new businesses or help expand existing businesses within six month after completing one or more of these programs.

Year	Output: # persons completing Programs	Outcome: # who actually adopt practices
2006	2,864 (3500)	1,575 (850)

INDICATOR 5.1.3 The total number of persons completing non-formal education programs on community decision making, public issues, or leadership development and the total number of these persons who actually become actively involved in one or more community projects within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually become involved
2006	7,387 (6500)	(3000)

OBJECTIVE 5.2 To annually improve the financial status of families through financial management education programs implemented in which CSREES partners and cooperators play an active research, education, or extension role.

INDICATOR 5.2.1 The number of persons completing non-formal financial management education programs and the total number of these persons who actually adopt one or more recommended practices to decrease consumer credit debt or increase savings within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt practices
2006	19,548 (10500)	10,689 (4000)

INDICATOR 5.2.2 The number of persons who increase knowledge related to financial security in the life course by completing educational programs and the number of those who implement practice changes such as beginning or increasing saving, establishing or revising investment plans, initiating participation in or increasing contributions to employer-provided and/or other retirement plans, and/or developing and/or implementing a plan for managing long-term health care needs.

Year	Output: # persons completing programs	Outcome: # who actually adopt practices
2006	10,667 (10500)	5,655 (4000)

OBJECTIVE 5.3 To increase the capacity of communities, families, and individuals to improve their own quality of life.

INDICATOR 5.3.1 The total number of persons completing non-formal education programs on community decision making or leadership development and the total number of these persons who actually become actively involved in one or more community projects within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually become involved
2006	22,476 (6500)	12,559 (3000)

INDICATOR 5.3.2 The number of persons participating in non-formal life skills education programs (health/physical, personal/social, cognitive/creative, and vocational/citizenship skills) and the number of those persons who actually apply those skills within six months after completing one or more of these programs.

Year	Output: # youth participating in community action	Outcome: # youth who become involved in public work
2006	128,578 (15000)	79,115 (4500)

INDICATOR 5.3.3 The number of youth participating in non-formal education programs preparing youth for science and technology demands of the future and the number of youth demonstrating mastery of science and technology concepts and/or achievement of new learning standards within six months after completing one or more of these programs.

Year	Output: # youth participating	Outcome: # youth achieving mastery
2006	53,804 (15000)	30,425 (4500)

OBJECTIVE 5.4 To annually increase the incidence of strong families resulting from non-formal education programs.

INDICATOR 5.4.1 The total number of dependent care providers completing non-formal education programs and the total number of these dependent care providers who actually adopt one or more new principles, behaviors, or practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt new principles, etc.
2006	6,474 (7500)	4,802 (3200)

INDICATOR 5.4.2 The total number of persons completing non-formal education programs on parenting and the total number of these persons who actually adopt one or more parenting principles, behaviors, or practices within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt principles, etc.
2006	15,523 (20030)	8,526 (8500)

INDICATOR 5.4.3 The total number of persons with care-requiring dependents (infants, children, youth, and older adults) completing non-formal education programs on selection of and interaction with care-giving individuals and facilities and the total number of these persons who actually apply that knowledge in selecting care within six months after completing one or more of these programs.

Year	Output: # persons completing programs	Outcome: # who actually adopt principles, etc.
2006	2,362 (18000)	1,581 (11000)

INDICATOR 5.4.4 The total number of organizations, agencies, and institutions participating in non-formal educational programs about social and public policy issues to enhance opportunities for safe, economical, and developmentally appropriate care-giving programs for infants, children, youth, and older adults and the number of those entities implementing one or more policy or practice changes within six months after completing one or more of these programs.

Year	Output: # agencies/ organizations completing programs	Outcome: # agencies/ organizations making policy changes
2006	966 (750)	539 (200)

INDICATOR 5.4.5 The total number of persons completing non-formal education programs on the practice of youth development and the total number of these persons who actually adopt one or more youth development principles, behaviors, or practices within six months after completing one or more of these programs.

Year	Output: # persons completing Programs	Outcome: # who actually adopt principles, etc.
2006	22,675 (20000)	18,754 (11000)

OBJECTIVE 5.5 To improve home environment safety and quality and decrease home energy costs.

INDICATOR 5.5.1 The total number of persons completing non-formal educations programs and acquiring knowledge and skills for acquiring and maintaining housing and enhancing indoor environmental quality and the number of those persons who actually adopt one or more recommended practices within six months after completing one or more programs.

Year	Output: # persons completing programs	Outcome: # who adopt practices
2006	15,893 (3500)	8,586 (1650)

INDICATOR 5.5.2 The total number of persons completing non-formal educational programs and gaining knowledge and skills related to acquiring/adapting energy-efficient housing units and the number of those persons who actually adopt one or more recommended practices within six months after completing one or more programs.

Year	Output: # persons completing programs	Outcome: # who adopt practices
2006	8,991 (3000)	6,207 (1200)

Resources Allocated to Goal 5 (FFF and Match)

Dollars x 1000 and (FTE) or (SY)

	FY2006 Target	FY2006 Actual
Extension Total	4,842 (80.6)	4,492 (77.4)
Research Total	1,825 (11.5)	1,274 (9.3)

Impact Examples Related to Goal 5

We have included a larger number of examples for Goal 5 because it subsumes three of our major initiatives: Community and Economic Vitality, Quality of Life for Individuals and Families, and Youth Development. The examples are clustered by those categories.

Community and Economic Vitality

Assessing the Impact of Casino Development on Quality of Life in New York State
(NYC-159410)

Knowledge Area: 803 Sociological and Technological Change Affecting Individuals, Families, and Communities
Funding Source: Hatch

During the past two decades, casino gaming has become a major tourism development strategy and means of economic revitalization, particularly for economically depressed rural communities. This project conducted by a Cornell developmental sociologist examines the impacts of American Indian casino development on resident quality of life. This purpose of this study is to provide an improved understanding of the ramifications of tribal casino development and its impact with respect to rural community development and the well being of rural people. Most of what we know about the impacts of casino development comes primarily from studies that aggregate national level data in their assessment of the economic impacts of gaming operations, ignoring important regional impacts on local municipalities and their residents. This study provides information to researchers and policy makers concerned with understanding the broad range of impact--economic, social, political, and cultural--that casino operations have with respect to rural community development and the well-being of rural people. This five-year study includes a combination of quantitative and qualitative research methods to collect data on the impact of Indian casinos on surrounding communities and their residents.

Tribal casino development is particularly sensitive in rural communities because unlike other forms of tourism and/or gaming development, non-Indian residents do not have the same ability to influence the nature and scope of tribal gaming development as they would if the business was occurring on public or private lands within their towns and counties. Local towns and their residents have are limited in their ability to affect what happens on tribal trust land, even though the impact – economic, social and political – can be dramatic. Since the passage of the Indian Gaming Regulatory Act in 1988, tribal gaming has generated enormous profits for Indian tribes and the states and communities in which they are located. It has also generated very complex legal issues and problems, ranging from constitutional clashes over state and federal powers to rivalries within and between tribes and states. IGRA has fueled heated intergovernmental debates over the management of economic activities on Indian lands. Despite the political controversies, however, public support for tribal casino development is high.

We conducted an analysis of 2004 Empire State Poll data, a statewide survey of New York residents conducted by the School of Industrial and Labor Relations, Cornell University. We then compared this data with similar surveys conducted in New York to assess the degree of support for Indian casino development in upstate New York. The data reveals a high level of public awareness and support of American Indian casino development across all regions of the state. The findings suggest

that for smaller urban and rural counties, both Indian and non-Indian gaming may offer a viable economic development alternative. We also conducted a meta-analysis of nationwide polls and the results were accepted for presentation in The Journal of International Gambling Studies.

Overall, our research uncovered important information on the level of public backing in rural communities for Indian casinos as a form of economic development – despite the political controversies. The research will help guide public policy for this increasingly popular form of economic development.

Rural Low-Income Families: Tracking Their Well-Being and Function in an Era of Welfare Reform (NYC-399833)

> **Knowledge Areas:** 703 Nutrition Education and Behavior 723 Hazards to Human Health and Safety
> **Funding Source:** Hatch

Low-income rural families have unique issues and needs compared to their urban counterparts. The assumptions behind welfare reform did not consider factors particular to rural areas and the low-income families who live there. Tracking changes in rural families over time is vital to understand the impact of welfare reform. This multi-year project aims to improve the well-being and functioning of rural low-income families and to affect social welfare policies and practices in the rural U.S.

This research is filling a much-needed gap in knowledge about welfare reform's impact on individual and family circumstances, functioning, and well-being of rural low-income families with children. The specific focus of the New York State project is documenting the nutritional well-being, food security, and health status of family members. One important finding is that among the 30 New York State families tracked, food insecurity was common with more than half of the families experiencing the problem in at least one of the three years of the study. This compares to about 11 percent of all US households who experienced food insecurity in the same time period. Overweight and obesity were also common in the mothers in these families, affecting 23 percent and 33 percent respectively. Our recent studies sought to understand weight problems from the perspective of our New York mothers, focusing particularly on the factors unique to rural poverty. Our findings suggest that transportation difficulties confine some women to their homes, limiting their opportunities for physical activity. Food insecurity and fluctuating household food supplies also contributes to disordered eating and to perceptions of dietary deprivation that affect food intake.

The research resulted in one article published in 2006.

Consumer Education Program for Residential Energy Efficiency

Knowledge Areas: 607 Consumer Economics**,** 801 Individual and Family Resource Management
Funding Source: New York State Energy Research Development Authority

High energy costs, particularly affecting the Northeast, impact household budgets. On average, New Yorkers spend $1,724 annually on energy per household. Reducing this figure creates more household disposable income which, in turn, spurs economic growth. New York State imports 85 percent of the energy it consumes. Reducing this figure through increased energy efficiency will lead the state toward a more secure energy future with a decreased dependence on imported energy, protection of environmental resources, and increased economic development and job growth.

The Consumer Education Program for Residential Energy Efficiency (CEPREE) is a joint program between the Department of Design and Environmental Analysis at Cornell University and the New York State Energy Research Development Authority (NYSERDA). The goals of this extension program are to increase consumer awareness of the importance of energy efficiency and of programs available through New York Energy $mart to make single homes and multifamily buildings more energy efficient. The web site is http://hosts.cce.cornell.edu/housing/nyserda/.

CEPREE has been implemented in 35 counties throughout New York State. Since 2003, 798,499 New Yorkers attended an Extension CEPREE event. The average New York annual energy bill is $2,616. If each person applied what is taught and reduces his/her energy bill by 30% (typical documented results), the savings potential is over $626 million.

Leadership Genesee

Knowledge Areas: 805 Community Institutions, Health, and Social Services
Funding Source: More than 85 local businesses and organizations (public and private)

The Leadership Genesee had its genesis in the early 1990s when a few community leaders identified a need to "grow" community leaders. By 1999, Leadership Genesee was put in to action under Cornell Cooperative Extension. The program recruits 25 - 27 individuals and puts them through a year-long program where they learn more about their community and develop a network of people to help them make positive things happen.

The first class was recruited for the 2001 program year. Since then, each year has seen the program grow in support, sophistication and results. There are now 126 alumni from the past five years who have graduated from the year-long program aimed at creating a pool of well-educated, networked citizens who are taking leadership roles in the community. A commitment to effective volunteerism, trusteeship of the community and civic responsibility help our participants gain the knowledge and confidence to make positive change happen.

Since its inception, eight graduates of Leadership Genesee have run for public office, more than 55 alumni have accepted assignments on local non-profit boards of directors, 25 alumni have attained higher education degrees, and 95 alumni have taken on new volunteer activities. As one graduate stated, "*Leadership Genesee affected me in so many ways. I feel strong to join groups where I'm*

needed, to speak my opinion in a constructive way and to take charge (in a positive way) if there isn't a leader."

Putnam County Management Institute: Women In Leadership

Knowledge Areas: 805 Community Institutions, Health and Social Services
Funding Source: County appropriations

Putnam County Government has relied on Cornell Cooperative Extension to coordinate their professional development leadership initiative for County Government department heads, managers and top-level supervisors. The goals are to expand personal leadership skills and create more effective work teams to deliver high quality, efficient, cost-effective services for Putnam County residents. The professional women working in Putnam County government expressed interest and need for leadership development that focused on the unique challenges that women face in the organization. Likewise, the County's Administration was interested in developing leadership capacity and cultivating future government organization leaders.

The Putnam County Management Conference Planning Committee develops and presents with Cornell Cooperative Extension leadership an annual leadership institute for Putnam County department heads, managers, and supervisors. This year's "Women in Leadership" program continued building on the learning and organization objectives of previous Institutes that included developing personal leadership skills and facilitating organizational change. Foci included: exploring the unique challenges women face as they move higher in organizations; understanding what makes an effective leader in the context of culture; how to think and behave strategically when meeting leadership's demands and advancing in the workplace; gaining self-awareness of your own leadership profile; defining Putnam County's organization culture. Organizational objectives included developing leadership capacity within the County's workforce and encouraging the County's professional women to advance to higher levels in County government.

Selected results:

- 37 women from the County's upper management participated in the "Women In Leadership" Institute, including department heads, managers, and supervisors; another 10 women with identified leadership potential, not in management or supervisory positions, were invited and participated in the Institute.
- 43 (92%) participants completed the Leadership Effectiveness Analysis and Culturelink; gaining a self-understanding of their leadership competence and effectiveness in context of the County's organization culture.
- All participants identified specific leadership practices and behaviors of their own that needed to be modified, strengthened, or added to their leadership repertoires to be more effective leaders in the County's organization culture.
- Participants identified organizational and self-initiated support needed for continued development.
- 25 of the participants initiated a mentoring group to discuss leadership topics, reinforce developing leadership skills, network and provide peer feedback. This group plans to continue meeting on quarterly.

Quality of Life for Individuals and Families

Stalking and Intrusive Contact after Adolescent Dating and Romantic Relationships (NYC-321453)

Knowledge Area: 802 Human Development and Family Well Being
Funding Source: Hatch

Many adolescents experience stalking or other forms of intrusive contact after ending dating or romantic relationships. In some cases, intrusive contact can lead to violence. In all cases it is potentially frightening and disturbing to the subject. This project is designed to provide information to adolescents about intrusive contact and how to cope with it. It also illuminates the problem for teachers, police officers, and others by providing new information on intrusive contact and by offering methods for dealing with it.

Through extensive research at high schools and universities in four counties, this project has made major leaps in understanding of stalking behavior and what to do about it. The project created new written materials about stalking and stalking prevention (three brochures for high school students, three brochures for college students, and one booklet (appropriate for all students). Visits by project staff have been made to several schools. A website was created and is updated regularly. More than 400 colleges and universities have been informed about the website and encouraged to link to it. Approximately 250 people visit the website each day.
http://www.human.cornell.edu/che/HD/stalking/index.cfm

The information from three survey research projects completed in the past year adds to the understanding of the extent of the problem, how to effectively deal with it, and how to increase awareness among young adults, teens, and adults involved in their lives.

Many more adolescents, young adults, parents, teachers, police officers, and others now have access to useful information about how to prevent intrusive contact and respond appropriately when it occurs. The research helps create new knowledge about the characteristics of those who initiate or are the target of intrusive contact. This should help us design programs to intervene effectively in these cases.

The Relationship between Agriculture, Food Systems and Community Health: "Food Deserts" and Their Impact on Rural and Low-Income Urban residents (NYC-159814)

Knowledge Area: 803 Sociological and Technological Change Affecting Individuals, Families, and Communities
Funding Source: Hatch

Agriculture, food, and communities are three distinct systems that have an impact on human health. This project's purpose is to improve understanding of how agriculture and food systems affect community health. The central hypothesis is that variations in the structure of agriculture, food systems, and communities can greatly impact the health of the population. In other words, where one lives can be a factor in one's health.

This Hatch-funded, multi-state project examined seven counties in rural and low-income urban areas. Two central findings emerged: (1) a suggested link between low birth weight babies and infant mortality rates and communities with high agricultural chemical use and (2) that "food deserts" where residents do not have access to grocery stores are a growing problem in rural and low-income urban areas and are contributing to unhealthy trends in poorer communities.

Initial analysis was made possible with the construction of a dataset for all rural villages in New York for 1980, 1990, and 2000 that included information about food access (retail outlets) and population data. Results showed limited-to-no retail food access in many rural villages in New York, leaving residents the choice of local convenience stores or distant villages for food. Rural and low-income individuals increasingly have less access to retail grocery stores than urban and affluent individuals and this access is correlated with health indicators. Many rural and low-income residents are living in the equivalent of a "food desert" without easy access to grocery stores. Food deserts are becoming more prevalent in both inner city neighborhoods and in rural communities.

On the issue of agricultural chemical use in rural landscapes and birth, cross-sectional and lagged-panel regression techniques were used. Results showed that agricultural chemical use is positively and significantly associated with both the incidence of low-birth weight babies and infant mortality rates.

A renewal project is continuing with assessments already underway including: The consequences of the process of diminishing local food access on health outcomes using a variety of data sources, including data from NIH and the U.S. Census; the relationship of agricultural chemical and infant mortality and low birth weight babies using longitudinal data from the Census of Agriculture and other secondary sources; and an analysis of population health, agricultural structure, characteristics of the food system, and community variables. A longitudinal data set is planned to include measures for all U.S. counties.

Three new publications reported in 2006.

Technology Use in Local and Rural Contexts and Digital Deception: Understanding How, Why and When People Lie Online. (NYC-131408)

> **Knowledge Area:** 803 Sociological and Technological Change Affecting Individuals, Families, and Communities; 903 Communication, Education, and Information Delivery
> **Funding Source:** Hatch

Communication technology use is not well-understood in the context of local and rural communities. This project examines how people in rural areas use communication technology to accomplish their day-to-day activities. The objective is to improve our understanding of how information technologies affect everyday types of communication within local and rural contexts. As part of the project we provided internal and external stakeholders with PDAs, which participants use to record daily technology use.

The project focuses on two types of everyday activities: 1) deception and 2) language and social coordination/collaboration. Deception is one of the most significant and pervasive social phenomena

of our age. On average, people tell one to two lies a day, ranging from the mediocre to the serious, including deception between friends and family, in the workplace, and in politics. At the same time, information and communication technologies have pervaded almost all aspect of human communication and interaction, form everyday technologies that support interpersonal interactions, such as email and instant messaging, to more sophisticated systems that support organizational activities. The research concerned with deception and technology produced seven studies, including three diary-based studies that tracked the frequency of deception in different communication media (i.e., email, telephone, instant messaging.) two large laboratory experiments that examined deception detection and linguistic styles in different media, and one experiment that examined the nature of deception in online dating profiles. This track of research provided the initial set of studies that lead to a National Science Foundation grant examining the dynamics of digital forms of deception. The research concerned with language and collaboration produced five studies examining the role of language in videogames, the use of language of away messages in instant messaging, the expression and detection of emotion in text, and how communication environments affect the production and comprehension of verbal irony.

The project's impact has been noteworthy in two general areas: deception, and language and collaboration. In the context of deception, the impact is four-fold. First, the research led to the development of a model that predicts how lying rates change across communication technologies. Second, the empirical studies have improved our understanding of how deception is produced and potentially detected in online environments. Third, the research attracted a significant National Science Foundation funding ($680,000). Fourth, the research has garnered substantial media attention, including the New York Times Magazine, the New Scientist, and CNN. In the context of language and collaboration, the research has improved our understanding of how technologies affect the way we understand one another in online environments. The project is also being used to evaluate the usability and implementation of new communications techniques designed to support University extension activities in rural and local communities.

Seven new publications reported in 2006.

Parenting in Context

Knowledge Areas: 802 Human Development and Family Well Being
Funding Source: Smith-Lever, county appropriations

The challenges of parenting seem to grow exponentially. Child health is impacted by the ecological factors contributing to childhood obesity. Family stability is impacted by parents on active duty, who are incarcerated, or “absent” on many levels related to substance abuse. Parenting training is for the most part ignored in secondary school education in New York State.

Cornell Cooperative Extension (CCE) educators working in the area of parenting education need up-to-date and easy-to-access research-based resources. These are provided through an extension/outreach program entitled Parenting in Context. It provides:

- research-based information that can be used to develop new curricula and enhance existing programs
- training and tools that can be used to evaluate parenting programs and assess within and across-state parenting programs to identify areas of potential collaboration and resources

- an easily accessible website (www.parenting.cit.cornell.edu) of resources for parenting educators with information on research, funding, evaluation, New York State CCE parent education programs, and parenting links.

CCE educators in twelve counties provide leadership as members of the program work team. At the recent "Parenting the Explosive Child" broadcast by Dr. Ross Greene, Associate Professor at Harvard Medical School, the seminar was attended by approximately 500 educators, practitioners, and parents at 11 sites across the state.

Addressing the educator-identified need for a greater understanding of how to evaluate programs, in-service training focused on practical ways to evaluate parent education programs. It was attended by 50 educators from throughout the state.

Title: Cortland County Volunteer Income Tax Assistance Program

Knowledge Areas: 801 Individual and Family Resource Management
Funding Source: Multiple community groups, county appropriation

In early 2003 the lack of a source for low or no cost income tax assistance was identified as a critical need by several community based organizations in Cortland County. Low and limited income households were relying on for-profit tax services to have their taxes filed at a considerable cost and many times agreed to a refund anticipation loan, bringing the cost to file a simple return to over $250.00 – money badly needed for basic living.

CCE-Cortland staff took the lead in forming a coalition of community based organizations to bring a Volunteer Income Tax Assistance Program to Cortland County. The program was coordinated by CCE Cortland and grants were obtained to purchase equipment to expand the number of returns that could be prepared. The IRS provided equipment, software, training and training materials for the program. Participant packets were developed by the coalition and provided to each participant. These packets contained information on sound money management practices along with programs available in the County to assist them with other needs.

In two years the number of Cortland County residents being served by this program jumped from 54 to 194. Forty-three percent of those participating in the program were over the age of 60. The majority of the participants under the age of 65 were Earned Income Tax eligible households. The total of the Federal and New York State Earned Income Tax Credit refunds coming into the county through this program in 2006 was $70,571. Participants in the program were also made aware of the availability of the advanced EITC and the importance of appropriate withholding allowances putting more money in their weekly paychecks. With an estimated cost of preparing returns at about $100, the returns prepared represented a saving to county residents of an additional $19,200.

Horticulture Job Training Program for Temporary Assistance for Needy Families

Knowledge Areas: 801 Individual and Family Resource Management
Funding Source: Temporary Assistance for Needy Family Funds through Schenectady County, Workforce Investment Act Funds Through the Capital District Workforce Investment Board

Participants in the Temporary Assistance for Needy Family (TANF) program in Schenectady County are required to work a certain number of hours per week to continue receiving benefits. The horticulture job training program fulfills this need but also gives participants the technical horticulture skills as well as "soft" workplace skills that are needed to be successful in any workplace. Greenhouse, garden center and landscape employers continue to have a high need for entry level workers. Graduates of the Schenectady County Horticulture Job Training Program have achieved baseline expertise in the horticultural trades and are familiar with the working conditions in these trades.

Cornell Cooperative Extension, Schenectady County has operated the Horticulture Education Center since 1997 and has been continually revising programs and curricula. In the current program year over 40 individuals participated in the TANF funded program and 24 youth participated in a similar Workforce Investment Act (WIA) Funded Program.

Since its inception, more than 300 adults have participated in job training programs funded through TANF. Numerous participants have acquired jobs in the horticultural industry. Some have utilized these positions as a launching point to other careers and some have remained in horticulture. Participants in the program are involved in hands-on horticultural projects in the community which has increased their sense of accomplishment and sense of being contributing members of our community. Participants have also gained an increased respect for the environment and appreciation for the food system by being actively involved in growing ornamental and edible plants.

Youth Development

Note that in addition to the examples appearing here, additional statistics and participant stories can be found in our 2006 4-H Youth Development Annual Report which is available at: http://nys4h.cce.cornell.edu/program/documents/064-HAnnualReport1.pdf

Sound Experiences - From Ship to Shore

Knowledge Areas: 136 Conservation of Biological Diversity, 806 Youth Development
Funding Source: Fish & Wildlife Foundation's Long Island Sound Futures Fund

For many parents, especially in low-income areas, budgetary constraints limit the number of fee-based activities they and their children can attend. Schools used to help fill this gap by providing environmental field trips and other activities to their students. However, school districts across Long Island are facing financial restrictions that are leading to such activities being cut, and underserved districts have been hit particularly hard.

Long Island Sound is one of Long Island's diverse marine environments and an Estuary of National Significance. One of the key commitments and recommendations of both the 1994 Comprehensive Conservation and Management Plan for Long Island Sound and the 2003 Long Island Sound Agreement is to educate the public on the habitats and living resources of the Sound, and to provide direct field and learning experiences to as many school children as possible. With school funding for such programs being cut, environmental educators face the challenge of how to continue reaching children, especially those living in underserved areas.

The Ship To Shore project specifically targeted school districts in communities where the per capita income is lower than $21,000 per year (according to US Census 2000 data). In order to accommodate transportation requirements, districts also had to be within a 27-mile radius of the program site in Oyster Bay. Eleven such districts were identified and two classes per district, as selected by the District Superintendent, attended the fully funded field trips. Reimbursement of up to $300 was also available to each district for bus transportation.

Each field trip lasted approximately four hours, and all activities were hands-on and provided direct experience with the organisms and habitats being studied. On the beach, students investigated different intertidal habitats, learned about sea stars and oysters, seined for fish and shrimp, and learned about the Long Island Sound's watershed. Aboard the historic oyster sloop Christeen, students sailed on Oyster Bay while learning about horseshoe crabs, snails, and spider crabs in a touch tank, using a plankton tow to collect plankton, measuring water-quality parameters used to assess the health of the Sound, and learning about the history of the oyster industry on Long Island. The curriculum was place-based, and focused on empowering students and promoting stewardship of the Sound.

We successfully provided 22 classes to more than 380 students from 11 underserved districts across Long Island. For some of these students, this was their first visit to a beach and/or their first time on a boat. It was wonderful to see their excitement and wonder as they learned about a part of Long Island that they may not have known existed or was open to them. Both informal and formal (via evaluation sheets) student and teacher feedback was also extremely positive, and we have received six letters of support for the program from participating teachers.

Students completed a short (13-question) multiple-choice test on local marine organisms and the Long Island Sound prior to coming on the field trip (the pre-test), and then re-wrote the same test at the end of the program (the post-test). Two hundred and three of the 380 students participated in both tests. A paired t-test was used to examine whether or not the overall average pre- and post-test score differed significantly. We received matched tests from 8 of the 11 participating school districts; each district was considered as an individual sampling unit (eg, Amityville was independent of Brentwood, Brentwood was independent of North Bay Shore, etc). The average pre- and post-test score for each district was calculated, and then a paired t-test compared the overall difference in average pre- and post-test scores for these 8 districts. The overall average score was 38.0% (range= 0%-83.3%) on the pre-test and 75.9% (range=16.7%-100%) on the post-test indicating that students had an increased knowledge of local marine organisms and the Long Island Sound after completing the Ship to Shore program.

Developing Youth Leadership in Local Environmental Action (NYC-147459)

Knowledge Area: 903 Communication, Education, and Information Delivery
Funding Source: Hatch

A number of national youth development projects are based on the premise that youth can engage in actions that benefit the community, and at the same time be motivated to learn science and other subjects through participation in community programs. However, empirical research supporting these assumptions has been limited until this project began in 2003.

This project fills the gap in understanding about youth involvement in environmental action, and will enable educators to apply our findings to enhancing youth programs.
As a result of the research with youth and facilitators across the U.S, we have developed six guiding principles for engaging youth in environmental action: youth as contributors, genuine participation, deliberate action, inquiry, critical reflection, and positive youth development. We have identified strategies for realizing these principles, including: creating safe spaces; providing structure; building relationships; bridging differences; setting clear, rigorous expectations; providing opportunities for meaningful contribution; supporting youth as they encounter new challenges; expanding horizons through novel experiences; and connecting youth with their community.

This has led to the formation of a new research/teaching/outreach initiative focusing on the intersection of science and civic education, with an emphasis on programs occurring in green spaces and sites where civic agriculture is practiced, predominantly in urban, multi-cultural communities. The results of this research are helping inform youth development efforts, many of which attempt to combine science learning, leadership, and civic action.

One new publication reported in 2006.

Engaging Youth in Science

Knowledge Areas: 806 Youth Development
Funding Source: Smith-Lever, county appropriations

The United States continues to lag behind most other industrialized nations in science knowledge among youth. Teaching science concepts, as well as making them relevant to everyday lives, is a challenge. The Go Figure! website http://gofigure.cce.cornell.edu engages youth ages 8-19 in online science, technology, and math experiences. Users follow jean trends, calculate their average Frisbee throw, and track how much water they use. Youth collect measurements, input numbers into a database, use online calculators, and compare their results with those of other teens—a matter of intense interest at this age.

Additional activities include Pedal Away that demonstrates how product design influences human performance and teaches how to properly fit a bicycle and Make-A-Smoothie which shows how nutrition labels change with different ingredients. A future activity, Who's Average, engages youth in the science of anthropometry and the technology of the 3D body scanner to debunk body image stereotypes.

New York State 4-H youth and undergraduates have collected data for activity databases and evaluated online youth activities as part of the Go Figure! website.

- Youth at Cornell summer campus programs and 4-H events have participated in Go Figure!
- Teens in Pennsylvania are now collecting data for the online program.
- Twenty New York State 4-H educators recruited teens to assist with data collection and evaluation of the Go Figure! website.
- More than 4,000 youth in 11 states have provided data.

RSVP-Retired & Senior Volunteer Program

Knowledge Areas: 806 Youth Development
Funding Source: Corporation for National & Community Service, United Way of Schuyler County and Dundee United Fund, NYS Office for the Aging

The New York State English Language Arts Performance test results, published February 2005 revealed that in the 5 Schuyler and Yates County elementary schools, an average of 3% (12 students) of 4th graders who were tested scored at Level 1 and 38% (155 students) scored at Level 2. Level 1 indicates "a student is seriously deficient" and Level 2 students "need assistance or extra help to meet the state standards and pass the Regents exams". Illiteracy adversely affects individuals throughout their lives. Studies indicate that those children who just barely meet the standard will benefit from individualized attention to their reading practice.

Forty-five trained RSVP volunteer tutors, known as "Reading Buddies", work individually with children identified and selected by their teachers, providing one-on-one guidance and encouragement, reading to and listening to a child read within the classroom. 125 children received one-on-one "Reading Buddy" literacy tutoring service at 4 elementary schools in Schuyler and Yates Counties. 84% (106) of the participating children were reported by their teachers to show an improved attitude toward reading at the end of the school year. 62% (77) of the participating children are reported by their teachers to be reading at the grade level expected for his/her age at the end of the school year.

Urban Outreach Reaching More Audiences with NY Life Grant

Knowledge Areas: 806 Youth Development
Funding Source: County appropriation, NY Life Foundation et al.

Traditional 4-H club approaches sometimes have difficulty engaging underserved families who face barriers such as transportation, lack of parental support, inability to pay fees, discomfort with educational programs, etc. The CCE Tompkins County Urban Outreach program commits to the philosophy that underserved youth must be reached on a daily basis in order to have significant long-term impact and to level the playing field socially and academically. This program is reaching youth and families who have never been recruited by 4-H in the past.

LIFE project trainings provide the building blocks for successful and sustainable clubs (based on volunteer needs). Volunteers are taking an exceptional amount of initiative - meeting weekly as opposed to monthly in order to create consistency and investment in the lives of youth who need it

so much. There are a diversity of club topics including: the 'isms, rights of passage, independent cooking skills (for youth who come home alone), theatre, community organizing, math and science for girls, forestry, etc.

Participating youth are improving academically as a result of daily tutoring. Creative writing and reading programs have lead to an interest in literacy. Parental involvement is at an all-time high. Older youth are returning to the program to volunteer with younger youth and at camp. A successful sewing club was established that instills the value of personal and cultural identity through fashion - participants design and construct their own clothes. Our overall attendance in all programs is greater than 90% -- 123 youth are served 5 days/week.

SUNY Farmingdale Liberty Partnerships Program

Knowledge Areas: 806 Youth Development
Funding Source: SUNY Farmingdale Liberty Partnerships

The SUNY Farmingdale Liberty Partnerships program, Suffolk County 4-H Youth Development provides after school programs for 210 middle and high school students who are at-risk of dropping out of school. The program provides a broad range of educational programs designed to increase their motivation and ability to complete high school and seek entry into postsecondary education and/or meaningful employment. LPP provides a "family" setting where students can safely work toward their individual potentials. CCE of Suffolk County provides the educational support for this very success program.

Evidence of LPP youth being empowered is the annual Holiday Party that LPP students organized at a local homeless shelter. Each year, students create an entire celebration for the shelter's families. They begin months in advance by going to local businesses to solicit gift donations for all the residents at the shelter. School choirs and drama clubs provided music and entertainment. LPP students designed, built and staffed game and craft booths. Food was provided by local eateries. This is a magical event for the students as it teach them about the gift of giving, even as many of the students themselves come from homeless shelters or are living in poverty.

During the 2004-2005 School Year 100% of LPP students graduated with 60% earning Regents diplomas. Of the graduates, 60 % continued on to college while 40% continued on to employment, vocational training, or the Armed Forces, etc.

STAKEHOLDER INPUT PROCESS

For the past six years, Cornell Cooperative Extension (CCE), the Cornell University Agricultural Experiment Station (CUAES), and the New York State Agricultural Experiment Station (NYSAES) have employed a joint stakeholder input process for federal formula funding priority setting and federal plan-of-work development. Five Program Councils (PCs) address each of the common CCE/CUAES theme areas (*Community and Economic Vitality, Quality of Life for Individuals and Families, Natural Resources and Environment, Youth Development,* and *Agriculture and Food Systems*). Each council is composed of external stakeholders, Cornell department chairs, and county extension association executive directors. In all, the total number of individuals serving on the councils tallies over 120, including more than 50 persons external to the university or the extension associations. The Councils advise the directors of CCE and CUAES on annual statewide program priorities, review Program Work Team (PWT) performance and "gaps" in programmatic coverage, and comment on the relevancy of preproposals seeking federal formula fund (FFF) support.

The next annual Program Council conference is scheduled for May 9, 2007 on the Cornell campus. During 2006, in lieu of convening physically, council members were communicated with via electronic means, including an electronic, web-based newsletter called *P.C. Update.* Council members at previous conferences suggested the idea for such a newsletter. Past issues are retrievable at: http://cuaes.cornell.edu/CUAESWeb/links_page.htm.

The nature and roles of the PCs was discussed at the leadership levels of the colleges of Agriculture and Life Sciences and Human Ecology in fall of 2005 and winter of 2005-06. These discussions, pursued so as to make the councils and their advisory input more contributory and helpful to overall college efforts and thrusts, generated new ideas and guidelines to further refine and restructure the councils. This led to reaffirmation of the PCs as a primary stakeholder input mechanism and a number of changes in operations.

A publicly-accessible website (http://www.cce.cornell.edu/admin/program/pwts) provides comprehensive background and details about the Program Council-Program Work Team structure and process, including listings of works teams and councils, membership information, public announcements, originating PWT petitions, and PWT annual reports.

Since 2001, forty-one (41) program work teams have been authorized and supported to develop and deliver integrated applied research and extension programming across the state. All PWTs are self-selected and self-directed affinity groups of external stakeholders, county extension educators, and campus-based researchers and extension specialists. PWTs were required to identify program needs in their selected issue areas and carry forth plans of work to meet those needs. PWTs were 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. They were also expected to seek external funding support, and to report annually on their accomplishments to an appropriate Program Council. Individual PWTs were sanctioned for 2 or 3 years. Approximately 750 individuals serve on at least one PWT, including more than 260 external stakeholders. The external members come from the business, banking, local/state/federal government, non-government organization and educational sectors. The PWTs are intended to provide a dynamic structure and they are expected to "sunset" when their primary tasks are completed.

Noteworthy in 2006 was the continued activity by 25 of these teams to continue their program development efforts despite the terming of their annual operational FFF support. Evidence of these efforts can be seen via 2006 PWT annual reports (viewable at:
http://cuaes.cornell.edu/PWTPublic/ann_rpt06_list.htm)
A list of special projects initiated by PWTs in 2006 is available at:
http://hosts.cce.cornell.edu/admin/pwt/06_spec_needs.htm

Beyond this state-level program development and stakeholder input structure/process, each of Cornell Cooperative Extension's 55 county extension associations continued to work closely with stakeholders in their counties via participation in their local governance (i.e. board of directors) and program guidance (i.e., advisory committee) structures. Formal advisory committees are also used to guide New York City Extension programs. In 2002, a statewide Council of Extension Associations was established, providing another venue for enhanced stakeholder input and engagement within the CCE system. Well over 40,000 stakeholder volunteers from all walks of life participate and assist in the direction, priority setting, and delivery of extension programs throughout the state. CCE local plans of work undergo formal review every four years and are updated at the mid point of the four-year period.

In addition, the colleges of Agriculture and Life Sciences and Human Ecology, and numerous academic departments and specialized programs within those colleges maintain active advisory committees or councils having broad external stakeholder representation. These groups help to bring relevancy and focus to program decision-making and investments.

Off-campus stakeholders serve key roles in reviewing research and extension project preproposals for real-world relevance. Exactly where and on which applied research and extension projects CUAES, CCE and NYSAES will invest federal formula funds (Hatch, McIntire-Stennis, Animal Health, and Smith-Lever dollars) is directly influenced by reviews offered by members of five Program Councils. As noted above, the councils are composed of over 120 members, broken into 5 councils by principal program areas. About 42% of council members are stakeholders external to the Cornell system (e.g., growers, practitioners, public officials, NGO representatives, etc.), while the balance is split between executive directors of Cornell Cooperative Extension county associations located across the state and Cornell campus academic department chairs.

To solicit and accommodate their input on preproposals received for federal research and extension support, off-campus stakeholders are asked to review a special section of the preproposal application form, called *PART II: Statement of Purpose and Relevancy*. In this part of the submission form, prospective investigators must articulate, in non-technical terms:

- the real-world issue, problem or opportunity the proposed work seek to rectify or address, and how the proposed work links to a broader social, cultural, economic, and/or environmental need or context;
- the general research plan or extension approach of the proposed work, and any integrated (research and extension) activities;
- why the proposed work should receive public (federal formula funding) support, or why public sponsors want the work to be undertaken;
- how the work is relevant to NYS, i.e., how the findings/results would be especially significant to issues/problems/opportunities existing in New York
- the intended outcomes and potential realistic impacts of the proposed work.

Over the course of the last several funding cycles, it has become evident that these stakeholder relevancy reviews are informing and influencing the investments of federal funds made by the experiment stations and CCE. These reviews form a major consideration in the "first-cut" phase of proposal review and advancement.

For example, in 2004-05, all but one of 37 research preproposals that received an above-average stakeholder relevancy rating, as well as above-average extension program leader, department chair, and station directorate ratings, were selected for funding. Similarly, 25 out of 37 so rated extension preproposals were given support. In the latest cycle (2005-06 funding), 30 research preproposals made this very top-rated grade, and 24 of them were funded, including 13 of the 14 rated most highly (having a relevancy rating of greater than or equal to 4.00 on the 5-point scale) by off-campus stakeholder reviewers. On the extension side, despite a continuing decline in the buying power of federal funds received, CCE was at least able to fund (in whole or part) the majority (10) of the 15 extension-only preproposals submitted by faculty, of which all but one had very strong off-campus relevancy ratings (greater than 3.5, and averaging 4.0, on a 5.0 scale). Lastly, in a new integrated (research-extension) funding category initiated last year, 16 of the 17 projects funded had received above average relevancy ratings from the councils' off-campus members (and other select external reviewers). Continuous communications with program Council members, especially focused on off-campus and external members, have been used each year to keep these stakeholders abreast of not only the decision process, but also which projects were ultimately funded.

PROGRAM REVIEW PROCESSES

The program review process was again revised in 2005 to reflect our new program development and stakeholder involvement processes.

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

1. Principal investigators are asked to consult program priorities (established as outlined in the stakeholder involvement section above) and develop short pre-proposals for new or revised projects funded by Federal Formula Funds. Prospective principal investigators were strongly encouraged to submit fully integrated (research and extension) preproposals. They were provided with a special web-submission gateway for such integrated preproposals.
2. Pre-proposals are reviewed for purpose and relevancy by advisory Program Councils (see Stakeholder Involvement section) and other external stakeholders, the principal investigator's department chair, Extension Program Associate/Assistant Directors, and the Experiment Station directorates (Ithaca and Geneva). A revised review form was developed for use by off-campus stakeholders, and web submission of reviews was made possible in 2005. Pre-proposals are discussed with department chairs during annual budget conferences to put work in broader perspective of department program.
3. Pre-proposals are accepted/rejected; accepted proposals are developed into full project outlines by the Principal Investigator.

For research proposals:

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

For extension proposals:

5. Extension Program Directors receive Program Council and Dept. Chair comments on extension preproposals related to their program areas.
6. Extension Program Directors rank/recommend extension preproposals.
7. Extension Program Directors meet with Experiment Station (Ithaca and Geneva) staff to discuss potential R-E linkages among extension preproposals.
8. Extension Program Directors finalize Smith-Lever funding recommendations and communicate decisions and needed modifications

Cornell Review Criteria

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

Review Process Calendar The calendar of our new, integrated research and extension review process follows below (dates are approximate):

Date	Step
SEP 20	Priorities finalized for federal formula funds (FFF) preproposal RFP
OCT 1	RFP for preproposals issued
NOV 15	Deadline for FFF preproposal submission
DEC 3-JAN 15	Preproposals provided to Program Councils for review
JAN 13-17	Annual Program Council Conferences (campus); discussions held on preproposal relevance. Preproposals available to P.I.s' department chair on-line for review and comment
FEB 25	Extension Program Directors' written comments on program-related RESEARCH preproposals due. Deadline for Program Councils and department chairs to comment on all preproposals.
MAR 6	Extension Program Directors receive Program Council and Dept. Chair comments on extension preproposals related to their program areas
MAR 9 – APR 30	CCE-CUAES program conferences with department chairs
MAR 18	Extension Program Directors rank/recommend EXTENSION preproposals Recommendations are forwarded to CCE director and CCE Assoc. Director for Finance
APR 1	Extension Program Directors meet with Experiment Station (Ithaca and Geneva) staff to discuss potential R-E linkages among extension preproposals
APR 8	Extension Program Directors meet to finalize Smith-Lever funding recommendations, which are then forwarded to CCE Director and CCE Associate Director for Finance
APR 1-15	CUAES and NYSAES Directors consider all research preproposals and make tentative funding decisions
APR 15-30	Joint session of CUAES, NYSAES and CCE Directors and Extension Program Directors to discuss/coordinate funding decisions and notification
MAY 15-30	FFF preproposal decisions communicated to principal investigators and Program Councils
JULY 1	FFF full proposals due
JUL-AUG	FFF full proposals peer reviewed
AUG	Focused priorities identified by Program Councils are incorporated into the RFP for the next FFF cycle
OCT 1	FFF FY begins; proposed projects funded

EXTENSION MERIT REVIEW

As described above, our governance and advisory structures, including the Program Councils, serve primary roles in identifying and determining merit of extension initiatives. In addition, program conferences are conducted with each academic department. In those sessions, extension and applied research priorities of each unit are discussed, accomplishments are summarized in general (e.g., number of educational activities, number of people attending, number of fact sheets, bulletins, videos, documented outcomes and impacts, etc.), and products and outcomes from funded projects are reviewed. The indicators of performance are discussed relative to current program priorities, and extension investments for each unit are adjusted accordingly. Extension projects receiving designated funding are an integral part of the review process outlined above. Final funding decisions are recommended by the extension program directors, whom serve as liaisons to Program Councils and work closely with a number of Program Work Teams. In 2005, we implemented a reporting system for funded extension projects that directly parallels the CRIS system for research reporting. The new system includes reports of outcomes against original project goals which should enhance integrity of the merit review process.

MULTISTATE AND JOINT ACTIVITIES

Our multistate, multi-institutional, and multi-disciplinary activities occur within the same stakeholder involvement and program development processes as in-state activities and, as such, are directed to priority needs of priority audiences. Our program development structure for federal formula funds is interdisciplinary by definition (see stakeholder involvement and review processes above). All projects are expected to outline expected outcomes and report against them. We have taken steps to strengthen specific documentation of integrated activity and multistate programs and have included evidence of such activity directly in our pre-proposal and reporting criteria. 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. The sections below and Appendices B and C provide additional detail.

MULTISTATE EXTENSION ACTIVITIES

When we set our multistate extension goals, we challenged our system by significantly exceeding what would have been the minimum required target based on 1997 expenditures. The mandated minimum based on this calculation would have been only about 1% of expenditures. Rather, we set targets of 3%, 8%, and 12% for FY00, FY01, FY02 and beyond because we believe fundamentally in the value of multistate collaboration. We are pleased to report that we have again met our 12% target. Multistate extension activity is documented in Appendix B.

INTEGRATED RESEARCH AND EXTENSION ACTIVITIES

During 2006 we continued and expanded upon our integrated research and extension collaborative strategy as outlined in the approved plan of work and met our targets for both research and extension integrated programming. Please see the Stakeholder Involvement Section above for a description of our ongoing collaborative program planning and development approaches. Background information on our program development structure and process is available at:
http://hosts.cce.cornell.edu/admin/pwt/ Specific documentation of integrated activities is included in Appendix C. Integrated programming targets for both research and extension were met.

MULTI-COUNTY INITIATIVES

Multi-county initiatives are fostered through active encouragement of formal and non-formal program partnerships. At present time, there are 8 regional extension program teams involving 30 counties in which Cornell University is a formal funding partner. In addition, at least 12 collaborative relationships involving at least 30 counties exist without formal Cornell sponsorship. In recognition of the importance of multi-county initiatives, in 2006 we hired a multi-county team coordinator for agriculture programs. (See note in the "Background and Methods" section re examples of multi-county programming included in this report.)

As previously reported, electronic connectivity is one of our key strategies for promoting multi-county initiatives. We continue to add to our regional network of electronic classrooms and now have 36 sites across all regions of New York State. These are used increasingly for collaborative programming and professional development as well as facilitating internal advisement and governance by connecting partners across many sites.

In addition, we have established a regional communications structure wherein one of the county extension executive directors serves as convener for each of eight communication regions to promote collaboration and resource sharing. These "communication chairs" meet regularly with the CCE Director to identify and address system issues.

Appendix A – FY06-07 Applied Research and Extension Priorities Identified by Program Councils

Agriculture and Food Systems Priorities

Managing Animal Wastes through Whole Farm Nutrient Management Plans and Practice

Clearly the highest rated priority and considered an issue critical to the future of agriculture in New York. Animal wastes from both small and large operations contribute to the degradation of both water and air quality and contribute to the negative perception of farming by the general public/local communities and lawmakers. Issues related to odors are particularly acute near urban development. Multi-disciplinary approaches such as whole farm nutrient plans promise to improve economic returns and minimize risks to the environment. Plans may be broadened to include pesticides and water usage. In addition there exist opportunities to improve manure handling technologies and to market excess nutrients to other cropping systems and to other outlets once composted.

Managing Human Resources Especially Related to Identifying, Hiring, and Retaining New Workers and the Education of Middle Management and Owners

The management and labor picture on New York farms has changed dramatically in recent years. There is a great need for skilled and specialized farm labor and farm owners/managers need the human resource skills and training to help recruit and retain this diverse and valuable work force. Owners and managers need to understand labor laws and how they apply to individual farms, be able to effectively communicate with local communities on issues related to farm/migrant labor, and ensure the quality of life for the labor force. In addition it is important that farm laborers feel engaged and that they are offered opportunities for professional advancement. A well-trained and professional workforce is important to the vitality of agricultural industry in New York.

Identifying Market Channels for Value Added Products

Diversification of production and development of innovative markets will help ensure the sustainability of agriculture and related industries in New York. Producers need to be able to assess the potential of new products (e.g., consumer preferences) and markets and have access to the technologies that will add value to their products. Adding value can include improving quality, extending the season, or developing a new product. Irrespective of added value, a marketing campaign to expand sales to local markets would help the economic viability of agriculture in New York.

Community and Economic Vitality Priorities

Overview

The continuing decline of many New York State communities and sub-regions is broadly accepted as fact and remains a concern. While this decline has been attributed to a variety of factors, targeted research would help guide outreach strategies for developing stronger and more vibrant communities.

New York State residents are living through a period of remarkable change. They face challenges and new opportunities few could have predicted even a decade ago. Agricultural and

non-agricultural sectors are restructuring. New domestic and global markets, transportation and residential patterns, and communication technologies are affecting all sectors of the economy. Environmental interests and concerns are opening up consumer-driven markets and influencing policy directions. Demographic shifts are creating an increasingly diverse population and new migration patterns. These shifts are in response to community decline, stagnation, or rapid growth. Rural, suburban, and urban places are linked, rather than distinct localities.

The purpose of community development is to empower communities to be in charge of giving direction to their future. A component of that process involves strategic planning. But often the strategic and operational planning framework is fragmented and disjointed. With devolution has come a complicated picture of local control and the challenges of globalization. Communities need assistance in determining what they can address at the local level so that they can allocate resources accordingly. That also suggests the need to define what resources should come into play at a regional or state level to improve decision making and implementation processes. New York State communities would benefit from a functional analysis to determine types of decisions within a matrix of authority matched with municipal units (village, town, county, multi-county or regional, and state). Whether the issue is health care, education, telecommunications, economic development, or the delivery of social services, local communities strive to be responsive to their constituents within a complex framework.

Cornell Cooperative Extension faculty, extension and research associates and educators partner with community leaders and elected officials for community capacity building (action planning processes; strategy development; implementation). CCE Associations are well positioned to emphasize community strategic planning and to encourage integrated planning. CCE's role in regional and statewide planning should be explored. CCE as a system has both strengths and weaknesses that should be analyzed to position the system to be a key player in community capacity building (at all levels). CCE can offer a framework that integrates family well-being with community vitality with economic development.

Principles for Policy and Practice

Community and economic development needs to be entrepreneurial, community-driven, and anchored in local and regional assets. Practitioners and policymakers alike call for holistic approaches that simultaneously value and invest in economic opportunity, family and human capital, community vitality, infrastructure, and natural resources and environmental stewardship.

Solutions share in common the need for good information and data systems, community planning systems, good decision-making processes, effective leadership, broad and inclusive civic engagement, technical assistance, new knowledge, and full communication across jurisdictions, agencies, and localities.

The Community and Rural Development Institute

There is a symbiotic relationship between Cornell Cooperative Extension's Community and Economic Vitality initiative and the Community and Rural Development Institute (CaRDI). A companion piece to this narrative is CaRDI's Program Framework (May, 2003). The Community and Economic Vitality Program Council is supportive of this framework and endorses the research and extension priorities outlined below. CaRDI is the primary campus-based vehicle to support CCE Associations in carrying out community and economic vitality programming.

Diagnostic Process

As a Program Council we are recommending that funding and resources be allocated to a diagnostic overview of the state of NYS communities and regions. The analysis should include summation of (a) the issues, (b) the resources available to address the issues, (c) analysis of campus and off-campus research strengths and weaknesses, and (d) inventory of comprehensive community assets. From that information CCE can develop a priority action plan to target extension programming for the renewal of NYS communities. The action plan would identify program components (including both research and extension) and expected outcomes for each of the three community and economic vitality priorities listed in the next section "Research and Extension Framework" (it would further help to refine the bullets listed in the framework). This would be an important step toward the development of a multi-year focused research-extension initiative in community renewal.

The diagnostic overview should focus on five primary objectives:

1. develop a demographic profile and overview of the condition of NYS communities (already in process) which would provide a baseline for a set of indicators,
2. identify critical data and analysis needs in understanding the decline and renewal potential for New York State regions and communities,
3. compile and summarize available research and understandings of economic growth and decline, including effectiveness of community economic renewal strategies,
4. develop a vision for CCE's Community and Economic Vitality initiative (starting with CCE's vision of "building strong and vibrant communities"),
5. articulate outcomes, benchmark indicators, and quantification methods that would incorporate research, models, and priorities for the framework shown below.

Research and Extension Framework of Priorities:

1) Enable Community and Government Capacity Building

- community leadership
- governance and management capacity building
- fiscal and organizational research and innovation
- community visioning and strategic planning

Quality of life improvements include a wide range of economic and social development affecting individuals, families, firms, and communities. This incorporates sound-decision making systems, community-led development, partnership building, an informed and educated citizenry, community entrepreneurship, and place-based approaches. Training and resources might focus on community-building skills, planning tools, civic engagement, leadership development, local government issues, and community decision-making.

2) Strengthen Community Economic Development:

- main street revitalization and retail trade analysis and development
- community based agricultural economic development
- fiscal and economic impact analysis
- workforce development
- business development and assistance

New measures and resources to create an entrepreneurial climate might include: human capital improvement through youth and adult workforce development and education; technical assistance and resource toolkits appropriate for diverse communities and economic diversification; and extension educators skilled in value-added entrepreneurship, economic impact analysis, e-commerce, market development, business planning, and brokering partnerships.

3) Develop effective and collaborative land use management approaches and policies that enhance connections between economic and environmental dimensions of community development:

- community environmental management (e.g. water quality improvement and protection)
- smart growth, rural-urban interface, and land use planning issues
- infrastructure management

The environment is an essential basis for community prosperity over time and we need to insure environmental stewardship of the state's natural support system of watersheds, woodlands, wildlife and habitats, open spaces, and forests. Research interests could include the need to better understand the value of natural resources and environment to communities and society in order to adequately address environmental vulnerabilities in a cost-effective and sustainable manner. Training and resources might focus on land use issues, farmland preservation, sprawl and growth, use of open spaces, and community decision-making.

Natural Resources and Environment Priorities

1) Improving Watershed and Water Resource Protection and Management, Especially in Agricultural and Rural Systems

This priority encompasses a wide range of issues and objectives including water quality protection, watershed restoration and management including practices for the specification of Total Maximum Daily Loads (TMDLs), upstream impacts on estuaries and marine water quality including fish and wildlife habitat. This priority area also includes specific measures directly related to watershed and water resource protection like livestock waste management, pesticide use reduction, and growth management for watershed protection. While the emphasis should be on agricultural and rural systems, it is recognized that New York is a state with significant urbanization and a variety of constituencies often interlinked within large, complex watersheds.

2) Improving Management Practices for Sustainable Agricultural and Natural Resource Systems

Management options to address land use change and assure more sustainable patterns of population and economic growth and to respond to climate change fall under this priority area. Technologies or practices to conserve energy and to reduce or eliminate agriculture's dependency on chemical pesticides and fossil fuels are important aspects considered in this area.

3) Improving policy makers' and individual citizens' understanding of different planning and management practices to make natural and agricultural systems more sustainable

Different planning and management approaches for addressing issues like land use change, odor control of agricultural wastes, human-animal conflicts, consequences of climate change, use of consumer products, and indoor air quality are part of this priority area. Efforts to address this priority are likely to require the integration of data from biological, physical and social sciences in policy and management decisions.

Quality of Life for Individuals and Families Priorities

Top Priority in each of Four Priority Area Groups

Group 1: Nutrition, Health and Wellness

Priority 1. Advancing Healthy Lifestyles, Safety, and Wellness

Need

Several recent studies have well documented the rise in obesity and overweight in the general population, and especially among children. Promoting and supporting healthy, positive health behaviors for individuals and families in communities requires both individual and collective actions. Education programs for children, youth and adults, community coalition-building and actions, public policy education, and program and policy development all can support improved well-being and better access to health care. Multi-disciplinary approaches and multi-agency collaboration are essential.

Obesity and overweight are positively correlated with increased risk of chronic diseases such as cardiovascular disease, diabetes, stroke, hypertension, osteoporosis and some forms of cancer. Type II Diabetes, once only found in adults, is now more frequently showing up in children, even pre-adolescent children. The number of overweight children has doubled in the past 10 years. In NYS alone, overweight two to four year olds increased from 13.3% to 16.3% in the past 10 years (WIC data, 2002). If a child is persistently obese at age six, he is 50% more likely to be an obese adult. If she is overweight as a teen, she is more than 70% more likely to be an overweight adult. If a child has one overweight parent, they are 40% more likely to be overweight, and if both parents are overweight, 80% more likely to be an overweight adult. Overweight kids age 5-10 have a cardiovascular disease risk of over 60%, nearly three times that of the normal child population. Being overweight and physical inactivity account for more premature deaths each year than anything besides tobacco use. Preventative medical care and preventative health education combined with access to a safe, secure and healthful food supply are needed. Changes in individual food consumption patterns and lifestyles are also required. Continued research should partner with existing researchers such as those at NYS Department of

Health (DOH) and Bassett Hospital on what types of nutritional counseling and behavior modification are effective at preventing and reversing obesity, especially among low income minority households. Then effective interventions can be targeted at WIC clinics, emergency food sites, retail food outlets and physicians' offices.

Since obesity, food insecurity and hunger exist in the state as nutritional issues, further research could inform educational practice. Research could contribute to identifying distinguishing characteristics of persons who are food insecure, the predictors of food insecurity, risks contributing to and consequences of food insecurity. Where obesity exists among food-insecure households, how might the causes and preventive actions be addressed? As well, integrated research and extension projects focused on county health services and service providers can support improved access to and use of preventative health care that would address obesity and related chronic diseases.

Desired Outcomes

- Changes in behaviors that contribute to obesity--diet and physical activity
- Reduction in incidence of obesity among vulnerable youth and other priority group
- Decrease in the number of youth and adults with TYPE II Diabetes in New York State
- Long-term changes in the indicators of chronic diseases associated with obesity (blood lipids, blood pressure, insulin resistance) as measured in young and middle age adults
- Longer-term changes in prevalence of obesity and its related diseases (diabetes, heart disease, some cancers, hypertension, etc) in older adults
- Increased fitness levels
- Improved availability and affordability of a safe, healthful and secure food supply
- Increased access to and use of preventative health care in communities

Group 2: Life Course

Priority 1. Improving Care giving for children and elders

Need

Policies, programs and care giving practices affect the quality of life for children and elders. Early childhood care issues and parenting of young children are of high priority. Working poor families spend a large proportion of their income on childcare. Among the 22% of working poor families headed by single mothers in the US who paid for childcare, 40% spent at least half of their cash income on child care; another 25% spent between 40 and 50%. Among the 9% of working poor families headed by married couples that paid for childcare, 23% spent more than half of their cash income on childcare, 21% spent between 40 and 50% (Child Trends, 2003 analysis). Early childhood care and family support are universal family and community needs. Parenting skills, childcare provider knowledge and skills, and parent information about childcare quality are key aspects of quality care giving that supports development. "Developmental psychologists consider interactions between parent and child to be central to the child's development of many competencies…(and) from a comparative perspective, early childhood intervention (such as pre-K programs) has larger effects than interventions begun later in childhood and adolescence" (Jeanne Brooks-Gunn, in a policy brief of Society for Research on Children, 2003). Research can inform public policies that enable parents to provide care giving to their own children and that increase the availability of affordable, quality childcare. Education can promote research-based best practices in parenting and childcare.

The US society is aging. Social support and involvement in meaningful roles are important to enhancing the physical and mental well being of older adults. Research should address issues of isolation, gaps in formal services and network deficits of family caregivers to impaired elderly persons. Families need information on elder care quality. Collaborations on applied gerontological issues that involve researchers, practitioners and policy makers are needed. These efforts will lead to interventions, supported by education, which can improve social integration among older persons (Cornell Gerontology Institute).

Desired Outcomes

- Increased parents' engagement in positive activities and interactions with their young children
- More parents who wish to are able to care for their young children in the home
- Increased developmentally appropriate and affordable child care and early education programs
- Increased knowledge of high quality elder care
- Improved social support and decreased isolation of elders
- Support of and education with caregivers and families lead to improved elder care

Group 3: Environments

Priority 1: Improving the quality of housing, home, school, and workplace environments and the horticulture environment in communities

Need

Indoor environmental quality is related to maintaining good health. Air and water quality, the presence of chemicals and microbiologicals and materials are important factors in the quality of the indoor environment. Families and individuals are concerned about the safety of their drinking water and of household products. They are making decisions about bottled water, water treatment, household waste water, choice and use of household products and protection of their water supply.

Research populations and educational program participants include homeowners and renters, families, communities, and professionals in fields related to housing, childcare facilities, facility planners and health care providers. Education is needed for adults to create a safe environment for themselves and their children. Public policies, supported by research and education, can provide incentives for landlords and homeowners to take steps to improve environmental quality. Indoor environments at home, in daycare settings and in work or school settings need to be assessed for health safety. Measures need to be taken to mitigate for health risks of indoor environmental quality for poor households.

Landscapes at homes and in public neighborhood areas make communities more livable and improve the mental and physical health of residents. Education about good horticultural practices enables homeowners to improve their quality of life and can influence communities to upgrade landscapes. Research on the personal and community benefits of horticulture can promote its practice. Science and technology literacy of the population, an identified societal need, can also be enhanced through community horticulture programs.

Desired Outcomes

- Reduction in the incidence of illness and injury due to environmental factors
- Increased identification and mitigation of environmental health risks
- More informed decisions about water treatment systems and other water quality choices
- Safer water supplies and better-maintained septic systems
- Adoption of safe use and disposal of household chemical products
- Improved home and community landscapes
- Increased adoption of good horticultural practices to improve life quality
- Gains in scientific and technology understanding through horticultural practice
- Life long learning of adults and youth increased
- Formal youth education curricula and standards incorporated in programs with positive results

Group 4: Family and Consumer Economics

Priority 1. Enhancing personal skills in household economics, financial literacy, and resource management.

Need

Fifty percent of American households have less than $1,000 in financial assets and less than $35,000 in net wealth (Lundquist Consulting, 2001). The Federal Reserve reported that in 2001 there was $1.65 trillion in consumer debt outstanding. Families and individuals are faced with food insecurity, job insecurity, escalating health care bills, increasing taxes and financial stress. Financial planning for retirement, saving money, and investing money wisely are money management issues and needs in a changing economy along with job training programs and the basics of money management. 38% of civilian wage and salaried workers have no access to pension plans (Department of Labor, 1998). Research is needed on effective financial management education practices, programs and policies for diverse populations within a changing economy. Integrated education and research can evaluate strategies such as behavior modification and social marketing techniques. The aging population combined with a sluggish economy and economic uncertainty point to a growing need for personal financial management for financial stability and security in the later years.

Desired Outcomes

- Increased household wealth
- Decreased household debt
- Improved financial management knowledge and skills
- Changed financial management behaviors of youth and adults
- Enhanced food security
- Improved financial plans and status into retirement
- Improved ability to manage medical care expenses

Youth Development Priorities

Priority #1 Develop and Apply Youth Community Action Models and Methods

Youth Community Action work is critical to the land grant civic mission, as CCE has a commitment to the people of New York to build self-capacity among citizens so they can solve problems and build strong and vibrant communities. In 4-H, the pledge, creed, mission and vision proclaim the development of citizens as a primary goal of 4-H. Clearly, 4-H would not be 4-H if not for both the youth development and civic elements. However, as attention to public language and purpose has decreased over the past 50 years, so have they become less prominent within 4-H.

The following principles of youth and civic development are at the heart of the 4-H experience:

- Young people's intelligence, talents, experience, and energy deserve respect.
- Youth engagement emphasizes personal relationships with parents and other adults who support and care, and public relationships that empower effective action.
- Community involvement gives young people the chance to learn the essential skills of teamwork, including accountability, negotiation, and appreciation for the practical uses of diversity.
- Involvement provides opportunities for young people to engage in public work, producing things of lasting value to our communities.
- Public work and skill building link together.
- Youth work contributes to community and institutional change.

Implications/opportunities for Cornell Cooperative Extension applied research and extension response to developing and applying youth community action models and methods include:

- An active youth voice should be evident in program determination, implementation, evaluation, and policy development. The value of youth participation must be a part of the training for CCE employees and adult and youth participants. Faculty research in this area should be included. The outcome of youth involvement would be experiences that reflect youth needs, interests, and excitement for learning
- Educators and volunteers working with youth need to understand and incorporate practices that better help young people develop who they are, learn important skills, create new learning opportunities and community action activities, and increase their capacity to contribute.
- Curriculum that focuses on 4-H citizenship needs to be introduced to youth starting at an early age and continuing throughout their 4-H involvement. In a recent survey by the 4-H Cooperative Curriculum System, 4-H youth development faculty identified "citizenship" as one of the top areas of work in need of new curricula and resource materials.
- Research initiatives could focus on youth and community attitudes about youth community action involvement, looking at youth assets and community readiness to take action on a youth-centered initiative.
- A shift towards an "assets" rather than a "deficits" approach in youth and community development work will focus attention on how youth can be active contributors in addressing issues for public concern. CCE needs to forge community collaborations and partnerships that will build on the assets of youth.

Desired outcomes:

- Youth will be respected as learners and teachers, and their knowledge, talents, and skills are put to use educating others.
- Youth will be engaged in public work, producing things of lasting value to our communities and our commonwealth.
- 4-H work positively influences adult and community attitudes toward youth.

Priority #2: Advance Life Skill Development

Cornell Cooperative Extension youth development programming focuses on helping youth developing competencies, often known as life skills. To successfully grow into mature, productive, and contributing citizens, young people need to acquire:

- Health/physical skills – building on knowledge, attitudes, and behaviors that insure current good health as well as those that assure future well-being such as: healthy lifestyle choices, exercise, nutrition, disease prevention, personal safety, stress management, and effective contraception practices.
- Person/social skills – intra-personal skills such as understanding emotions and self-discipline as well as inter-personal skills of working with others, developing friendships and relationships, communication, cooperation, empathy, negotiation, adaptability, and responsibility.
- Cognitive/creative skills – the ability to appreciate and participate in creative expression, oral and written language skills, problem solving and analytical skills, an ability and interest in learning and achieving, and the ability to plan, evaluate, and make decisions.
- Vocational/citizenship skills – knowledge, attitudes, and behaviors that result in responsible citizenship, leadership, contribution to group efforts, teamwork, marketable skills, understanding of work and leisure, and the desire to be involved in efforts that contribute to the broader good such as community service.

In 4-H Youth Development, Life Skills:

- Are imbedded into subject matter learning
- Help young people meet their needs of belonging, independence, mastery, and generosity in positive ways.
- Are appropriate for young people at various stages of their development
- Apply to young people's present lives as well as throughout their future lives
- Are learned when adults model the skill; young people have the chance to try, practice, and rehearse the skill for themselves; and get feedback and reinforcement on their efforts
- Frequently rely on a body of knowledge as well as personal attitudes
- Are transferable. That is, once a skill is acquired, it can be used in many ways and in different areas of life.

Implications/opportunities for Cornell Cooperative Extension applied research and extension response to Advance Life Skill Development include:

- Program educators and volunteers who work with youth need training and support in how to incorporate research findings and process into program design at the local level with a focus on how to meet the needs of youth at various stages of their development.
- Opportunities are needed for youth that focus on specific aspects of life skill development.
- Curriculum design should incorporate best practices for building life skill competencies.
- Research focused on how youth acquire life skills and how different delivery methods may impact the development of skill competencies.

- Comprehensive program evaluation is needed to gather complete information about the impact of youth development programs. Educators need valid, reliable indicators and measures of the developmental qualities of the experiences they provide.

Desired Outcomes Deepening our understanding of how young people acquire life skills can increase our internationality and therefore help us help them get more out of each learning experience.

Priority #3: Defining and Applying Principles Of Positive Youth Development
In 1999, a team of 5 evaluators from the National 4-H Impact Design Implementation Team was given the charge of answering the question, "What positive outcomes in youth, adults, and communities result from the presence of critical elements in a 4-H experience?" The group reviewed the basic and applied research on characteristics of effective programs for youth development. Another criterion used by the group was relevancy to 4-H that could be communicated to colleagues, researchers and volunteers. From this process, eight elements critical to youth development, and central to the 4-H experience, emerged:

- A positive relationship with a caring adult
- A safe environment – physically and emotionally
- Opportunity for mastery
- Opportunity to value and practice service for others.
- Opportunity for self-determination
- An inclusive environment (encouragement, affirming, belonging)
- Opportunity to see oneself as an active participant in the future
- Engagement in Learning

This list of eight closely aligns with other current research and theories of positive youth development. It should be noted however that this is a provisional list, subject to further study – of the processes or "active ingredients" that community programs could use in designing programs likely to facilitate positive youth development. The multiple groups concerned about community programs for youth – policy makers, families, program developers and practitioners, program staff, and young people themselves – have in common the desire to know whether programs make a difference in the lives of young people, their families, and their communities. Research, program evaluation, and social indicator data can help improve the design and delivery of programs. Implications/opportunities for Cornell Cooperative Extension applied research and extension response to defining and applying principles of positive youth development are:

- More comprehensive longitudinal research, that either builds on current efforts or involves new efforts, is needed on a wider range of populations that follows children and adolescents well into adulthood in order to understand which assets are most important to adolescent development and which patterns of assets are linked to particular types of successful adult transitions in various cultural contexts.
- Comprehensive program evaluation is needed to gather complete information about the impact of youth development programs. Educators need valid, reliable indicators and measures of the developmental qualities of the experiences they provide.
- Program educators need training and support in how to incorporate research findings and process into program design at the local level. Statewide youth development efforts need to define what youth development is. Every CCE employee and program volunteers working in youth programming should know what Youth Development means.
- An active youth voice should be evident in program determination, implementation, evaluation, and policy development. The value of youth participation must be a part of

the training for CCE employees and adult and youth participants. Faculty research in this area should be included. The outcome of youth involvement would be experiences that reflect youth needs, interests, and excitement for learning.

- We must connect all youth-related projects to 4-H as the established youth development program in CCE. 4-H is the central pillar with other attachments. Collaborative efforts with other youth program agencies and campus youth initiatives will create supportive learning environments for positive youth development.
- Factors that influence volunteer retention and positive involvement are critical to the success of CCE programming in youth development. Studies that would focus on these factors would contribute to the process of recruiting, screening, selecting, training, and supervising volunteers that ensures safe, protective environments for youth and adults.

Desired Outcomes

There is evidence that youth with more personal and social assets have greater positive development. Since program features typically work together in synergistic ways, programs with more features are likely to provide better supports for young people's positive development. Research that focuses directly on these features in the Cooperative Extension youth programming setting would increase our understanding of how community programs for youth could incorporate these features into program design and implementation.

Priority #4: Enhancing Science And Technology Literacy

In 2002 over 200,000 New York youth participated in 4-H educational activities in the science and technology areas of environmental education, biological and physical sciences, plant and animal sciences, technology and engineering, and textiles and apparel. Two specific examples of departmental programs focused on youth K-12 include:

- The Department of Textiles & Apparel develops and implements a variety of science and technology programs for K-12 youth. These programs are used by 4-H clubs, school-age child care centers, home schoolers, Scouts, formal classrooms, science centers, and other youth agencies. Curricula emphasize science exploration and skill building. The Fabric/Flight Connection explores the principles of aerodynamics, explains the use of composite materials, and discusses aviation-related careers in fiber science and industrial textiles.
- Numerous faculty and academic staff are involved in developing and implementing hands-on experiences for youth interested in Animal Science. Daylong and weekend programs hosted by the department include a "Dairy Discovery Weekend" for teens interested in dairy cattle management issues. "March Dog Madness" is planned for teens and adult volunteers interested in dog behavior, and health issues. "Horse and Dairy Quiz Bowl" contests are organized for 4-H members (age 9-19) to test their knowledge about the industry, animal biology and management practices. "Animal Crackers" is a Saturday program for 4-H members planned for young people interested in learning more about the sciences behind their favorite livestock, companion, or pet animal species; emphasis on different species groupings and activities varies annually.

The Science and Technology Program Work Team has worked to identify curriculum needs in science and technology areas and has provided training for extension educators through the Grab and Go and the Strengthening 4-H Conferences the past two years. This year the PWT has focused on an activity of concept mapping related to what makes a science project interesting. .

Results from the concept mapping have helped to identify specific indicators that have potential for program enhancement.
Implications/opportunities for Cornell Cooperative Extension applied research and extension response to Enhancing Science and Technology Literacy:

- There is a need for established standards for science and technology curriculum, including quality of content; how youth will be involved in making choices and establishing learning goals; delivery methods; procedures for development, testing, and selection; and methods for measuring outcomes.
- Curriculum development that utilizes new delivery methods, for example on-line "virtual" clubs.
- Existing research about what makes a science project interesting needs to be expanded and applied to curriculum development.

Desired Outcomes

- CCE 4-H youth development programs contribute to youth achievement of new learning standards.
- Curriculum in science and technology prepare youth for the future through helping them to develop mastery. Mastery is the building of knowledge, skills and attitudes and then demonstrating the competent use of this knowledge and skills in the manner of a proficient practitioner.

Appendix B – Multistate Extension Activities Report

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding for Multistate Extension and Integrated Activities
(Attach Brief Summaries)
Fiscal Year: 2006

Select One: ☐ **Interim** **X** **Final**
Institution: **Cornell University**
State: **New York**

	Integrated Activities (Hatch)	Multistate Extension Activities (Smith-Lever)	Integrated Activities (Smith-Lever)
Established Target %	**%**	**12 %**	**%**
This FY Allocation (from 1088)		**8,281,973**	
This FY Target Amount		**993,837**	
Title of Planned Program Activity			
Multi-state project support (see following Pages for titles and project descriptions)		**943,449**	
eXtension assessment		**60,000**	
Multi-state diversity initiatives		**5,584**	
Total		**$1,009,033**	
Carryover			

Certification: I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays represented here accurately reflect allowable expenditures of Federal funds only in satisfying AREERA requirements.

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding (Smith-Lever) Multistate Activities
(Brief Summaries)

Proposal Number	Title	Project Goals/Objectives	Expenditure
2003-04-102	**Engineering Aspects of Animal Waste Management Education**	Develop, document, and demonstrate manure treatment and handling methods for NYS dairy farms that will allow them to effectively and economically implement their Comprehensive Nutrient Management Plans. This includes determining the nutrient and mass flows and costs for various types of treatment systems such as: anaerobic digestion, composting, and lagoon treatment.	$61,500
2003-04-106	**Engaging Children in Environmental Aspects of Community Development**	Use multiple methods to identify practices, activities, and approaches employed during the planning and implementation of local landscapes that lead to greater youth participation and higher achievement of selected developmental outcomes among participating youth. Determine what specific developmental outcomes can be correlated with project activities. Observe what groups are able to move from planning to implementation and whether this movement is perceived as 'success' by adults and/or by youth. Describe opinions, attitudes and characteristics of youth who participate in community landscaping projects.	$16,500
2003-04-109	**Agricultural Health and Safety Program**	The objective is to create and enhance Extension/outreach and research efforts in (agricultural health and safety) health and safety within New York State agriculture. These efforts will focus on the overall reduction of injuries and fatalities as well as the prevention and control of existing/emerging diseases within rural communities. Additional emphasis is being placed individuals with disabilities.	$11,029
2003-04-113	**Youth Community Action**	Teen Assessment Program: Recruit a minimum of six new counties; implement annual state-wide TAP reports. Youth Community Action (YCA): Increase the voice of youth in community development; increase the accuracy and comprehensiveness of quantitative and qualitative impact data for 4-H YCA programming.	$20,000
2003-04-130	**Plant Health Education in NYS Through the Master Gardener Program**	The goal of the activity proposed is to support county-based plant health education programs with high quality educational opportunities for volunteer staff members (Master Gardeners) in the area of integrated disease management. The objective is to ensure that homeowners who get their information from county CCE offices through Master Gardeners are receiving information that is accurate and offers them the best opportunity for managing plant disease problems in a way that least threatens them and their environment.	$13,000

2003-04-135	**Animal Behavior: Train the Trainer Model for Youth and Adult Volunteer Dog Trainers**	1)Increase the number of youth participating in state level 4-H Dog program activities through the further development of comprehensive and consistent volunteer training programs at county and regional levels. 2) Establish a statewide training program reflective of the needs of youth and volunteers involved, utilizing their innate skills as well as the latest technologies and research available. 3) Help youth develop and practice leadership skills, by providing opportunities to serve on event and camp planning committees, by becoming dog trainer assistants and by becoming community education resources.	$5,808
2003-04-156	**Implementation of Precision Feeding Approaches to Reduce Nutrient Excretion in Manure**	To increase the adoption of precision feeding through use of the CNCPS ration formulation model by the feed industry in New York; To use commercial dairy farms to demonstrate the reductions in nitrogen and phosphorus excretion that can be attained using the CNCPS model.	$13,488
2003-04-162	**Parenting in Context: Integrating Extension and Research Activities**	The goal of this project is to promote the integration of research and extension activities around parenting. This project focuses specifically on the issue of parenting in context, or the ways in which neighborhoods influence parenting behaviors.	$27,500
2003-04-209	**Workforce Development in Elder Care: An Evaluation of Innovative Training Methods**	This project merges two key CCE programmatic interests: workforce development and improving quality of life for elders. Goal: Improve performance, recruitment, and retention by creating innovative and cost-effective training for direct-service workers in eldercare (e.g., meal drivers, case managers, home attendants). Objectives: 1) conduct comprehensive assessment of training needs of eldercare workers in NYC, using survey and concept-mapping methodologies; 2) develop 5 model training curricula; 3) implement the training curricula using both conventional and web-based modalities; 4) rigorously evaluate the curricula; 5) disseminate results in NYC, NY state, and nationally. Project will involve close integration of research and outreach methodologies, based on long experience of the project leaders. The project will involve a scientific approach to needs assessment and rigorous evaluation designs to determine program effectiveness.	$32,500

2003-04-240	**Building Leadership for a Productive Satisfied Hispanic Workforce**	Agricultural and horticultural employers in New York will develop an understanding of how to manage a culturally diverse workforce.; CCE educators and specialists will understand current multicultural workforce issues impacting their county or region and will conduct relevant educational programs. Current issues include overcoming the language barrier, cultural understanding, and community acceptance. ; Employers will better understand the needs of their Hispanic employees and will develop human resource strategies to meet those needs consistent with the needs of the business.; Agricultural employers and policy makers will understand Hispanic workforce issues and become engaged in immigration reform policy as it relates to the Hispanic workforce.; Employers will take a leadership role in fostering acceptance and understanding of Hispanic workers in their communities.	$28,901
2003-04-250	**Practical Management of Indoor Environmental Risks**	To engage Cornell faculty, Extension Educators, volunteers, and other external stakeholders in an effort to educate homeowners and renters about indoor environmental quality. To apply knowledge gained from two research projects, Healthy Living and Learning Environments and Practical Management Strategies to reduce Risks of Exposure to Indoor Environmental Pollutants, to teach limited resource households--through trained Peer Educators--proven techniques to minimize health risks. To work with collaborators and stakeholders in seeking funds for a statewide application of Practical Management Strategies.	$28,000
2003-04-254	**Strategic Marketing Education for the Horticultural Industries**	The overall goal of this project is to provide marketing education to improve marketing competency among industry members in horticultural industries (fruit, vegetable and ornamental sectors) and educators who work with these sectors. Specific objectives include: 1) Develop a comprehensive curriculum on strategic marketing for horticultural industries; 2) Establish a system to provide up-to-date information on market needs, customer preferences, industry competition, retail priorities, new and emerging markets, and key factors of successful marketing to horticultural industry members and educators in New York, Michigan and other Northeast states; 3) Aid horticultural industries or individual firms develop effective marketing strategies to maintain and improve their competitive market positions; 4) Facilitate collaborative learning experience and interaction among industry members and educators in New York, Michigan and other Northeast States.	$10,091

2003-04-267	**Creating New Partnerships and New Tools to Enhance Local Government Education**	Improve the capacity and performance of local governments in New York State by improving the training opportunities and information/decision-making resources available to local elected leaders and citizens; Improve the capacity of CCE to work with local government by improving CCE educators' understanding of local government and providing CCE with educational tools to use with local government.	$10,000
2003-04-271	**Fertilizer Recommendations for Field Crops: The Basis for Environmentally and Economically Sound Nutrient Management**	Our objectives are to: 1) document the research base for current Cornell University fertilizer recommendations for field crops; 2) develop a 'Cornell Field Crops Research' history publication; and 3) develop fact sheets and extension articles that aid extension educators in teaching farmers and consultants the rationale behind the Cornell recommendations for fertilizer use. Our overall goal is to improve farm profitability while protecting the environment and having the basis for our current fertilizer recommendations fully documented is essential in obtaining this goal.	$25,000
2003-04-279	**Main Street Revitalization: Building Capacity for Community Economic Development**	This is an applied research and extension initiative to assist communities with economic development and revitalization initiatives.	$15,001
2003-04-280	**Strengthening New York's Economy and Communities through Agriculture and Food Partnerships**	Provide leadership, as a campus-based coordinator/point program, for agriculture economic development research, extension, and professional development initiatives within CALS and CHE; Provide regular, on-going support to extension educators and other professionals pursuing agriculture development; Strengthen inter-agency working relationships between professionals pursuing agriculture and economic development (agriculture developers, economic developers and community developers, planners, etc.); Support public issues education on the topic of agriculture economic development.	$10,000
2003-04-300	**Dissemination of Horticultural Information to the Ornamental and Vegetable Industries on Long Island**	To improve productivity and profitability of Long Island Ornamental and Vegetable Crop operations by delineating practices that reduce input costs and increase yields to boost profits; diagnose and provide treatment recommendations for disease, insect and weed problems for ornamental and vegetable plants; Highlight and showcase ongoing applied research and share information about new reduced-risk plant protectant materials, IPM methods, and best management practices.	$8,000

2004-05-107	**New York State Extension Disaster Education Network (NY EDEN)**	These efforts will focus on research activities to identify statewide needs, evaluate the role of cooperative extension, and then to build an effective network across the state to improve the overall emergency preparedness and recovery abilities within communities. An additional critical objective is to increase the information availability to educators, organizations, and residents, through multiple avenues including regionalized trainings, electronic information dissemination, and hard copy disaster resource materials.	$43,000
2004-05-121	**Educating Consumers: Development of an Interactive Web Site on Drinking Water**	Review, evaluate, and update current drinking water research summaries and educational materials, with particular attention to testing, primary drinking water standards, recently added contaminants to the standards list, treatment methods, new product approaches, and certification standards for drinking water treatment units; develop, pilot test, and evaluate an interactive web site that helps consumers understand drinking water standards and testing results and leads them to specific information about their drinking water treatment needs.	$27,526
2004-05-125	**Achieving Nutrition, Health and Agriculture Goals through School-based Community Strategies**	This applied research/outreach project has 3 research goals: 1) Elucidate institutional opportunities and constraints to using NY commodities in schools, 2) Identify effective strategies for incorporating NY commodities into food service. 3) Assess impact of farm-to-school (FTS) approaches on fruit and vegetable offerings by food service and acceptance by students.	$30,000
2004-05-126	**Building Capacity to Address Childhood Obesity in Low Income Communities: Linking Research and Practice**	As a result of participation, nutrition professionals will improve their capacity to collaboratively address childhood obesity in their communities. In the pilot sites, a formative evaluation will track collaboration building and outcomes (e.g., new interventions, provider practices) using both qualitative and quantitative data.	$17,508
2004-05-138	**Innovative Educational Programs for Small Farms: A Small Grants Program**	This project links directly to relevant, ongoing (and new) research on small farm operations via the Small Farms Program Work Team, its working groups and the working relationships of its members with researchers at CALS and other NY institutions. The PWT has been active in promoting and sponsoring small farm research.	$24,000

2004-05-163	**Managing Wastes**	Improve management of organic residuals, develop and extend knowledge and enhance skills through integrated collaborative research and outreach projects; Protect human and livestock health, agricultural productivity, soil health and environmental health through research and outreach on application of residuals to agricultural lands; Develop and implement methods to engage 'non-traditional stakeholders' in research; Improve farm biosecurity by increasing the number of farms managing manure and mortalities through effective composting that controls pathogens; Protect water quality and control pathogens by substituting composting for roadside dumping of road kills; Increase markets for compost in turf mgmt, landscape construction, on farms, and in erosion control; Develop models for cooperative composting among farms, sharing equipment and joint marketing; Increase ability of CCE educators to conduct research and expand funding opportunities	$60,003
2004-05-178	**Leadership Development to Foster Acceptance of Hispanic Dairy Workers in Rural Communities**	Agricultural employers, especially dairy employers, along with other community officials, will take a leadership role in fostering the acceptance and understanding of Hispanic workers in their communities. They will do the following: Objective 1: Dairy farm owners and managers will learn about cultural diversity as it relates to their farm and community. Objective 2: Dairy employers will understand what it is like to experience another culture by participating in an international field study. Objective 3: Dairy employers and community leaders will play an educational role related to issues of cultural diversity in their community.	$20,386
2004-05-182	**Watershed Education & Professional Practice: Building Collaborations among Students, Teachers, Scientists, and Planners**	The goal of this project is to facilitate collaboration among Cayuga Lake watershed (NY) students, teachers, scientists, and civic leaders in support of the following objectives: 1. High school and middle school students will learn science and develop research skills by investigating relevant local water quality and land use issues. 2. Teachers will become part of a professional network that supports innovative action-based teaching and learning. 3. Scientists will gain opportunities to interact with and disseminate their research methods and findings to interested school groups. 4. Government and nonprofit leaders will gain the opportunity to work with youth to increase civic engagement and stewardship in ways that meet curriculum needs of school classes and youth clubs.	$25,990

2004-05-213	**Developing a Feeding and Management System to Provide High Quality Beef for the Grass Finished Market**	Value added markets are increasing in the Northeast and can provide beef producers with an alternative to commodity marketing. The market for grass finished beef is growing and currently demand is greater than the supply. The production of grass finished beef requires specific nutrition and management practices for which little researched based knowledge exist. The objective of this project is to conduct research and demonstrations that will allow us to advise extension faculty and farmers in methodologies that will result in high quality grass fed beef that consistently meets consumer demand.	$16,299
2004-05-259	**Health and Safety Issues Related to Textiles and Clothing**	Conduct research on textiles, clothing systems, and worker practices/attitudes with the aim of reducing the pesticide exposure of handlers, workers, and their families; Develop and disseminate user-friendly educational materials that inform the pesticide user about health risks, government regulations, textile properties, clothing systems, and personal protective equipment (PPE) maintenance; Explore opportunities and potential partnerships for educational programs for first responders under homeland security initiatives.	$23,000
2005-06-030	**Management of Sheep and Goats to Improve Animal Health and Farm Profitability**	Profitability and sustainability of sheep and goat farming in New York will be improved by: 1) Developing a vaccine and management methods to reduce the incidence of pneumonia and other diseases that cause economic losses in flocks and herds with high prolificacy; 2) Encouraging the use of rotational and extended grazing; 3) Developing methods for small farms to use bulk purchases of locally produced feeds; 4) Developing and encouraging the use of recordkeeping software and economic spreadsheets to make better management decisions; and 5) Encouraging the development of marketing plans to take advantage of lucrative direct and niche marketing of sheep and goats.	$15,516
2005-06-031	**Increasing Capacity for Quality, Marketing and Management in Maple Production and Extension**	The project will provide pivotal support for the development of a maple quality, marketing and enterprise management program by the NYS maple specialist. The project will blend the talents from three departments. In all circumstances, the specialist and program leaders will work with stakeholder input. The objectives of this project have been rated as highest and high priorities. 1. Expand the capacity of the county and regional extension staffs to effectively program in the areas of maple product quality control, marketing and enterprise management. Through this expanded capacity: 2. Improve the quality of maple products marketed by NY producers identified by better adherence to quality standards, greater consistency and modern packaging. 3. Expand the maple market place through greater consumption and marketing foot print expansion. 4. Increase producer profits through better record keeping and enterprise analysis.	$23,000

2005-06-041	**Enhancing Farm Viability via Operational Management Planning**	One hundred farms in NYS will participate in a project that identifies successful management practices over a three year time period. A sample of diverse farm types will participate in the project. Project collaborators will develop an assessment and benchmarking tool to evaluate elements of successful management practices. This tool can be used as a stand alone evaluation of management practices on farms. Two Extension Educators will utilize this evaluation tool on selected farms. After the project concludes, they will continue to evaluate management practices with farms in New York State. Fifty farms will develop an operational plan to implement successful management practices on their farms. Participating farms will evaluate their progress by utilizing the aforementioned management assessment tool.	$29,920
2005-06-049	**Building a CCE Community of Culturally Diverse Gardeners**	Using a pilot-tested on-line rating system to gather gardeners' observations about which varieties perform best in their gardens. Better informing plant breeders, seed companies, and growers of gardeners' opinions and preferences. Increasing the opportunities available for public engagement in meaningful research and two-way communication with university research teams. Through on-line resources and local workshops, serving a diverse population of gardeners that more accurately reflects the range of gardeners in New York State. Providing new delivery methods for gardeners to acquire horticultural knowledge to improve the quality of their home/school/community gardens.	$7,500
2005-06-060	**Test Day Model Evaluation of Milking Interval Effects on Response of Dairy Cows to Frequent Milking During Early Lactation**	Increased milking frequency of dairy cows during early lactation offers a rare opportunity to dramatically impact the profitability and sustainability of dairy farms in New York by substantially increasing the marginal return per cow. Furthermore, it may provide a unique opportunity for smaller dairy farms in New York to capture the economic returns from increased milking frequency over a full lactation that currently are enjoyed only by large dairy farms where milking occurs on a 24-hour basis.	$11,808
2005-06-061	**The Summer Dairy Institute: A Unique Program for Advanced Training of New Veterinarians Supporting the Dairy Industry**	Owing to the increasing complexity of skills required to serve an evermore-sophisticated dairy industry, veterinarians functioning in this field must increase their competency in depth and breadth by seeking information and skills beyond what is afforded in the time allotted by the formal professional curriculum. The Summer Dairy Institute aims to offer an avenue to 20 participants currently in year 3 or 4 of veterinary college, and who have dairy as a career goal, to gain essential skills that will allow them to better serve their profession, their clients, the dairy industry and society as a whole. This is to be accomplished in a timely matter by a short, but intensive non-credit curriculum of 8 weeks covering a wide range of pertinent topics using lectures and practical fieldwork.	$10,000

2005-06-070	**Better Crop Varieties and Quality Seeds for New York**	Specific Objectives: 1. Provide the resources that farmers need to obtain high quality seed. a. Produce Foundation seed and help seed growers produce Certified seed of superior crop varieties for NY. b. Provide information to help farmers make wise seed choices. 2. Provide data to NY seedsmen, farmers, and gardeners about variety performance and gather feedback on their varietal needs. a. Share results of variety testing on NY farms and experiment stations to help seed companies determine which varieties to market, seed growers decide which varieties to produce, and farmers and gardeners choose varieties that meet their needs. b. Gain feedback for plant breeders on experiences with new crop varieties and specific traits that need improvement. 3. Improve public understanding of plant breeding, crop varieties, and genetic engineering and increase awareness of the benefits derived from genetic improvement of plants.	$13,500
2005-06-073	**Youth and Adult Leaders for Program Excellence**	To help youth-serving organizations enhance the quality of their programming. To form youth/adult partnerships to engage in organizational self assessment to bring about program change and improvement. To engage NYSDOH adolescent HIV prevention providers and CCE 4-H educators in using and adapting the Practical Guide for Program Assessment and Action Planning a resource kit developed by Zeldin, Camino and Powers (2004) to enhance youth programming. To promote widespread dissemination and utilization of the resource kit. To evaluate the value of using the resource kit for helping programs and organizations measure progress in achieving youth development goals.	$4,745
2005-06-078	**Nutrient Budgeting – Involving Farmers and their Advisors in Addressing Nutrient Excesses for New York Farms**	Our specific objectives are: 1) develop a user-friendly software tool that allows producers and planners to assess and track annual changes in whole farm nutrient balances; 2) implement the software on a minimum of 30 NY dairy and other livestock farms; 3) investigate the relationship between nutrient imbalance, farm business characteristics, location, crop rotation, and animal density; and 4) communicate the findings to producers while stimulating discussion on how to deal with nutrient excesses. Our overall goal is to improve farm profitability while protecting the environment. Having a clear understanding of the imbalances between farm nutrient imports and exports and the causes of the imbalance is necessary for the development of long-term solutions. Active participation by producers and consultants is essential. Farm specific descriptions or nutrient imbalances and interactive use of the software will enhance producers' ability to understand and address the excesses.	$14,505

2005-06-081	**Training Child Care Providers about Issues Related to Indoor Environmental Pollutants**	The objectives of this extension project are to 1) further specify child care provider's knowledge of indoor environmental pollutants, 2) develop educational materials to assist Extension educators and child care providers (those working in both home and center-based programs) in identifying and managing indoor environmental pollutants (lead, combustion pollutants, and asthma triggers), and 3) provide training for child care providers and those who work with providers on how to maintain clean and healthy facilities.	$12,601
2005-06-083	**Gourmet and Medicinal Mushroom Production for Forest Farming in the Northeast**	Gourmet and medicinal mushrooms have potential to be a profitable part of forest farming in the Northeast. Success with shiitake mushroom suggests that research and outreach efforts directed at optimizing production and marketing of other mushroom species is worthwhile. Objectives of this project are: 1) Evaluate and develop regionally specific strategies for forest production of six species of nutraceutical mushrooms, specifically Maitake, Lion's Mane, Stropharia, Hypsizygus, Oyster and Blewit. This will include isolation and testing of local fungal strains, evaluation of substrate tree species, and optimization of seasonal timing of inoculation, management and harvest; 2) Involve forest landowners on their land in evaluation of commercial feasibility, 3) Establish MacDaniels Nut Grove Forest Farm as a regional center for public education in forest mushroom production and evaluation, and 4) Create print and web based resources to promote forest production of nutraceutical mushrooms.	$17,500
2005-06-103	**New York State Saves**	1. Cornell University & Cornell Cooperative Extension will collaborate with government agencies, educational institutions, financial institutions, labor groups, businesses, religious, CBO's, military groups 2. Launch New York State Saves - a social marketing campaign encouraging New York residents to build wealth through increased savings and reduced debt. 3. Anticipate reaching and enrolling 10 pct. of the NYS population for estimated increase in net worth of $3,000 per household. 4. Create cultural change in the way New Yorkers manage money and prepare for future financial security. 5. Hundreds of entities from every social sector of society will be engaged to adopt NYS Saves and embed the campaign messages within their own cultures, thereby encouraging New Yorkers to adopt healthy habits of saving for future financial goals and reducing consumer debt to safe levels.	$30,000
2005-06-106	**Optimizing Reduced Tillage Systems for Vegetables**	1) Evaluate innovative reduced or modified tillage systems for several major vegetable crops (e.g. sweet corn, cabbage, potatoes, dry beans, tomatoes and winter squash) in both on farm and research station experiments. Our target systems include zone or narrow strip tillage, ridge tillage, and	$6,000

		primary tillage with residue retained on the surface versus conventional tillage. 2) Identify strategies to overcome several challenges to adopting reduced tillage systems for vegetables, including choosing land for transition, identifying crop sequences and appropriate cover crops, avoiding crop harvest delays, managing weeds via herbicides and high residue cultivation, and selecting equipment appropriate to small farms. 3) Modify reduced tillage approaches for use in organically managed vegetable systems. 4) Summarize grower adoption via case studies for publication on web. 5) Support growers transitioning to these systems via consulting and discussion groups.	
2005-06-115	**Development and Evaluation of Equipment for Biomass Production**	There are four specific objectives for the project. 1. Improve harvester efficiency so that overall production costs for willow biomass crops will be lowered by 10 – 20 percent. 2. Develop a harvesting system that will produce chips with different dimensional characteristics while maintaining consistent quality. 3. Broaden the window when willow biomass can be supplied to end users by expanding the harvesting window without having a negative impact on the long term sustainability of the crop. 4. Assess the environmental and economic impacts of a new harvesting system using a previously created Life Cycle Analysis (LCA) and economic models.	$1,500
ODP111a	**NRAES (Natural Resource, Agriculture, and Engineering Service)**	The mission of NRAES is to assist faculty and staff at member universities in increasing the public availability of research- and experience-based knowledge related to natural resources, agriculture and agricultural engineering.	$15,851
ODP131	**Chronic Wasting Diseases**	Development of educational resources related to chronic wasting disease in whitetail deer in response to documented occurrence in NY. Draw from a wide network of resources in other states and within NY.	$4,371
ODP133	**Migrant Program**	This is an academic program of outreach and education focused on the dynamic and diverse farm workforce of New York state and the nation. The program sponsors, conducts and disseminates research helpful to farm workers, their employers and the communities in which they live. It informs employment, human and community development, educational and other public policies that address the needs of farm workers. The program is a comprehensive source of information for farm workers, programs serving the farm worker community, agricultural employers and the communities in which the workers live.	$13,227

ODP134	**Community And Rural Dev Outreach And Support**	Benefit communities at the state, regional, and national levels, individual Cornell faculty, staff, and students, by accomplishing the following objectives: Foster communication and collaboration among existing community and rural development research, extension, and teaching programs at Cornell, and monitor trends in community and rural development. Serve as a point of entry to Cornell for policymakers, practitioners, and faculty and academic staff at other institutions interested in community development.	$18,000
ODP137	**Residential Energy Project**	The Consumer Education Program for Residential Energy Efficiency (CEPREE) is a joint program between the Department of Design and Environmental Analysis at Cornell University and the New York State Energy Research Development Authority (NYSERDA). The goals of this extension program are to increase consumer awareness of the importance of energy efficiency and of programs available through New York Energy $mart to make single homes and multifamily buildings more energy efficient.	$14,996
ODP145	**Participation Tracking System**	Develop a pilot program planning and participation tracking system for extension and other outreach programs including STEM programs in and outside of NY.	$22,800
NA	**Diversity Initiatives**	Cornell Cooperative Extension is one of the Change Agent States for Diversity national initiative. Key resources are available at: http://www.cce.cornell.edu/diversity/	$5,584
NA	**eXtension Assessment**	Annual assessment making participation in eXtension Communities of Practice available to research and extension faculty and staff for collaborative work with colleagues across the country.	$60,000

APPENDIX C – INTEGRATED ACTIVITIES REPORT

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding for Multistate Extension and Integrated Activities
(Attach Brief Summaries)
Fiscal Year: 2006

Select One: ☐ **Interim** **X** **Final**
Institution: **Cornell University**
State: **New York**

	Integrated Activities (Hatch)		Multistate Extension Activities (Smith-Lever)		Integrated Activities (Smith-Lever)	
Established Target %	**25**	**%**		**%**		**%**
This FY Allocation (from 1088)	**$5,151,577**					
This FY Target Amount	**$1,287,894**					
Title of Planned Program Activity						
See Following Pages						
Total	**$1,287,894**					
Carryover						

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding (Hatch) Integrated Activities
(Brief Summaries)

Accession	Leader	Title	Summary of FY 2006 Integrated Activities	FY 06 Expense
0030193	Hoffmann, M. P.	**CUAES Administrative Project**	Assume 25% of Experiment Station administrative expenses are attributable to directing and coordinating integrated activities.	32,165
0059865	Mutschler, M. A.	**Development of Germplasm and Breeding Methods for the Improvement of Tomato**	The investigator on this project extends results of research through the U.S. Tomato Crop Advisory Committee and the Cornell Vegetable Breeding Institute (VBI). VBI helps to transition research findings into usable germplasm and methodologies for use by private sector plant breeders who are developing improved vegetable varieties for the consuming public, and provides a continuing dialogue between the vegetable seed industry and Cornell University plant breeders.	12,000
0060591	Jahn, M. K.	**Breeding Vegetables for Pest and Stress Tolerance**	This project includes close interaction with extension educators both on and off-campus. It also works directly with non-profit agricultural groups to help disseminate genetic educational resources/materials to the alternative producer community, including large and small seed companies, specialty and regional seed producers, and the seed-saver community.	20,000
0073725	Robinson, T. L.	**Rootstock and Interstem Effects on Pome and Stone Fruit Trees**	This NC-140 Multistate project has a strong level of integration between research, extension, with both research and extension faculty as participants. The plantings are regularly used as demonstration plots of new and future rootstocks for growers. The rootstock breeding program a Cornell University has produced several fire blight resistant apple rootstocks. These stocks will help growers in fire blight areas of the world to plant high density orchards for improved profitability.	21,000
0074482	Viands, D. R.	**Improvement of Forage Quality in Alfalfa by Breeding**	This project is conducted in close cooperation with extension personnel and with the seed industry to provide seed to producers. Forage breeders cooperate with these groups to evaluate the bred alfalfa populations for yield and adaptation to their environmental conditions.	10,000

0077120	Smith, M. E.	**Genetic Manipulation of Sweet Corn, Quality and Stress Resistance**	This Multistate project (NE124) involves close interaction with extension staff and the sweet corn seed, processing, pest control and food industries. The PI has a joint research/extension appointment. Educators are involved in on-farm demonstrations, field days, and development of outreach materials. Annual national meetings of researchers with representatives of sweet corn industries ensure that research outcomes are smoothly translated into commercial options as appropriate.	30,010
0096620	Gebremedhin, K. G.	**Stress Factors of Farm Animals and Their Effects on Performance**	This project (Multistate W-173) involves faculty from several institutions across the country. A portable calorimeter and new cooling system is being extended and field-tested in real-world conditions in commercial dairies in CA, MS, HI, KY and AZ. The investigator received the Henry Giese Structures and Environment Award for outstanding contributions in teaching, research and public service associated with structures and their environments.	8,499
0131837	Sanderson, J. P.	**Integrated Management of Major Bedding Plant Pests**	The investigator biennially convenes a workshop at Cornell of 30+ multidisciplinary researchers, extension professionals, and IPM scouts from 10 states in the Northeast, plus Ontario, Canada, who are involved in greenhouse IPM. Collaborations in extension and research projects are common among this group. Results from this project are shared with this group at the workshop or via our email listserve, which can lead to further collaborations and rapid implementation in northeastern U.S. commercial greenhouses.	11,000
0133342	Lorbeer, J. W.	**Nature and Management of Selected Pathogens and Diseases of Onions Grown on Muckland Soils in New York**	This project integrates applied research (development of control strategies), and extension (outreach to extension agents, IPM personnel, and growers). The applied research conducted on grower farms directly link the growers to the studies. The Orange County Vegetable Improvement Association provides a field laboratory for conducting research and extension activities. The results of the research conducted are typically reported at New York Onion Industry Council Meetings, the New York State Vegetable Conference, winter onion schools for growers, national and international research conferences, and published in peer reviewed journals.	15,000
0150629	Zitter, T. A.	**Biology and Management of Diseases of Potato and Tomato**	The PI holds a joint research/extension appointment. This project includes participants holding ongoing interest in associated outreach methods. Results of field trials are widely and directly publicized to a spectrum of audiences, via field day educational events, periodic Cornell newsletters, grower presentations, and a specialized website.	20,000

0154007	Datta, A. K.	**Improvement of Thermal and Alternative Processes for Foods**	This Multistate project (NC-136) maintains contacts in the food and food safety industry to aid in development of software for eventual industry use. Research and extension activities are closely intertwined to heighten ultimate adoption of models, software and other related applications.	10,000
0155501	Walter, M. F.	**Quantification of Pollutant Transport by Runoff from Precipitation Excess and Saturation Excess**	This project is designed to lead to the development of practical tools for use by watershed managers. The investigator is the extension leader in his department. Contact is maintained with, and updates on this project's progress are made available to, the Cornell Cooperative Extension/Cornell University Agricultural Experiment Station Water Resources Program Work Team.	7,500
0164286	Agnello, A. M.	**Refinement of Alternative Control Methods for the Management of Arthropod Pests of Apples**	This project has very well integrated research and extension components. The investigator is a member of the NYS Fruit Work Team, which develops/delivers applied research and extension programs. Results are shared with and utilized by that Team, as well as in educational sessions at the NY Fruit Pest Control Field Day. The Pest Management Guidelines for Commercial Tree Fruit Production and Apple IPM websites are used to convey findings. The project helps to provide input and advice to the US Apple Association Director of Industry Services on matters relating to pesticide use patterns, efficacy, and development for public relations and advocacy positions in interactions with federal regulatory agencies.	4,500
0165276	Bills, N	**A NYS Partnership to Manage Community Agricultural and Land Use Conflicts**	This project has several highly integrated elements. The key-informant study adds a research database to the inventory of incidents and situations already tracked by several agencies or institutions (eg. Farm Bureau, NYSDAM, NYSAMP). The research will also be used to expand the roster of potential project collaborators and possible intervention sites. Working relationships are built with core project partners, including representatives from the Community Dispute Resolution Center of Tompkins County (CDRC), the New York State Agricultural Mediation Program (NYSAMP), and Cornell's Local Government Program, School of Industrial and Labor Relations, FarmNet, and ProDairy. Collaborative training sessions take place with the Cornell Small Farms Program and Program Work Team. Additional open ended contacts are kept with NYSDAM, the NE Dairy Producers Association, the Pace University Law Center, and several other organizations concerned about farm and land use conflicts.	9,998

0165276	Bridgen, M.P.	**Dissemination of Horticultural Information to the Ornamental and Vegetable Industries on Long Island**	This project is highly integrated with respect to disciplines and approaches in both research and extension. Field staff in New York and adjacent states are involved in developing marketing strategies for crops grown on Long Island. Information that is discovered is shared with the industry throughout New York. All research is shared within Long Island, the state of New York, and the northeast United States through newsletters, bulletins, fact sheets, web sites, annual reports, the Plant Science Day, and educational programs at grower meetings. Tours to commercial operations are organized to provide growers the opportunity to see new and different approaches in production and marketing that could improve their competitive position. communities. Results from this project not only assists the farmers and professional horticulturalists in New York, but they also increased the quality of life and economic well-being of communities and individuals.	4,000
0165276	Brown, W.	**Market Strategies for Main Street Revitalization`**	This project is highly integrated, with high levels of interaction with stakeholder, extension educators, and other related research projects. The Community and Rural Development Institute at Cornell is a key working partner on this project, conducting not only research engagement efforts with agencies potentially beneficiary communities, but also leading associated outreach activities. Publications, websites, workshops, conferences, concept mapping exercises are all used to inform the research and to extend project results.	25,014
0165276	Dunifon, R.	**Parenting in Context: Integrating Extension and Research Activities**	Hatch and Smith-Lever funding to led a three-year initiative called "Enhancing Programs for Relative Caregivers in New York State" to inform Cornell Cooperative Extension programming and evaluation activities in the area of parenting education for relative caregivers involved in the CCE parent education programs. There are over 100 CCE educators in the state who carry out parenting education programs who benefit greatly from a strong connection to Cornell faculty and to research in their area. The goal with this initiative is to continue to strengthen the link between research and programming occurring throughout the state in this important area.	10,000

0165276	Eames-Sheavly, M.	**4-H Garden-Based Learning Program Leadership, Horticulture 4-H Youth Development Extension Program**	The project seeks development of a garden-based learning program that incorporates research, extension and teaching. It has developed a "citizen science" research program, and incorporates research and formative evaluation into extension activities. Coursework to undergraduates, which provides an extension experience for Cornell students, is integrated into this effort. One primary project emphasis is to work toward integrating the Department of Horticulture's extension programs in youth development and adult community horticulture, with the intent of consolidating a single 'garden-based learning' program.	10,000
0165276	Eames-Sheavly, M.	**Engaging Children in Environmental Aspects of Community Development**	This project is a collaborative and integrated effort with many in the extension system and a partnering faculty member at Bucknell University. Extension activities include training and preparing cohorts, providing support, and offering findings at a regional conference for educators throughout the middle Atlantic region at project's end. Research will focus on using multiple methods to identify practices, activities, and approaches employed during the planning and implementation of local landscapes that lead to greater youth participation and higher achievement of selected developmental outcomes among participating youth.	5,000
0165276	Galton, D.M.	**Engineering Aspects of Animal Waste Management Education**	Environmental/waste management is a major area of concern for NY dairy farms. New federal and state regulations for air and water quality are directly affecting the way that manure is being managed on farms and dairy producers need cost-effective solutions to achieve regulatory compliance. PRO-DAIRY and its allied collaborators in the Cornell Manure Management program are actively engaged in applied research and extension to provide useful solutions for New York's dairy industry. The PRO-DAIRY team traveled to over 40 different dairy farms in 2005 and had numerous one-on-one and small group meetings with dairy producers. The PRO-DAIRY team was also an active member of several state agency-sponsored work groups that are involved in CAFO regulations for NY State agriculture and a national workgroup doing business under National Milk.	10,526

0165276	Lyson, T.	**Strengthening New York's Economy and Communities through Agriculture and Food Partnerships**	This highly integrated project taps not only its own agricultural economic development research results, but also those from several Hatch and Multistate projects. The Agricultural Community Economic Development Program Work Team, an applied research and extension team of researchers, stakeholders and educators, is tapped to help identify additional and emerging topics for research treatment. Ongoing support to extension educators and other professionals working in the area of ACED is provided as part of this project, and is accomplished via a monthly e-newsletter (distributed to 160 plus subscribers), e-news flashes, a e-listserve (with 250 participants), and a web site, including an Agriculture Economic and Community Development Clearinghouse.	20,000
0165276	Pillemer, K..A.	**Workforce Development in Elder Care: An Evaluation of Innovative Training Methods**	Applied research and extension are interwoven within this project. A scientifically designed survey and concept-mapping process will provide basic knowledge about employee development needs for a variety of job categories in elder care. This knowledge will be useful and will be published in relevant outlets. The data will be used in the design of specific curricula and training materials for elder care facility workers. The investigator is the departmental extension leader in his academic department.	10,000
0165276	Stark, C. M.	**Building Capacity to Address Childhood Obesity in Low Income Communities: Linking Research and Practice**	This project uses the Comprehensive, Multisectoral, Collaboration model to link research and practice. The online professional development system will use distance technology to facilitate two-way interaction between researchers and practitioners. Research results and potential applications will be easily shared online with practitioners who in turn will inform research by communicating practice issues directly to researchers. The results of the evaluation of the effectiveness of web-based and web plus intensive support groups to build capacity will be used to disseminate tested evidence-based strategies for obesity prevention in communities. The investigator is an extension associate in the Division of Nutritional Sciences.	15,012

0170387	Nault, B. A.	**Landscape Ecology and Management of Prinicpal Arthropod Pests of Vegetables**	This project develops/refines management strategies for vegetable insect pests to improve the efficiency of management inputs and make them as safe as possible to the user and environment. Dialogue with extension faculty and educators, other stakeholders, and the vegetable crop industry is a key component part of this integrated project. A variety of approaches are used to extend project information, including face-to-face contacts with the vegetable industry at meetings, vegetable pest management articles in publications, annual updates of the CCE Integrated Crop and Pest Management Guidelines for Vegetables, annual extension In-Service Training sessions, and responding to vegetable industry questions through visits on farm, over the phone or via email.	4,500
0172506	Sorrells, M. E.	**Breeding and Genetics of the Small Grains Cereals**	This project links directly with field crops extension activities around the state. Information from this project is presented annually at field days, agent training schools and seed conferences. Annual reports are sent to all extension agents, farmer cooperators, participating companies and small grains breeders in other states.	16,000
0173770	Curtis, P. D.	**Technology Applications for Wildlife Damage Management**	This project includes direct educational efforts with Cayuga Heights, NY community leaders. It also interacts closely with state and federal agency stakeholders. The investigator is co-chair of the Human-Wildlife Conflicts Program Work Team, composed of researchers, educators and external stakeholders across NY, and uses that forum to disseminate results.	36,290
0181801	Hoffmann, M. P.	**Multistate Research Coordination**	Assume 25% of Experiment Station administrative expenses are attributable to directing and coordinating integrated activities.	13,550
0181849	Wilcox, W. F.	**Biology and Control of Fungal Diseases of Grapes and Other Fruit Crops**	Project data provided fundamental information on actions necessary for growers and advisors to control Downy mildew. Grower use of controlling compounds was extensive in the eastern US in 2003 and 2004.	5,000
0181852	Rosenberger, D. A.	**New Management Strategies for Controlling Apple and Pear Diseases**	The purpose of this integrated study is to develop/provide information for apple/pear growers that will allow them to control diseases in modern orchards (new cultivars, high-density planting systems) using new fungicides and cultural practices. Information on effectiveness of new fungicides was used by fruit farmers in deciding on the most cost-effective and environmentally sound approaches for controlling diseases in their orchards.	3,299

0183473	Shanahan, J. E.	**Mass Communication Promoting Citizen Participation for Environmental Management**	This project directly integrates extension and research components through its interactions with several environmental communications programs. The investigator is co-leader of programs focusing on public issues education about biotechnology, GEO-PIE (Genetically Engineered Organisms -- Public Issues Education), as well as on international communication aspects of biotechnology (Agricultural Biotechnology Support Project 2). He uses these programs are forums for disseminating research progress and results.	17,097
0184917	Weber, C. A.	**Improvement of Strawberry and Raspberry Cultivars**	This project works directly with stakeholder groups (NYS Berry Growers Assn., Ontario Berry Growers Assn., No. American Strawberry Growers Assn., No American Bramble Growers Assn., NYS Direct Marketing Assn.) to extend its research findings and gain input into the research process and agenda. Cultivar recommendations, production practices, and pest control options are shared with/reviewed by growers. Outreach approaches utilized include workshops, presentations, one-on-one consultations, and short-term fruit schools.	4,000
0185459	Lee, C. Y.	**Postharvest Quality and Safety in Fresh-Cut Vegetables and Fruits**	This integrated Multistate project (S-294) typically involves direct presentations to growers and crop marketing groups, including via the Empire State Fruit and Vegetable Expo and Produce Marketing Conference and the NY Wine Industry Workshop.	2,500
0186502	Worobo, R. W.	**Enhancing Food Safety Through Control of Foodborne Disease Agents**	This Multistate (S-295) project's primary extension focus is to provide training and assistance to the food and beverage industries, state and federal inspectors and specifically the fruit and vegetable based food industries that includes New York State apple cider producers. Outreach activities include workshops, conferences, Juice HACCP Certification training. Informal outreach is a significant portion of my extension which entails providing direct assistance with the various food industries, organizations and consumers. Impacts of the program are assessed by the overall safety of New York State foods and the level of compliance with state and federal regulations. To date, the investigator has trained and certified over 500 cider processors in juice safety, and as a result of it, the compliance rate with federal Juice HACCP regulations in NYS is one of the highest in the country, at over 97%.	5,000

0187473	Bellinder, R. R.	**Improved Weed Control Through Residue Management and Crop Rotation**	This Multistate project (NE1000) demonstrates all components of the research at Field Days held for growers and extension educators at Cornell research farms and at cooperating farms. Results will also be presented at multiple conferences (Empire State Fruit & Vegetable Expo, Long Island Agriculture Forum, Mid-Atlantic Fruit and Vegetable Convention, Vegetable Growers Association of New Jersey Annual Meeting, Northeast Organic Farming Association-NY annual meeting, Northeast Organic Farming Association Summer Conference) and at workshops. Results will be summarized for extension newsletters and grower publications. The investigator serves as extension leader in there academic department.	30,000
0187486	Wang, Q.	**Emotional Knowledge and Memory Across Preschool Years**	This project will generate knowledge of autobiographical memory development in cultural contexts, which can be transferred to and used by the general public in their daily lives. In order to Implement or transfer research results, the project will present findings at professional conferences, as well as workshops in and outside the community. A website is being developed to improve audience and general public accessibility to our results.	14,500
0190039	Peckarsky, B. L.	**Macroinvertebrates as Indicators of Impacts on Stream Habitat Quality: Integrating Research, Education and Outreach**	This project integrates research, teaching and outreach functions. The public outreach function improves public relations between Cornell and the rest of the community, and serve to train interested citizens about sustainable use of natural resources. The project integrates the teaching function, with undergraduate and graduate students involved in the research as parts of formal coursework. As such, this project provides opportunities for undergraduates to conduct independent or honors research projects.	10,000
0190326	Cox, W. J.	**Corn Silage Production in New York**	Research results from this project are published in the extension publications, including the newsletter, What's Cropping Up? and in the annual publication, Cornell Guide for Integrated Field Crop Management. Also, results are shared at field days, extension workshops, and through an integrated program work team of researchers, educators and external stakeholders. Also, results are shared with extension and industry personnel in New England, where resources do not exist to conduct this research.	12,000
0190519	Curtis, P.	**Management of Wildlife Damage in Suburban and Rural Landscapes**	This Multistate project (NE1005) fully integrates research and extension through the development of a research project with pre-planned extension activities. Faculty and staff working on the project regularly participate in integrated projects and can utilize this project in current and future efforts. The time/effort distribution ratio between research and extension is approximately 60:40, with the larger component in applied research.	45,000

0191175	Rutz, D. A.	**Sources, Dispersal and Management of Stable Flies on Grazing Beef and Dairy Cattle**	This integrated Multistate project (S-1005) constitutes the only veterinary entomology program in the Northeast. It is highly integrated in its functioning, with research findings regularly shared with extension staff, College of Veterinary Medicine staff, and other private veterinarians. Research results inform dairy, beef, poultry, and other livestock producers statewide. The investigator directs the Cornell Cooperative Extension IPM Program statewide. The project interacts with the Dairy and Field Crops programs housed in the New York State IPM program through both its research and extension efforts.	30,000
0191256	Smith, M. E.	**Developing Biotic and Abiotic Stress Tolerance in Corn**	This highly integrated project organizes on-farm evaluation of developed experimental corn hybrids through county and regional extension educators, who are given opportunities to engage in aspects of the research work.	55,000
0191258	Rudstam, L. G.	**Effects of Spatial Patterns on Fish Population Dynamics and Fisheries**	Project investigators include faculty with extension responsibilities to improve stakeholder implementation or acceptance of habitat management practices for improving Adirondack and Great Lakes fisheries. Workshops for researchers and agency fisheries staff in NY and VT are conducted to extend the reach of this project's findings.	25,000
0191793	Ketterings, Q. M.	**Nutrient Budgeting – Involving Farmers and their Advisors in Addressing Nutrient Excesses for New York Farms**	With a joint research/extension appointment, the PI integrates research and extension by collaboration with AEM planners and their herd nutrition counterparts to characterize the farms for whole farm N, P and K budgets and make farm visits to report results and identify areas for improvement to reduce nutrient accumulation on the farms. In addition, the results of the studies will be communicated through traditional extension events and articles and the Nutrient Management Spear Program and CALS Integrated Nutrient Management Program Work Team websites. Case studies will be used in an upper-level undergraduate course in whole farm nutrient management (AS/CSS 412) at Cornell. This effort engages many members of the INM PWT and other farming and planning community.	17,000

0193548	Siebert, K. J.	**Enhancing Food Safety Through Control of Food-Borne Disease Agents**	This Multistate (S-295) project's primary extension focus is to provide training and assistance to the food and beverage industries, state and federal inspectors and specifically the fruit and vegetable based food industries that includes New York State apple cider producers. Outreach activities include workshops, conferences, Juice HACCP Certification training. Informal outreach is a significant portion of my extension which entails providing direct assistance with the various food industries, organizations and consumers. Impacts of the program are assessed by the overall safety of New York State foods and the level of compliance with state and federal regulations. To date, the investigator has trained and certified over 500 cider processors in juice safety, and as a result of it, the compliance rate with federal Juice HACCP regulations in NYS is one of the highest in the country, at over 97%.	2,000
0193766	Seeley, T. D.	**Restoration of Feral Colonies of Honey Bees in New York State**	This project plans and utilizes a proven methodology to extend the results of its research to key interest groups, and to gain feedback for continuing research efforts. It involves not only publications via scholarly journals, but writing of articles in apiary/bee-keeping trade magazines and newsletters.	6,555
0193906	Mutschler, M. A.	**Onion Breeding: Research & Development for Onion Improvement**	Integrative applied research and extension activities are key to this program. All of the breeding, as well as multiple site testing of materials developed, are performed in grower fields with input from a spectrum of NYS onion growers in three to 4 major onion growing areas of NYS. The work also involves cooperation and coordination with a Horticulturist and Plant Pathologist at Cornell, as well as an extension educator in Oswego County. This integrative work is critical to appropriately adapting materials to NYS industry.	18,000
0194059	Drinkwater, L. E.	**Effect of Soil Fertility Management on Nutrient Dynamics, Weeds and Crop Quality During Transition to Organic Vegetable Production**	The inclusion of stakeholders in the design of the Cornell Organic Research Farm ensures that the research will apply a multifunctional approach. In addition several of the PI's (Rangarajan, Drinkwater, DiTomasso, Mohler) are involved with a project aimed at supporting organic agriculture in the Northeast recently funded by USDA/CREES/IFAFS for $1.2 million. This project includes staff from several organic-grower organizations and emphasizes building an organic research-extension network in the Northeast. The primary outcomes from will be several management tools that specifically address the needs of organic producers.	20,000

0194096	Halseth, D. E.	**Development of New Potato Clones for Improved Pest Resistance, Marketability, and Sustainability in the Northeast**	This multidisciplinary integrated project (NE-1014) taps and depends on many linkages with the NYS potato industry and with potato researchers and industry groups in other Northeastern states. A high priority is given to maintaining communication between potato growers, associated industry businesses, Extension field staff, state and federal agencies and university researchers. On-farm visits, research plots on grower farms, field-days, Extension advisory meetings, educational presentations at industry conferences and regional NE184 meetings all serve as mechanisms to help develop and evaluate research and extension program needs.	37,087
0194110	Fox, D. G.	**Refinement of the Cornell Net Carbohydrate and Protein System (CNCPS) to Improve Feed Management and Reduce Nutrient Excretion in Manure**	The CNCPS software is a tool for integrating and applying research results on farms. It is used by extension educators in teaching, trouble shooting, and demonstrations. Feeding advisors use the CNCPS routinely to improve performance on farms. Leaders work with commercial companies who provide nutritional services to farmers to use the CNCPS in their programs (e.g. Cargill Animal Nutrition, Dalex Computer Systems, ADM, Microbeef Technologies, and Future Beef Organization). The CALS Integrated Nutrient Management Program Work Team (composed of researchers, extension educators, and external stakeholders) recognizes the important role of CNCPS in improving profitability and competitiveness of New York farms while protecting the environment. The team was involved in generation of the proposal for this research, and will be a main conduit for dissemination of its results .	41,841
0194772	Butler, W. R.	**Ovarian and Environmental Influences on Embryonic/Fetal Mortality in Ruminants**	Research and extension program plans for this project (Multistate NE-1007) are highly integrated. The investigator and a collaborator in the PRO-DAIRY program (an extension and applied research team program) collaborate closely. Presentations are given at workshop conferences coordinated through PRO-DAIRY and at Cornell Dairy Nutrition Conferences. Conference audiences include nutritionists, veterinarians, agribusiness representatives and dairy producers, and emphasize current knowledge and recommendations for improving reproduction in dairy herds to improve efficiency and profitability (e.g.. demonstrating new nutritional technology). Fact sheets will be prepared for distribution by dairy Extension Staff.	38,178

0194854	Brown, T. L.	**Landscape Ecology of Whitetailed Deer in Agro-Forest Ecosystems: A Cooperative Approach to Support Management**	This project (NC-1005)is noteworthy in that integrates the end user (resource management agencies) is the research in a way that allows for development and testing of research hypotheses via adaptive experimentation. The approach and the specific findings directly benefit state deer managers trying to engage stakeholders in co-management efforts in other locations. As such, the project actually "conducts" extension activities as part of the research process.	10,000
0194855	Brown, D. L.	**Population Change in Rural Communities**	Research and extension/outreach are integrally linked in this Multistate project, W-1001. In addition to scholarly publications and presentations, the deliverables include educational materials and programs aimed at enhancing local public management. A stakeholder committee comprised of representatives of organizations and agencies with responsibilities for planning, managing and administering local development help the research committee focus the research on practical issues. Moreover, the stakeholder committee participates in planning and developing the policy briefs and white papers, and in designing and conducting policy briefings and workshops to demonstrate how demographic changes affect the design of community policy.	15,000
0195291	McGrath, M. T.	**Mechanisms of Plant Responses to Ozone in the Northeastern U.S.**	Results from this Multistate project (NE1013) are extended to farmers through annual Field Days, winter conferences, and extension articles. Information is extended to the general public through the annual summer Plant Science Day held at Cornell's Long Island Horticultural Research and Extension Center (where the research is conducted), Master Gardener training, and the media. Contacts with newspaper and television reporters have been established through previous stories on this and other topics. The investigator hold a split research-extension appointment, and, as such, these extension activities was part and parcel of proposal planning.	5,000
0195579	Schukken, Y. H.	**Mastitis Resistance to Enhance Dairy Food Safety**	This Multistate project (NE-1009) has a strong level of integration between research, extension, and user engagement components. As planned, it collects data from commercial dairies, and then feeds back the results and conclusions from the project to the dairy producers, their advisors, and involved extension educators. The true multi- state nature of this project ensures the national validity of the results for producers in New York and the US. Mastitis in heifers affects the competitiveness of US dairy farms in the global economy. Mastitis is also a threat to a safe and secure food delivery system. Mastitis is the primary reason for residues in both milk and dairy beef, and it is the leading cause of the need to use antimicrobials and development of antimicrobial resistance on dairy farms.	65,000

0195641	Tauber, M. J.	**Biological Control in Pest Management Systems of Plants**	This project (Multistate W-1185) is highly integrated in terms of how it was planned and is conducted. The national project has a large number of extension FTE. The investigator has a joint research/extension appointment, and uses several outreach channels to extend progress reports and findings of this project. These include presentations, consultations, and offering of web-based identification systems for invasive and native Phragmites australis genotypes (details at www.invasiveplants.net).	20,000
0195896	Olson, C. M.	**Rural Low Income Families: Tracking Their Well-Being and Function in an Era of Welfare Reform**	While the proposed project (NC1011) is primarily a research project, extension educators in New York and other states have been involved from its beginning in its planning and conduct. They are key to the project's developing a fuller understanding of the possible applications of the results for human service and educational programming. Related to the food and nutrition component of this project, discussions are underway on the meaning of the results for curricula and programming. This integrated Multistate project has both Policy and Extension Work Groups in which the Cornell Cooperative Extension Associate Director participates.	25,673
0197895	DeGloria, S. D.	**Soil Resource Inventory and Information Systems**	Integrated components of this project, which serve to bolster research and extension/outreach linkages, include active and direct participation in and support of two research-extension program work teams (PWTs), focusing on integrated whole farm nutrient management and field crop, soil, and pest management. Both PWTs focus on developing, implementing, and evaluating agronomic and environmentally sound management practices at farm- and watershed scales. Such management practices require fundamental knowledge and practical understanding of soil properties and behavior that may impact the effectiveness of such practices.	24,546
0197898	Halseth, D. E.	**Golden Nematode Resistant Chipping and Tablestock Varieties to Meet the Evolving Needs of the NYS Potato Industry**	This multidisciplinary project is a team effort of university, Extension, USDA, NYS Dept. of Agriculture and Markets, and potato industry participants. Cornell faculty provide leadership in breeding, nematode resistance evaluations, disease-free seed multiplication, and cultural practice research. CCE staff coordinate with growers and faculty to establish and evaluate industry trials. Growers provide field sites to give an appraisal of clonal performance. State and federal regulatory personnel integrate data on GN resistant clone performance to develop regulatory programs. (See Collaboration section for collaborators.) Educational presentations, work-groups, demonstrations, field days and industry advisory committee meetings are held to provide communication and exchange of information.	30,013

0197900	Wolfe, D. W.	**Standardized Soil Biological Assessment Protocols for Use in Soil and Crop Management**	This project is closely linked and integrated with activities of the CCE Soil Health Program Work Team, particularly on-farm soil management research/demonstration IPM-funded projects led by CCE staff-grower 'tag teams' in 5 regions of NYS, and proposed long-term soil health demonstration sites at Geneva and Ithaca. The multi-disciplinary nature of this project is reflected by the range of expertise among the project leaders: a crop ecologist with over 20 years of Extension experience in soil management of vegetable production systems (D. Wolfe, PI), a soil microbiologist (J. Thies), a plant pathologist specializing in root diseases of vegetables (G. Abawi), and a soil ecologist with experience in organic production systems (L. Drinkwater).	15,000
0197984	Gavalchin, J.	**Identification of Protective Immune Responses in Sheep after Vaccination with the Mycopar Vaccine for Paratuberculosis**	Extension aspects are well integrated into this project. The lead PI is an established investigator in cellular immunology who recently joined the Department of Animal Science. Her research focuses on the design of vaccines to modulate human disease. Co-PI Dr. Thonney is Director of the Cornell Sheep Program, which evaluates and disseminates information on management strategies for highly productive sheep systems. He also manages the Northeast Region Sheep and Goat Marketing Program which is funded by the USDA. Both of these programs will be used to deliver information about effective Johne's control programs including vaccination. Other outreach activities include the annual Cornell Sheep Short Course, quinterly (corresponding to our five lambing seasons/year) Cornell Sheep Farm Field Days, and presentations at producer and extension meetings.	11,249
0198001	Liebherr, J. K.	**Higher-Order Biodiversity Patterns of Parasitoid Hymenoptera in a New York Old-Growth Forest Fragment**	The Cornell University Insect Collection and its operation are viewed and planned as a integrated means to extend project findings to various publics. The CUIC supports on-going educational activities in 4-H, as well as the identification and diagnostic activities supported by Cooperative Extension.. Enhancing the holdings of the CUIC will permit greater added value to those activities.	9,000
0198003	Earle, E. D.	**Faster Breeding of Vegetable Crops through Doubled-Haploid Techniques**	This project is highly integrated and demonstrates close working relationships with the intended user audience. The vegetable breeders will select the plant materials for use in the laboratory portion of this project. Their selection will be based on their breeding goals, which in turn are determined through interaction with stakeholders. The materials that are developed in the lab will be returned to the breeders, who will use them in their testing programs from which they receive feedback from the stakeholders. Thus the project goes full cycle from the public back to the public.	7,500

0198004	Knuth, B. A.	**Human Dimensions Inquiry to Improve Community-based Wildlife and Natural Resources Management**	Two of the investigators, Decker and Brown, have explicit extension effort within their appointments. Other investigators (Knuth, Enck, Lauber) engage regularly in outreach and interaction with extension staff and with various stakeholders who would benefit from the information produced from this project. Design of this project (e.g., selection of cases), and dissemination of results will be conducted in partnership with staff involved in related programmatic areas in the Extension program in the Department of Natural Resources, primarily in the Fish and Wildlife Biology and Management Program (e.g., wildlife damage management program; biodiversity and habitat conservation).	46,697
0198032	Schat, K.	**Genetic Bases for Resistance and Immunity to Avian Diseases**	Project collaborator Dr. Lucio, is a senior extension associate and participates in the NE-1016 Multistate group. NE-1016 has the opportunity to impact current and future directions in the poultry industry. The investigators will convey new information to the primary breeders through their participation in the annual meetings of the technical committee. Outreach to poultry producers, poultry veterinarians, and researchers is achieved through presentations at national and regional poultry meetings, and the advisory committee to the Unit of Avian Health at the College of Veterinary Medicine (CVM), consisting of poultry producers and representatives of NY State Dep. of Agriculture and Markets.	39,788
0198085	Parlange, J. Y.	**Rain-Impact Controls on Erosion and Chemical Transport in Watersheds and Agricultural Land**	This project, like all projects by this group of PI's, is directly integrated into extension training and outreach. The relationship between CCE specialists and the researchers ensures linkage between research and end-users. Specifically, extension specialists (e.g., Peter Wright, Larry Geohring - Biological and Environmental Engineering) actively interact with researchers, both formally and informally, throughout the research process and work collaboratively with researchers in the development of training and outreach materials (presentations, brochures, etc.)	11,000
0198087	McGrath, M. T.	**Improving the Understanding and Management of Diseases Affecting Long Island Vegetable Crops**	This research had good potential for being immediately useful for farmers because their needs are the driving force behind the work. The investigator's commitment (she holds a partial extension appointment) to providing information to farmers and her experience achieving this goal will ensure this happens. Research findings will be extended to farmers through presentations at extension meetings, field days at the research center and in farmer fields, extension articles, postings at Cornell's VegetableMD On-line web site, and farm visits. The later work will contribute to outreach planning and delivery by Cornell's soil health and organic program work teams.	17,000

0198143	Lawless, H. T.	**Sensory Evaluation Methods Research**	Results from this study are made public through publications and presentations at scientific meetings, in addition to a group website and newsletter. Extension workshops on sensory test methods are offered. Connections to the Food Processing Development Lab at the Food Science Department are developing, therefore pilot plant work and sensory evaluation on new products and processes could become better integrated .	12,000
0198204	Wiedmann, M.	**Mathematical Modeling of Farm-to-Table Foodborne Pathogen Transmission**	This is a highly integrated project, linking closely with veterinary and cooperative extension and also ambulatory activities at the College of Veterinary Medicine. Collaborators at the College of Veterinary Medicine provide critical linkages to the larger veterinary community in NYS and assure that our findings are communicated to veterinarians and farmers. In addition, the project works closely with the New York State Department of Agriculture and Markets to assure that findings are also distributed to food and milk inspectors in New York State.	20,001
0198223	Hudler, G. W.	**Biology and Control of Diseases of Christmas Trees in New York State**	The proposed research is a cooperative effort with New York State Christmas tree growers, Cooperative Extension educators, and faculty and students at SUNY- Cobleskill and Cornell. Many of the experiments are set up such that they can also be used as demonstration plots either on campus or in growers' fields.	21,000
0198329	Christopherson, S.	**Re-Thinking Rural Economic Development: A Creative Economy Model**	Effective outreach is one goal and an integrated component of this project. The analysis of national examples of cultural resources used as economic development tools and interviews of local rural designers are applied to a sample case study to illustrate how creative economy initiatives are or could be applied in the Finger Lakes region. This process results in a description and plan for the Finger Lakes region as well as a model for the same process to be applied in other rural regions. The tools and strategies, case, and process model are presented in oral, written, and on-line formats, working through economic development, community, and arts organizations such as Community Arts Partnership of Tompkins County and New York Main Street Association.	16,343
0198378	Lewenstein, B. V.	**Teachers and Breast Cancer: Understanding the Knowledge and Perceptions of a Population at Risk**	This activity has been proposed and planned with future effective extension and outreach interventions in mind. The Cornell Program on Breast Cancer and Environmental Risk Factors (BCERF) is part of the leadership of this proposed project, and has created a successful translational research-to-education outreach model, carried out in NYS and beyond, which is tapped as the proposed project bears results.	14,858

0198414	Harrison, E. Z.	**Connecting Farm Composts with Industry Users: Demonstrating Compost Assets with Growers**	The investigator on this highly integrated research and extension effort is a senior extension associate. The research plots developed as part of this project to investigate and demonstrate compost use are important components of the outreach to the growers, as well as to the compost producers. The project works directly with the growers to develop the research questions to be answered in research plots trials. Meeting industry-specific needs which compost use may fulfill is a goal. This project was proposed and planned with input from the Managing Wastes Program Work Team, made up of researchers, extension educators. and outside stakeholders. This team is chaired by the investigator.	12,000
0198518	Cochran, M. M.	**Evaluating the New York State School Age Care Credential**	This evaluation involves a number of multi-functional (research-extension) activities that support improving the quality of life for individual and families. For example, the evaluation team includes faculty and extension associates with joint research and extension responsibilities. The team also involves extension educators and specialists with expertise in training school age care providers. Results of the evaluation will be disseminated through multiple channels including the SACC website (part of the Cornell Early Childhood Program where the SACC program is managed), presentations for external audiences such as those at early care and education conferences (NY State Associate for the Education of Young Children), and extension meetings and conferences (the Program Work Team in Early Care and Education).	23,000
0198542	Daughtrey, M. L.	**Control of Flower Crop Diseases**	The investigator holds a senior extension associate appointment, and is responsible for extension of project results directly to establish interest groups. This work is fully integrated between research and outreach, as information obtained in trials is immediately extended to growers in presentations, newsletters, fact sheets and articles in the greenhouse trade press. Extension educators who specialize in horticulture receive information quickly through in-service education sessions.	18,340
0198625	Watkins, C. B.	**Postharvest Biology of Fruit**	The investigator holds a joint research-extension appointment, and integrates both functions in his work. Extensive collaborations with faculty, extension educators and industry are tapped in this project (Multistate project NE-1018). Extension of knowledge is by direct industry contact, the annual Cornell Storage Newsletter, and regional and statewide workshops. Other members of this multi-state project have spoken at these workshops. Integration of all activities is coordinated at an annual project meeting, and at major national meetings. Members in the project are major participants in the CA conferences, Gordon Conference on Postharvest Physiology, and national society meetings, where integrated activities are presented and discussed.	61,099

0198716	Wolf, S.	**NY Maple Sugar as a Model System for Analysis of Working Landscapes: Constructing Collective Capabilities for Stewardship Enterprises**	Project activity and information generated by the project helps to integrate research, teaching and outreach functions related to the conservation and sustainable development of private forests in New York State and beyond. The project relates directly to the mission of the Program Work Team (PWT) on Agroforestry and Private Woodland Management, identifying and disseminating information about income generating incentives for sustainable forest management. Many members of the PWT, on-campus and off-campus, are well positioned to assist with the study as it progresses to ensure it remains relevant and effective in design and execution. PWT members are also active in disseminating the information that is generated throughout the CCE network of extension educators concerned with agriculture, natural resources, and enterprise development, and in using directly it to support their respective programs. Lastly, at the suggestion of the Director of the Cornell University Agricultural Experiment Station, the project consulted with two Extension specialists on campus whose expertise complements that of the project team. These relationships allow for exploring in greater depth questions about forest management and cooperation among agricultural enterprises, two critical elements of the project.	48,444
0198743	Chase, L. E.	**Feeding Strategies for Dairy Cattle to Reduce Nutrient Excretion to the Environment**	The investigator holds a joint research and extension appointment. Proposed and planned project activities include preparation of written materials for use by the dairy industry. These typically include fact sheets and popular press articles. This information is also used in educational programs and training sessions designed for producers, Extension agents, and feed industry personnel.	8,450
0198751	Henehan, B.	**The Decision to Merge: Case Studies of New York Dairy Cooperatives**	The investigator holds a senior extension associate position. The applied research conducted under this project would be integrated with an established Extension program, the Cornell Cooperative Enterprise Program, CEP located in the Dept. of Applied Economics. Results would be presented and distributed by CEP faculty to industry leaders and stakeholders. CEP coordinates extension and outreach activities with the Northeast Cooperative Council (NECC) through a Memorandum of Understanding with Cornell Cooperative Extension and the College of Ag. and Life Sciences. The working relation with NECC provides a useful vehicle for delivering the research results to a range of stakeholders including cooperative leaders, members and staff.	4,163

0198910	Losey, J. E.	**Evaluation of New Options for Corn Rootworm Management: Impacts on Biodiversity, Ecological Functions, and Economics**	The project, as planned and proposed, is highly integrated in approach. Results from this project are used by extension personnel and others to enhance field corn Integrated Pest Management. The corn rootworm management options tested in this study are selected with input from extension and producer sources. Extension cooperators, certified crop advisors, private consultants, and agribusiness are invited to presentations of results at yearly county and regional meetings such as "Corn Congresses." Further feedback is gathered at these meetings. Other integrated extension programming includes visits to the farm test sites and incorporation of results into written materials and newsletters.	20,000
0198934	Weston, P. A.	**Managing Arthropod Pests of Woody Plants by Manipulating Plant Defensive Chemistry**	This highly applied research effort in also highly integrated. Growers, landscape managers, and extension educators are invited to view research plots, and results of research are shared with end-users and extension personnel at a variety of extension and industry meetings (annual in-service training sessions for extension educators, as well as industry meetings organized by extension personnel and trade groups throughout the state). In addition to publishing results in scientific journals, results are made available to end-users via lay publications, in both print and electronic formats.	10,000
0198935	Hrazdina, G.	**Postharvest Biology of Fruit**	The investigator holds a joint research-extension appointment, and integrates both functions in his work. Extensive collaborations with faculty, extension educators and industry are tapped in this project (Multistate project NE-1018). Extension of knowledge is by direct industry contact, the annual Cornell Storage Newsletter, and regional and statewide workshops. Other members of this multi-state project have spoken at these workshops. Integration of all activities is coordinated at an annual project meeting, and at major national meetings. Members in the project are major participants in the CA conferences, Gordon Conference on Postharvest Physiology, and national society meetings, where integrated activities are presented and discussed.	10,000
0199252	Van Amburgh, M. E.	**Management Systems to Improve the Economic and Environmental Sustainability of Dairy Enterprises**	This multi-state, regional project (NC-1119) is an inherently integrated activity. The personnel involved in this project are state extension specialists and research and teaching faculty, thus the approaches taken to develop this work uses an integrated approach. Also, the dairy industry--and specifically the calf milk replace industry-- is an integral part of the information dissemination process, and partners with us to help improve calf feeding and management programs. For example, over the course of a single year, over 2000 dairy producers and industry professionals around the country have been directly briefed on calf nutrition research supported partly by the NY State Ag Experiment Station, with the support of Land O'Lakes, Inc.	23,485

0201287	Schneider, R. L.	**Evaluating Roadside Ditch Systems for Improved Water Resource Management and Implementation of EPA Phase II Stormwater Regulations**	This project was the result of an integrated special call for land use/water management proposals issued by Cornell Cooperative Extension and the Cornell University Ag Experiment Station. Throughout this project, research activities are integrated with extension efforts to ensure that the insights gained will be transferred rapidly and easily to the management community. The project partners with three key stakeholder groups, the Cayuga Lake Watershed Program, the Central Finger Lakes Planning Board, and the Ithaca Town Planning Board, to get their assistance with selection of sites and appropriate management practices. Management recommendations are developed via a process of summarizing and sharing the research results, and then working with these collaborators to geenerate the recommendations. The greatest extension efforts will be conducted in yr 3, when we conduct a more targeted extension program for highway road crews, Soil and Water Conservation District staff, and the other stakeholders who will most directly use this information.	62,949
0201580	Camp, W. G.	**Reconceptualizing Agricultural Education for New York State: Increasing Emphasis on Science, Accountability and Accreditation**	This project is deeply integrated in its goals and approach. Research results are directly applied to and integrated into a reordering of how the state's land grant institution and the state itself carries forth agricultural education in the classroom and through extension programs. Such outreach programs as LEAD-NY (designed to educate ag industry leadership); Agricultural Outreach and Education (AOE; designed to enhance k-12 ag awareness and literacy); and Ag in the Classroom (AITC) are essential elements of this project that benefit from its findings.	36,733
0201586	Gebremedhin, K. G.	**Systems Approach to Engineering Post-Frame Buildings for Maximum Profitability**	This project is an excellent example of research-extension integration. In developing new hypotheses and design procedures, the investigator interacts directly with practicing architects, builders and engineers, and presents full-scale building test results to such practitioners via the National Frame Builders Association annual conference and their trade national magazine.	5,000

0201778	Laquatra, J.	**Sprawl and Residential Preferences: Investigating and Building Educational Strategies on New Understandings of Land Use**	This project was the result of a successful proposal prompted by a special call for integrated research and efforts relating to land use management. Through access to research findings and outreach activities built into this project, community leaders gain a better understanding of market forces and demographic trends that contribute to sprawl development. The project's in-service education and other outreach components enable community and government capacity building for developing effective and collaborative land use management approaches and policies. Extension educators are afforded insights into the development of policies that accommodate preferred residential siting practices in ways that enhance environmental sustainability. They are thus better informed about the complex issues involved in this area and will be well positioned to lead individuals, community groups, and leaders in activities that result in environmentally sound land use decisions.	52,840
0201946	Hairston, N. G.	**Lake-Water Clarity: Determinants of the Spring Clear-Water Phase in Two New York State Lakes**	This integrated project utilizes direct contact with lake users, shoreline residents, and riparian owners to both assess their local observations of water clarity changes, and to subsequently direct or redirect research efforts pertaining to critical events. Regular meeting with these stakeholders are held, and lakeshore newsletters are used as primary stakeholder communication avenues.	15,000
0202155	Gillespie, G. W.	**Factors Influencing Viability of Small and Mid-Size Dairy Farms in New York State**	In Years 2 and 3 of this integrated project, an active Extension program is undertaken to disseminate study results among farmers and to support providers via attractive extension bulletins, the Small Farm Quarterly, the CFAP Newsletter, websites, feature articles for the Northeast farm & rural press, and local and regional workshop and conference presentations. These will include: twelve case profiles of management systems on successful small and mid-size dairy farms; additional farmer-oriented media articles; a series of Discussion Guides for farmers in local dairy farmer discussion groups to improve businesses and identify opportunities for cooperation; presentations by participating farmers, researchers and CCE educators; and an Extension bulletin summarizing final research results and recommendations for farmers and service providers.	20,000

0202603	Schukken, Y. H.	**Bovine Specific Cytokine Assays to Evaluate Th1/Th2 Polarization of the Immune Response**	The integrated project has a direct impact on the ability of the agricultural community to provide a safe and secure food and fiber system. The animal diseases that are studied are the top two production-limiting diseases in dairy cattle, and have a profound impact on milk quality and safety. The proposed project involves faculty with a combined research and extension appointments. Research results are transmitted to both Cornell Cooperative Extension and directly to the dairy community. Presentations for extension groups, both in-house training and county meetings, are performed. Presentations to producers at either meetings or via industry journals are used to get the results of this work onto New York dairy farms.	23,000
0202619	Weston, L. A.	**Studies on the Interference, Spread and Genetic Diversity Encountered in Three Important Invasive Perennial Weeds**	The PI has an joint research/extension appointment .This project has strong linkages between research and extension/outreach activities. The information generated from field and laboratory research on these 8 important invasive species is directly utilized to provide educational materials for stakeholders. Anticipated educational resources include specific color fact sheets describing weed biology and management for each species, a user-friendly website with factual information regarding ecology, biology and management of invasive weeds in NY and linkages to other important sites, and a workshop to be held at Cornell University for stakeholders presenting the latest information regarding introduction, spread, ecology, biology and management of key invasive weed species across New York State. County-based extension educators help to plan and offer this workshop.	15,000
0202706	Weber, C. A.	**Developing Black Raspberry for Diversified and Sustainable Agriculture Systems in the Northeast**	Ths project works directly with stakeholder groups (NYS Berry Growers Assn., Ontraio Berry Growers Assn., No. American Strawberry Growers Assn., No American Bramble Growers Assn., NYS Direct Marketing Assn.) to extend its research findings and gain input into the research process and agenda. Cultivar recommendations, production practices, and pest control options are shared with/reviewed by growers. Outreach approaches utilized include workshops, presentations, one-on-one consultations, and short-term fruit schools.	14,500

0202742	Abawi, G. S.	**Managing Plant Microbe Interactions in Soil to Promote Sustainable Agriculture**	This integrated project (Multistate W-1147) seeks to develop or refine vegetable insect management strategies. Its extension component is dynamic abd diverse, involving (1) face-to-face contacts with the vegetable industry at meetings; (2) writing vegetable pest management articles in publications such as Veg Edge, Pestminder and American Vegetable Grower; (3) updating annually the CCE Integrated Crop and Pest Management Guidelines for Vegetables; (4) participating in the annual CCE In-Service Training session; and (5) responding to questions from the vegetable industry through visits on farm, over the phone, or via email. CCE educators arrange 6-10 formal meetings each year. CCE educators and magazine editors solicit articles and information from this project and others to include in their publications.	22,250
0202878	Gan, S.	**Elucidating the Bases of Variability of Apple Fruit Set to Chemical Thinners and the Environment**	The research effort within this project is highly integrated, as genetic analysis and fruit physiological measurements are done on the same fruit that is treated in commercial-type trials. The results then are translated for growers through existing formal extension programs, such as those carried forth by the Fruit Porgam Work Team and other extension collaborators.	9,000
0203131	Lakso, A. N.	**Reducing Barriers to Adoption of Microirrigation**	Integrated Multistate project W-1128 fully incorporates apple physiology research with extension activities. The information and knowledge generated in this project will be disseminated in several ways. One or more grower field days will be held at the Cornell Orchards in Ithaca and in western New York and Hudson Valley. The practical recommendations coming out of this project will also be presented by the PIs to growers at winter fruit schools. Because all three regional fruit extension educators are involved in this project, the information generated in this study will enable them and other Cornell Cooperative Extension educators to provide better fertilization recommendations to apple growers. In addition, the scientific information will be presented at scientific meetings, in project research reports, in New York Fruit Quarterly, in refereed journals, and on the Cornell fruit web site.	12,000

0204754	Cheng, L.	**Reducing Barriers to Adoption of Microirrigation**	Integrated Multistate project W-1128 fully incorporatesapple physiology research with extension activities. The information and knowledge generated in this project will be disseminated in several ways. One or more grower field days will be held at the Cornell Orchards in Ithaca and in western New York and Hudson Valley. The practical recommendations coming out of this project will also be presented by the PIs to growers at winter fruit schools. Because all three regional fruit extension educators are involved in this project, the information generated in this study will enable them and other Cornell Cooperative Extension educators to provide better fertilization recommendations to apple growers. In addition, the scientific information will be presented at scientific meetings, in project research reports, in New York Fruit Quarterly, in refereed journals, and on the Cornell fruit web site.	12,000
0205082	Gebremedhin, K. G.	**Development, Validation and Costs of Net Energy and Gas Production Model of Anaerobic Digesters**	Project leadership and collaborators are made of individuals working in applied research, extension and outreach, private sector consulting and farmers. A certain amount of cross-over that exists between these individuals facilitates understanding of tdiverse elements of the problem. This project specifically links ongoing research faculty in the department with applied research and outreach efforts by Cornell's PRO-DAIRY Program. This project effort is part of a larger initiative under the direction of us to ultimately develop all that is needed to make anaerobic digestion a viable, economical and sustainable system for New York State dairy producers.	10,019
0205084	Thonney, M. L.	**Management of Sheep and Goats to Improve Animal Health and Farm Profitability**	Research and extension are integrated by the fact that they encompass the same aspects of sheep and goat farming and by the involvement of project leaders and collaborators in both actvities. Dr. Thonney, having a joint research/extension appointment, is director of the Cornell Sheep Program that integrates research with extension through two extensive web sites and field days, an annual symposium, and list servers. He has a long-standing collaboration with Dr. Smith on applied animal health research and management. Dr. Chang will provide needed expertise in vaccine development. Other collaborators offer years of CCE and/or teaching experience and multiplier contacts for the dissemination of the management recommendations from project research and previously-developed resources.	11,979

0205194	Harrison, E. Z.	**The Effect of Organic Residuals on Agricultural Soil Health**	The PI, a Senior Extension Associate, has designed the research to address questions of interest to those concerned with agricultural productivity, environmental quality and management of OR. The advisors will help to ensure that the research approach is focused to answer the questions that practitioners have. The participating faculty have a history of involvement in the application of their research to practice and polity. To make the research accessible to practitioners, the research site will provide a venue for demonstrations to growers, their advisors, regulators and others. Extension materials including publications and world wide web pages will be developed. Presentations are planned at conferences attended by growers, their advisors and people responsible for sludge treatment (ie. the Water Environment Association).	25,249
0205195	Haith, D. A.	**Modeling Nonpoint Source Pollution in the Cayuga Lake Basin**	A fundamental aim of the project is to provide citizens and government agencies with the means, through the Cayuga Lake Watershed network, to understand and evaluate water pollution sources and their management. Outreach activities will be facilitated through workshops and other activities carried out by the Watershed Network. These include the posting of information on the Network's web site; newsletter articles; presentations to the Water Quality Coordinating Committees of the four counties associated with the watershed; and, sharing of information with the Finger Lakes Institute, which may find this model of benefit in studies of the other Finger Lakes.	25,000
0205242	Lemley, A. T.	**Agrochemical Impacts on Human and Environmental Health: Mechanisms and Mitigation**	The Principal Investigator of Multistate project W-1045 is a research/extension faculty member with responsibility for water quality education programs. She has twenty-five years of experience with Cornell Cooperative Extension and would work with extension faculty and extension educators at Cornell and throughout the country both during the development phases of the applied research and during implementation. Multistate project W-1045, of which this research is a part, has a strong reputation for integrated research/outreach cooperation on environmental projects.	23,000
0205309	Harrington, L. C.	**Integrated Pest Management for West Nile Virus Mosquitoes in Peridomestic Settings**	This project assimilates research and extension components. The PI has a combined research-teaching appointment. Anderson is an extension associate in Harrington's vector biology laboratory. Collaborator Rodler is a Suffolk County Pest Management Educator. Project objectives are both research and extension elated. Incorporation of extension and outreach will be achieved through the production of fact sheets, fliers, and electronic presentations, making research results accessible through our medical entomology extension web page for the benefit of our stakeholders.	12,000

0205383	Pelletier, D. L.	**Experts, Stakeholders and Citizens on Risk Advisory Committees**	This research is fundamentally concerned with how diverse forms of scientific knowledge and uncertainties might be more effectively integrated for policy analysis (via microsimulation), whether that improves the judgments of experts, stakeholder and citizens working in groups, and whether these three groups may bring differing but complementary perspectives to the analysis and development of policy. As such, this research takes place directly at the interface of science and the translation of science into policy making.	9,888
0205384	Rossi, F. S.	**Integrated Organic Management Systems for Lawns and Sports Fields**	The PI holds a joint research/extension appointment. The highly integrated nature of the project allows the information to be readily transferable. In addition, the establishment of three locations allows for statewide collaboration on the research from extension educators as well as SUNY faculty and students. Finally, the innovative communication approach to develop a web site not just to inform stakeholders but to interact with them through blogging will enhance adoption of these environmentally compatible practices.	9,996
0205460	Hoffmann, M. P.	**Ecology and Management of European Corn Borer and Other Lepidopteran Pests of Corn**	The pragmatic nature of our on-farm research in integrated Multistate project NC-205 will result in applicable knowledge and techniques. Dissemination of information is via an established network of agricultural researchers, educators and professionals. This research project will produce usable products and because the principal investigator has ajoint research/extension appointment, new information will be disseminated through fact sheets, web based literature through NYS IPM and related links, grower meetings, and agricultural in-service training. Other linkages are through retailers and crop consultants who market and utilize biological control products.	20,000
0205462	Fick, G. W.	**Whole Farm Dairy and Beef Systems for Environmental Quality**	This highly integrated, multistate project (NE-1024) includes a wide range of disciplinary scientists from about a dozen states, and one of its objectives is to continue the development of management tools for use by producers and farmer-advisors. Persons with extension and classroom teaching responsibilities are integrated into the project. Iindividual participants work on one or more field components of the total model with other personnel actually writing and testing the computer code that represents the new information. The model has been used to select areas where model refinement would significantly improve model usefulness. The annual or semi-annual technical committee meetings have been used to refine the set of management and environmental problems being investigated and subjected to simulation analysis.	5,248

0205497	Mudge, K. W.	**Gourmet and Medicinal Mushroom Production for Forest Farming in the Northeast**	This project presents an opportunity for a collaboration between campus based research and extension professionals, county extension educators and forest product entrepreneurs. The SARE-funded project that provides Extension Educators with online resources for training and sustaining local learning communities, will be used to recruit educators and landowners in NY and PA who will participate both in research and dissemination of results through the same network. The Arnot Forest will serve to train field trial participants in later workshops and self guided tours. PIs have bothe research and extension appointments and are experienced at web-based extension instructional technology (IT) and will collaborate with CCE IT staff in developing communication resources for the project.	14,000
0205499	McBride, M. B.	**Phytoremediation of Soils High in Cadmium and Zinc using Shrub Willow**	This research has particular relevance to the Natural Resources and Environment research and extension priorities, as it will investigate a management practice, phytoremediation using shrub willow, to reduce toxic metals in soils and provide for more sustainable agricultural and natural resource systems. This research has clear practical applications for remediation technologies, and for management of agriculturally marginal lands and wildlife, which will be communicated to Cornell extension staff. It is anticipated that extension bulletins and field demonstrations will be used to disseminate results from the research and to provide instructional information on the use of shrub willow species in remediation of metal-contaminated sites.	23,772
0205503	Rangarajan, A.	**Optimizing Reduced Tillage Systems for Vegetables**	By having extension educators, researchers and growers on the project team, the project has achieved integration from the start. This project idea came from the grower experts involved with the project. The combination of on farm and on station research allows for the best combination of grower experience and data based conclusions. All findings will be evaluated by the integrated team, to more effectively distill findings and lessons learned. Funding will be directed at extension educators for hosting field days, conferences and on farm research projects. The zone-tillage cart to be purchased will be available for use by extension educators at research sites and meetings. Educators will also assist in preparing case studies for publication.	18,010

0205612	Overton, T. R.	**Test Day Model Evaluation of Milking Interval Effects on Response of Dairy Cows to Frequent Milking during Early Lactation**	Research and Extension components are integrated from start to finish. For example, the extension component will begin as soon as stakeholders are involved in the planning and design process for the study because dairy producers immediately focus on how they can implement the proposed management practice on their farm, and herd service providers immediately focus on how they can translate this practice to other client farms. Another novel aspect of our approach is to integrate these producers and herd service providers directly into communicating the results through farmer to farmer learning groups and other discussion-based means.	18,120
0205655	Aneshansley, D. J.	**Development and Evaluation of Equipment for the Production and Harvesting of Biomass**	This Multistate project (NE1008) has both research and extension activities. The objectives involve both research and an application that will involve current willow farmers and equipment manufacturers. A suite of tests suitable for determining the biomechanical properties of willow are axial tension, axial compression, transverse tension, 3-point bend, 4-point bend, lateral shear, and axial torsion will be developed Demonstrations will occur during the second year at locations where the harvester will be in use and will involve local extension agents to provide a location for discussion of willow as an alternative agricultural crop. The harvester will be demonstrated at Empire Farm Days and will provide a focal point for discussion of willow as an alternative agricultural crop.	8,000
0205758	Halseth, D. E.	**Exotic Germplasm Conversion and Breeding Common Bean (Phaseolus vulgaris L.) for Resistance to Abiotic and Biotic Stresses and to Enhance Nutritional Value**	This integrated Multistate project, W-1150 has research components which work together to develop and identify white mold resistant dry bean lines suitable for NYS industry testing. Extension field staff provide the linkage between campus screening experiments and grower field trials by selecting grower cooperators. They also assist in conducting field trials, data collection, and facilitating field-days and other methods for distribution and evaluation of information. Research findings will be presented at annual dry bean meetings and in written summary reports providing outreach to NY growers and industry representatives. Growers, processors and other industry representatives are consulted for decisions on variety release and seed propagation issues.	10,000

0205958	Hattery, M. R.	**Intermunicipal Tax Policy and the Economic Vitality of New York's Non-Metropollitan Villages**	Earlier extension project work in several New York municipalities led the PI to explore the issues outlined in this research. The results of this research would be valuable for the local government extension audience in New York State. A publication would be developed , as well as web reporting and/or other venues to communicate the results of this work to local officials and state policy makers. A specific strategy would depend on the results and other factors once the research findings were completed. The results of this research will inform local tax policy in New York State and may provide guidance for changing local property tax and sales tax policy. These tax policy changes, if warranted, could have important impacts on community economic development and land use patterns around existing villages. Improved information about the consequences of the local tax system will enhance local government capacity for improved decision-making.	25,000

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding for Multistate Extension and Integrated Activities
(Attach Brief Summaries)
Fiscal Year: 2006

Select One: ☐ **Interim** **X** **Final**
Institution: Cornell University
State: New York

	Integrated Activities (Hatch)	%	Multistate Extension Activities (Smith-Lever)	%	Integrated Activities (Smith-Lever)
Established Target %		**%**		**%**	**25**
This FY Allocation (from 1088)					**8,281,973**
This FY Target Amount					**2,070,493**
Title of Planned Program Activity					
Support of integrated projects (see following pages)					**1,102,034**
Support for Program Councils and Work Teams					**10,328**
FTE-based support for integrated activity (see following pages)					**278,399**
Support for CCE-NYC integrated activities					**288,046**
Extension Administration expenditures in support of integrated activities (see following pages)					**399,498**
Total					**2,078,305**
Carryover					

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Actual Expenditures of Federal Funding (Smith-Lever) Integrated Activities
(Brief Summaries)

Proposal Number	Title	Project Goals/Objectives	Expenditure
2003-04-102	**Engineering Aspects of Animal Waste Management Education**	Develop, document, and demonstrate manure treatment and handling methods for NYS dairy farms that will allow them to effectively and economically implement their Comprehensive Nutrient Management Plans. This includes determining the nutrient and mass flows and costs for various types of treatment systems such as: anaerobic digestion, composting, and lagoon treatment.	$60,000
2003-04-106	**Engaging Children in Environmental Aspects of Community Development**	Use multiple methods to identify practices, activities, and approaches employed during the planning and implementation of local landscapes that lead to greater youth participation and higher achievement of selected developmental outcomes among participating youth. Determine what specific developmental outcomes can be correlated with project activities. Observe what groups are able to move from planning to implementation and whether this movement is perceived as 'success' by adults and/or by youth. Describe opinions, attitudes and characteristics of youth who participate in community landscaping projects.	$15,000
2003-04-109	**Agricultural Health and Safety Program**	The objective is to create and enhance Extension/outreach and research efforts in (agricultural health and safety) health and safety within New York State agriculture. These efforts will focus on the overall reduction of injuries and fatalities as well as the prevention and control of existing/emerging diseases within rural communities. Additional emphasis is being placed on disaster preparedness/recovery, rural emergency response training and working with individuals with disabilities.	$11,029
2003-04-113	**Youth Community Action**	Teen Assessment Program: Recruit a minimum of six new counties; implement annual state-wide TAP reports. Youth Community Action (YCA): Increase the voice of youth in community development; increase the accuracy and comprehensiveness of quantitative and qualitative impact data for 4-H YCA programming.	$20,000
2003-04-130	**Plant Health Education in NYS Through the Master Gardener Program**	The goal of the activity proposed is to support county-based plant health education programs with high quality educational opportunities for volunteer staff members (Master Gardeners) in the area of integrated disease management. The objective is to ensure that homeowners who get their information from county CCE offices through Master Gardeners are receiving information that is accurate and offers them the best opportunity for managing plant disease problems in a way that least threatens them and their environment.	$10,000

2003-04-156	**Implementation of Precision Feeding Approaches to Reduce Nutrient Excretion in Manure**	To increase the adoption of precision feeding through use of the CNCPS ration formulation model by the feed industry in New York; To use commercial dairy farms to demonstrate the reductions in nitrogen and phosphorus excretion that can be attained using the CNCPS model.	$9,988
2003-04-162	**Parenting in Context: Integrating Extension and Research Activities**	The goal of this project is to promote the integration of research and extension activities around parenting. This project focuses specifically on the issue of parenting in context, or the ways in which neighborhoods influence parenting behaviors.	$25,000
2003-04-209	**Workforce Development in Elder Care: An Evaluation of Innovative Training Methods**	This project merges two key CCE programmatic interests: workforce development and improving quality of life for elders. Goal: Improve performance, recruitment, and retention by creating innovative and cost-effective training for direct-service workers in eldercare (e.g., meal drivers, case managers, home attendants). Objectives: 1) conduct comprehensive assessment of training needs of eldercare workers in NYC, using survey and concept-mapping methodologies; 2) develop 5 model training curricula; 3) implement the training curricula using both conventional and web-based modalities; 4) rigorously evaluate the curricula; 5) disseminate results in NYC, NY state, and nationally. Project will involve close integration of research and outreach methodologies, based on long experience of the project leaders. The project will involve a scientific approach to needs assessment and rigorous evaluation designs to determine program effectiveness.	$30,000
2003-04-230	**Plants and Textiles: A Legacy of Technology**	Develop, maintain, disseminate, and evaluate a broad textile program for youth (Grades K-12) that focuses on fiber science, new technologies, and workforce skills; Incorporate youth development strategies and research questions into textile programs; Engage underserved audiences; Support CCE educators, volunteer leaders, and others who implement these programs.	$3,000
2003-04-240	**Building Leadership for a Productive Satisfied Hispanic Workforce**	Agricultural and horticultural employers in New York will develop an understanding of how to manage a culturally diverse workforce.; CCE educators and specialists will understand current multicultural workforce issues impacting their county or region and will conduct relevant educational programs. Current issues include overcoming the language barrier, cultural understanding, and community acceptance. ; Employers will better understand the needs of their Hispanic employees and will develop human resource strategies to meet those needs consistent with the needs of the business.; Agricultural employers and policy makers will understand Hispanic workforce issues and become engaged in immigration reform policy as it relates to the Hispanic workforce.; Employers will take a leadership role in fostering acceptance and understanding of Hispanic workers in their communities.	$28,901

2003-04-250	**Practical Management of Indoor Environmental Risks**	To engage Cornell faculty, Extension Educators, volunteers, and other external stakeholders in an effort to educate homeowners and renters about indoor environmental quality. To apply knowledge gained from two research projects, Healthy Living and Learning Environments and Practical Management Strategies to reduce Risks of Exposure to Indoor Environmental Pollutants, to teach limited resource households--through trained Peer Educators--proven techniques to minimize health risks. To work with collaborators and stakeholders in seeking funds for a statewide application of Practical Management Strategies.	$25,000
2003-04-254	**Strategic Marketing Education for the Horticultural Industries**	The overall goal of this project is to provide marketing education to improve marketing competency among industry members in horticultural industries (fruit, vegetable and ornamental sectors) and educators who work with these sectors. Specific objectives include: 1) Develop a comprehensive curriculum on strategic marketing for horticultural industries; 2) Establish a system to provide up-to-date information on market needs, customer preferences, industry competition, retail priorities, new and emerging markets, and key factors of successful marketing to horticultural industry members and educators in New York, Michigan and other Northeast states; 3) Aid horticultural industries or individual firms develop effective marketing strategies to maintain and improve their competitive market positions; 4) Facilitate collaborative learning experience and interaction among industry members and educators in New York, Michigan and other Northeast States.	$7,391
2003-04-267	**Creating New Partnerships and New Tools to Enhance Local Government Education**	Improve the capacity and performance of local governments in New York State by improving the training opportunities and information/decision-making resources available to local elected leaders and citizens; Improve the capacity of CCE to work with local government by improving CCE educators' understanding of local government and providing CCE with educational tools to use with local government.	$10,000
2003-04-271	**Fertilizer Recommendations for Field Crops: The Basis for Environmentally and Economically Sound Nutrient Management**	Our objectives are to: 1) document the research base for current Cornell University fertilizer recommendations for field crops; 2) develop a 'Cornell Field Crops Research' history publication; and 3) develop fact sheets and extension articles that aid extension educators in teaching farmers and consultants the rationale behind the Cornell recommendations for fertilizer use. Our overall goal is to improve farm profitability while protecting the environment and having the basis for our current fertilizer recommendations fully documented is essential in obtaining this goal.	$25,000

2003-04-279	**Main Street Revitalization: Building Capacity for Community Economic Development**	This is an applied research and extension initiative to assist communities with economic development and revitalization initiatives.	$15,001
2003-04-280	**Strengthening New York's Economy and Communities through Agriculture and Food Partnerships**	Provide leadership, as a campus-based coordinator/point program, for agriculture economic development research, extension, and professional development initiatives within CALS and CHE; Provide regular, on-going support to extension educators and other professionals pursuing agriculture development; Strengthen inter-agency working relationships between professionals pursuing agriculture and economic development (agriculture developers, economic developers and community developers, planners, etc.); Support public issues education on the topic of agriculture economic development.	$10,000
2003-04-283	**A NYS Partnership to Manage Community Agricultural and Land Use Conflicts**	To improve productivity and profitability of Long Island Ornamental and Vegetable Crop operations by delineating practices that reduce input costs and increase yields to boost profits; To diagnose and provide treatment recommendations for disease, insect and weed problems for businesses growing or maintaining ornamental and vegetable plants; Highlight and showcase ongoing applied research and share information about new reduced-risk plant protectant materials, IPM methods, and best management practices.	$10,000
2003-04-300	**Dissemination of Horticultural Information to the Ornamental and Vegetable Industries on Long Island**	To improve productivity and profitability of Long Island Ornamental and Vegetable Crop operations by delineating practices that reduce input costs and increase yields to boost profits; diagnose and provide treatment recommendations for disease, insect and weed problems for ornamental and vegetable plants; Highlight and showcase ongoing applied research and share information about new reduced-risk plant protectant materials, IPM methods, and best management practices.	$6,000
2004-05-104	**Youth Development in New York State: A Survey of Capacity and Need**	1) To develop a methodology and set of qualitative and quantitative research tools to assess the status of Youth Development initiatives across New York State (NYS) 2) To use these tools to assess the extent and nature of YD initiatives implemented across New York State with a focus on statewide patterns in the barriers and successes communities have encountered. 4) To create presentation and report formats which effectively address the interests of key policy, program, and research stakeholders within and outside of NYS. 3) To disseminate findings to communities, intermediary organizations, and government agencies within and outside NYS currently implementing or funding youth development initiatives.	$15,062

2004-05-107	**New York State Extension Disaster Education Network (NY EDEN)**	NY EDEN is a collaborative 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. These efforts will focus on research activities to identify statewide needs, evaluate the role of cooperative extension, and then to build an effective network across the state to improve the overall emergency preparedness and recovery abilities within communities. An additional critical objective is to increase the information availability to educators, organizations, and residents, through multiple avenues including regionalized trainings, electronic information dissemination, and hard copy disaster resource materials.	$43,000
2004-05-121	**Educating Consumers: Development of an Interactive Web Site on Drinking Water**	Review, evaluate, and update current drinking water research summaries and educational materials, with particular attention to testing, primary drinking water standards, recently added contaminants to the standards list, treatment methods, new product approaches, and certification standards for drinking water treatment units; develop, pilot test, and evaluate an interactive web site that helps consumers understand drinking water standards and testing results and leads them to specific information about their drinking water treatment needs.	$25,026
2004-05-125	**Achieving Nutrition, Health and Agriculture Goals through School-based Community Strategies**	This applied research/outreach project has 3 research goals: 1) Elucidate institutional opportunities and constraints to using NY commodities in schools, 2) Identify effective strategies for incorporating NY commodities into food service. 3) Assess impact of farm-to-school (FTS) approaches on fruit and vegetable offerings by food service and acceptance by students.	$30,000
2004-05-126	**Building Capacity to Address Childhood Obesity in Low Income Communities: Linking Research and Practice**	As a result of participation, nutrition professionals will improve their capacity to collaboratively address childhood obesity in their communities. As it relates to preventing childhood obesity. In the pilot sites, a formative evaluation will track collaboration building and outcomes (e.g., new interventions, provider practices) using both qualitative and quantitative data.	$15,008
2004-05-138	**Innovative Educational Programs for Small Farms: A Small Grants Program**	This project links directly to relevant, ongoing (and new) research on small farm operations via the Small Farms Program Work Team, its working groups and the working relationships of its members with researchers at CALS and other NY institutions. The PWT has been active in promoting and sponsoring small farm research.	$21,000
2004-05-145	**Enhancing Entomology Science Literacy**	For student research, students will learn how to portray concepts of science education suggested by American Academy for the Advancement of Science and the NYS Standards using entomology as a means for grades K-12, how to portray the effects of insects on humans and human society and how to teach about pest management based on the age and understanding of the targeted youth. For upper grades cutting edge research should be highlighted, and students	$10,000

		developing the kits will need to be aware of what this research is and how it might be used in outreach.	
2004-05-145	**Enhancing Entomology Science Literacy**	Working with undergraduate students at Cornell University, develop subject matter kits for use by teachers and other educators in K-12 education. Topics are Insect Science, Medical Entomology and Integrated Pest Management. Kits will be distributed through the Cornell Institute for Biology Teachers (CIBT) and through Cornell Cooperative Extension (CCE).	$18,000
2004-05-163	**Managing Wastes**	Improve management of organic residuals, develop and extend knowledge and enhance skills through integrated collaborative research and outreach projects; Protect human and livestock health, agricultural productivity, soil health and environmental health through research and outreach on application of residuals to agricultural lands; Develop and implement methods to engage 'non-traditional stakeholders' in research; Improve farm biosecurity by increasing the number of farms managing manure and mortalities through effective composting that controls pathogens; Protect water quality and control pathogens by substituting composting for roadside dumping of road kills; Increase markets for compost in turf mgmt, landscape construction, on farms, and in erosion control; Develop models for cooperative composting among farms, sharing equipment and joint marketing; Increase ability of CCE educators to conduct research and expand funding opportunities	$60,003
2004-05-164	**Groundwater Contamination Risk Assessment from Manure Application**	The proposed effort will develop a groundwater/wellhead risk management assessment tool which can be utilized by nutrient management planners when developing confined feeding operations and other farm nutrient application plans. An applied research and monitoring effort will be implemented to determine how best to improve and extend the usefulness of the N Leaching Index and the appropriate linkage between the groundwater risk assessment tool and the N Leaching Index recommendations.	$25,000
2004-05-182	**Watershed Education & Professional Practice: Building Collaborations among Students, Teachers, Scientists, and Planners**	The goal of this project is to facilitate collaboration among Cayuga Lake watershed (NY) students, teachers, scientists, and civic leaders in support of the following objectives: 1. High school and middle school students will learn science and develop research skills by investigating relevant local water quality and land use issues. 2. Teachers will become part of a professional network that supports innovative action-based teaching and learning. 3. Scientists will gain opportunities to interact with and disseminate their research methods and findings to interested school groups. 4. Government and nonprofit leaders will gain the opportunity to work with youth to increase civic engagement and stewardship in ways that meet curriculum needs of school classes and youth clubs.	$25,000

2004-05-213	**Developing a Feeding and Management System to Provide High Quality Beef for the Grass Finished Market**	Value added markets are increasing in the Northeast and can provide beef producers with an alternative to commodity marketing. The market for grass finished beef is growing and currently demand is greater than the supply. The production of grass finished beef requires specific nutrition and management practices for which little researched based knowledge exist. The objective of this project is to conduct research and demonstrations that will allow us to advise extension faculty and farmers in methodologies that will result in high quality grass fed beef that consistently meets consumer demand.	$13,299
2004-05-217	**Engaging Residents and Businesses in Community Horticulture**	Integrated activities include 1. Conducting research on criteria for quality improvement of garden centers, testing and applying it to garden centers of different sized operations. 2. Conducting applied research on methods for teaching residential land site assessment to community residents. 3. Linking development of upgraded learning resources to effective outreach methods.	$25,000
2004-05-234	**Building a Competent Work Force for the Horticulture Industries**	Build a competent work force by retraining or training (new and dislocated) workers so the horticulture industry can address this major limitation to business growth. Identify priority careers ladders based on industry needs. Develop a pilot curriculum that will be used to educate and train entry and middle management employees, beginning with the Green Industry careers, which includes turf (lawns, golf and sports turf) and landscape horticulture (ornamental flowers, trees and shrubs). Conduct research on viable career options and necessary competencies for success in horticulture industries	$25,000
2004-05-236	**Fiber Science and Textiles Program for Youth**	The extension component of this project develops, produces, delivers, and evaluates technology-based projects for youth. It connects with three ongoing research efforts: 1) information gathering from the NY apparel industry in regard to the workforce skills needed by employers, 2) research in the Department of Textiles & Apparel that uses the 3-D body scanner to investigate sizing systems and functional apparel projects such as those on protective sun hats and the effect of backpack weight on posture, and 3) collaborative research on the effectiveness of dissemination methods.	$10,000
2004-05-248	**NYS 4-H Horse Program Initiative**	This program is a research-based education and applied research program that draws on past and current research information from Land Grant Universities, Veterinary Colleges, Equine Research symposium or academic meetings, and research focused equine publications from all parts of the United States and the world. E.g. - West Nile virus. Educational attainment of participants will be formally evaluated.	$37,000

2004-05-259	**Health and Safety Issues Related to Textiles and Clothing**	Conduct research on textiles, clothing systems, and worker practices/attitudes with the aim of reducing the pesticide exposure of handlers, workers, and their families; Develop and disseminate user-friendly educational materials that inform the pesticide user about health risks, government regulations, textile properties, clothing systems, and personal protective equipment (PPE) maintenance; Explore opportunities and potential partnerships for developing educational programs for first responders under homeland security initiatives.	$20,000
2005-06-013	**Youth Development Program: Program, Training, and Policy Development, Department of Human Development**	Increase assets in young people from 2-3 high need communities in NY-test results, disseminate findings statewide, and sustain local programs. Initiate and strengthen partnerships with the NYS Office of Children and Family Services, Department of Health, and key state agencies in NY and nationally. Strengthen the CCE 4-H voice in state government on youth development policy issues. Co-Sponsor Annual YB conference, coordinate 10-20 Cornell Workshops, maintain membership in YB Association Training Committee. Train 20 inter-agency teams annually to conduct community-based training for 400 educators and youth workers statewide. Provide USDA Liaison support to 8 states, leadership for National CYFAR Conference, Chair Conference Research Lecture Series.	$4,200
2005-06-013	**Youth Development Program: Program, Training, and Policy Development, Department of Human Development**	Increase assets in young people from 2-3 high need communities in NY-test results, disseminate findings statewide, and sustain local programs. Initiate and strengthen partnerships with the NYS Office of Children and Family Services, Department of Health, and key state agencies in NY and nationally. Strengthen the CCE 4-H voice in state government on youth development policy issues. Co-Sponsor Annual YB conference, coordinate 10-20 Cornell Workshops, maintain membership in YB Association Training Committee. Train 20 inter-agency teams annually to conduct community-based training for 400 educators and youth workers statewide. Provide USDA Liaison support to 8 states, leadership for National CYFAR Conference, Chair Conference Research Lecture Series.	$25,800
2005-06-015	**Validation of an Existing Net Energy Production Model and Prediction of Total Annual Costs for Anaerobic Digesters**	1. Collect and analyze data from three to four existing anaerobic digesters located on dairy farms in New York State. Determine design parameters and environmental factors that significantly affect temperature maintenance of various anaerobic digester designs, and use the collected data to validate the net energy production model that has been recently developed by us. 2. Use the validated model to do in-depth sensitivity analysis of design parameters to determine optimum configurations of biogas digesters to maximize net energy production. 3. Develop an economical model that will be used to predict the total annual cost for the digester system analyzed. This model will interface with the existing	$3,000

		model so design and other changes in the anaerobic digester will be reflected by the economic analysis. 4. Convert the final net energy production plus economic model into an interactive and friendly web-based model that can be used by stakeholders.	
2005-06-030	**Management of Sheep and Goats to Improve Animal Health and Farm Profitability**	Profitability and sustainability of sheep and goat farming in New York will be improved by: 1) Developing a vaccine and management methods to reduce the incidence of pneumonia and other diseases that cause economic losses in flocks and herds with high prolificacy; 2) Encouraging the use of rotational and extended grazing; 3) Developing methods for small farms to use bulk purchases of locally produced feeds; 4) Developing and encouraging the use of recordkeeping software and economic spreadsheets to make better management decisions; and 5) Encouraging the development of marketing plans to take advantage of lucrative direct and niche marketing of sheep and goats.	$15,016
2005-06-049	**Building a CCE Community of Culturally Diverse Gardeners**	To build a stronger community of culturally diverse gardeners through Cornell Cooperative Extension with the intention of: Surveying the vast array of vegetable varieties grown by a diversity of gardeners. Using a pilot-tested on-line rating system to gather gardeners' observations about which varieties perform best in their gardens. Better informing plant breeders, seed companies, and growers of gardeners' opinions and preferences. Increasing the opportunities available for public engagement in meaningful research and two-way communication with university research teams. Through on-line resources and local workshops, serving a diverse population of gardeners that more accurately reflects the range of gardeners in New York State. Providing new delivery methods for gardeners to acquire horticultural knowledge to improve the quality of their home/school/community gardens.	$6,000
2005-06-060	**Test Day Model Evaluation of Milking Interval Effects on Response of Dairy Cows to Frequent Milking During Early Lactation**	Increased milking frequency of dairy cows during early lactation offers a rare opportunity to dramatically impact the profitability and sustainability of dairy farms in New York by substantially increasing the marginal return per cow. Furthermore, it may provide a unique opportunity for smaller dairy farms in New York to capture the economic returns from increased milking frequency over a full lactation that currently are enjoyed only by large dairy farms where milking occurs on a 24-hour basis.	$8,808
2005-06-070	**Better Crop Varieties and Quality Seeds for New York**	1. Provide the resources that farmers need to obtain high quality seed. a. Produce Foundation seed and help seed growers produce Certified seed of superior crop varieties for NY. b. Provide information to help farmers make wise seed choices. 2. Provide data to NY seedsmen, farmers, and gardeners about variety performance and gather feedback on their varietal needs. a. Share results of variety testing on NY farms and	$11,000

		experiment stations to help seed companies determine which varieties to market, seed growers decide which varieties to produce, and farmers and gardeners choose varieties that meet their needs. b. Gain feedback for plant breeders on experiences with new crop varieties and specific traits that need improvement. 3. Improve public understanding of plant breeding, crop varieties, and genetic engineering and increase awareness of the benefits derived from genetic improvement of plants.	
2005-06-078	**Nutrient Budgeting – Involving Farmers and their Advisors in Addressing Nutrient Excesses for New York Farms**	Our specific objectives are: 1) develop a user-friendly software tool that allows producers and planners to assess and track annual changes in whole farm nutrient balances; 2) implement the software on a minimum of 30 NY dairy and other livestock farms; 3) investigate the relationship between nutrient imbalance, farm business characteristics, location, crop rotation, and animal density; and 4) communicate the findings to producers while stimulating discussion on how to deal with nutrient excesses. Our overall goal is to improve farm profitability while protecting the environment. Having a clear understanding of the imbalances between farm nutrient imports and exports and the causes of the imbalance is necessary for the development of long-term solutions. Active participation by producers and consultants is essential. Farm specific descriptions or nutrient imbalances and interactive use of the software will enhance producers' ability to understand and address the excesses.	$11,005
2005-06-079	**Integrated Organic Management Systems for Lawns and Sports Fields**	1. To develop organic-based lawn and sports turf management systems to meet increasing need from public. 2. To integrate existing organic-based technologies with traditional management systems and assess performance. 3. To provide on-going reports via digital photographs and web-logs (blogs) to communicate progress and receive feedback. 4. To offer educational and research opportunity for SUNY Cobleskill student interested in sports turf and SUNY faculty with outreach opportunities.	$7,000
2005-06-083	**Gourmet and Medicinal Mushroom Production for Forest Farming in the Northeast**	Gourmet and medicinal mushrooms have potential to be a profitable part of forest farming in the Northeast. Success with shiitake mushroom suggests that research and outreach efforts directed at optimizing production and marketing of other mushroom species is worthwhile. Objectives of this project are: 1) Evaluate and develop regionally specific strategies for forest production of six species of nutraceutical mushrooms, specifically Maitake, Lion's Mane, Stropharia, Hypsizygus, Oyster and Blewit. This will include isolation and testing of local fungal strains, evaluation of substrate tree species, and optimization of seasonal timing of inoculation, management and harvest; 2) Involve forest landowners on their land in evaluation of commercial feasibility, 3) Establish	$5,000

		MacDaniels Nut Grove Forest Farm as a regional center for public education in forest mushroom production and evaluation, and 4) Create print and web based resources to promote forest production of nutraceutical mushrooms.	
2005-06-084	**Using the Framework of 'Risk' to Promote Engagement and Build Understanding of Environmental/Health Issues and Concerns**	As relates to selected environmental/health concerns, the Phase I research objective is to learn (i) how target groups understand risk and related concepts, e.g., exposure, hazard, uncertainty, variability; (ii) who are their trusted information sources; (iii) what creates impetus for change in perception, attitude and action; (iv) preferred formats for effective risk communication tools; (v) what factors promote an appropriate balance between level of concern and magnitude of risk/social impact.	$9,000
2005-06-092	**Sustainable Sugarbush Production through Educator and Producer Collaborations**	1. To expand the ability of CCE educators to work directly with campus staff and local maple producers on an applied research and associate extension project. 2. To investigate the response of maple trees on various soils and environmental conditions to varying levels of thinning. 3. To develop research-based predictions for how sugar maple trees and sugarbushes respond to thinning. 4. To improve the ability of maple producers to make decisions and take actions to increase the growth and productivity of their sugarbush.	$17,000
2005-06-106	**Optimizing Reduced Tillage Systems for Vegetables**	1) Evaluate innovative reduced or modified tillage systems for several major vegetable crops (e.g. sweet corn, cabbage, potatoes, dry beans, tomatoes and winter squash) in both on farm and research station experiments. Our target systems include zone or narrow strip tillage, ridge tillage, and primary tillage with residue retained on the surface versus conventional tillage. 2) Identify strategies to overcome several challenges to adopting reduced tillage systems for vegetables, including choosing land for transition, identifying crop sequences and appropriate cover crops, avoiding crop harvest delays, managing weeds via herbicides and high residue cultivation, and selecting equipment appropriate to small farms. 3) Modify reduced tillage approaches for use in organically managed vegetable systems. 4) Summarize grower adoption via case studies for publication on web. 5) Support growers transitioning to these systems via consulting and discussion groups.	$6,000
2005-06-108	**Developing a Taste for Healthy Weight and Healthy Farms in New York**	This applied research/outreach integrated project has the following specific objectives: 1) To determine the impact of an integrated classroom-cafeteria educational approach on student intake of targeted fruits and vegetables (f/v). 2) To assess the impact of a change in f/v intake on other more calorie-dense foods. 3) To assess the contribution of program process inputs to impacts measured in objectives 1 and 2 above: a) In two elementary schools, use of targeted locally	$2,429

		grown f/v in school meals will increase by 25 percent by the end of this three-year project. b) Extension educators will increase their engagement with schools in their nutrition and/or agriculture programming. c) Teachers will integrate four to eight lessons from the Field to Table (F2T) food-based curriculum into existing classes. d) Students will increase knowledge about the relationship between fruit and vegetable intake and healthy weight and about NYS f/v and their seasonal availability.	
2005-06-115	**Development and Evaluation of Equipment for Biomass Production**	There are four specific objectives for the project. 1. Improve harvester efficiency so that overall production costs for willow biomass crops will be lowered by 10 – 20 percent. 2. Develop a harvesting system that will produce chips with different dimensional characteristics while maintaining consistent quality. 3. Broaden the window when willow biomass can be supplied to end users by expanding the harvesting window without having a negative impact on the long term sustainability of the crop. 4. Assess the environmental and economic impacts of a new harvesting system using a previously created Life Cycle Analysis (LCA) and economic models.	$1,500
ODP111a	**NRAES (Natural Resource, Agriculture, and Engineering Service)**	The mission of NRAES is to assist faculty and staff at member universities in increasing the public availability of research- and experience-based knowledge related to natural resources, agriculture and agricultural engineering.	$15,851
ODP115	**Integrated Research & Extension Approach to Community Economic Development**	The overall objective of the Rural New York Initiative is to strengthen the engagement between research, outreach and rural development policy in NYS. Primary activities include conducting a rural visioning project and development of research and policy briefs.	$22,500
ODP132	**Distance Learning Project**	Pilot test a new collaborative approach with departmental faculty for provision of on-line outreach courses. Include assessment of learner interests and aptitudes.	$13,204
ODP134	**Community And Rural Dev Outreach And Support**	Benefit communities at the state, regional, and national levels, individual Cornell faculty, staff, and students, by accomplishing the following objectives: Foster communication and collaboration among existing community and rural development research, extension, and teaching programs at Cornell, and monitor trends in community and rural development. Serve as a point of entry to Cornell for policymakers, practitioners, and faculty and academic staff at other institutions interested in community development.	$18,000
ODP135	**Director of Development NYC travel support**	Explore funding sources for applied research and extension efforts relevant to priority needs of metropolitan New York.	$13,500

ODP136	**A Needs Assessment to Inform Development of NYS Program & Policy for Anti-Obesity Initiatives**	Add to the Empire State Survey, for the next three years, twenty questions per year on whether respondents support specific anti-obesity initiatives endorsed by the IOM report. Some of the 20 questions may solicit information on the respondent's weight and perception of their weight and other information that may be related to their policy opinions on this subject. The deliverables of the project will be: annual dissemination reports such as fact sheets or briefs, and through input into extension program and professional development. The reports will be disseminated to county extension educators for their use and use with collaborators and audiences, local and state policymakers and other stakeholders, and the Institute of Medicine.	$30,001
SC2004-05-1	**Investigating Roadside Ditches for Water Resource Management and Implementation of EPA Phase II Storm water Regulations**	The overall goal of this integrated research/extension project is to comprehensively and holistically investigate the contribution of roadside ditches to downstream surface waters and to conduct an appropriate outreach program that will ultimately decrease associated impacts to New York's water resources.	$34,962
SC2004-05-2	**Sprawl and Residential Preferences: Investigating and Building Educational Strategies on New Understanding of Land Use**	Specific goals of the project are: 1) to quantify the interplay among a) land use policies, b) residential siting c) revealed and stated housing preferences, and d) demographic trends, including the aging of New York's population; 2) to determine the educational needs in this area of Extension Educators, local government officials, and other stakeholders; 3) to develop and implement a stakeholder educational strategy.	$24,248

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding (Smith-Lever) Integrated Activities
(Brief Summaries)

Our primary funding mechanism for integrated applied research and extension programming is through the annual project proposal funding process detailed on previous pages. We do, however, distribute on a formula basis modest amounts of Smith-Lever funding to academic units at Cornell for support of integrated activity. These can be viewed as enabling or "capacity" funds that facilitate participation of faculty and senior staff, many with responsibilities primarily in research or resident instruction, to work collaboratively with extension staff. Our current practice is to make the funds available on an FTE equivalent basis as follows: $5000 per FTE equivalent professorial position, $3000 per senior associate level position, and $1000 per associate. This resulted in a total expenditure of $278,399 in FY06. Since the funds typically are small amounts, we do not request project reports or proposals. The allocations for FY06 and the content areas of the persons involved are listed below. Also included at the end of this table are expenditures through our New York City unit ($288,046) and within Extension Administration ($419,826) in direct support of integrated activities.

Name	Title	FTE		Integrated Activity
Applied Economics and Management				
Boisvert, Richard N	Professorial	0.05		Production economics to agricultural, natural, and human resource problems
Lee, David R	Professorial	0.05		Agricultural policy, international trade, and research and technology policy
Mount, Timothy D	Professorial	0.05		Econometric modeling and policy analysis relating to the use of fuels
Chapman, L Duane	Professorial	0.2		Environmental economics
Novakovic, Andrew M	Professorial	0.2		Dairy market economics, diary policy, agricultural policy, agricultural tra
LaDue, Eddy Lorain	Professorial	0.3		Agricultural and small business finance
Lesser, William Henri	Professorial	0.3		Technology transfer, food Marketing
Bills, Nelson	Professorial	0.5		Agriculture and the environment, farmland protection, and ag-based economic development
Knoblauch, Wayne A	Professorial	0.5		Economic analysis and decision making skill of farm managers
Henehan, Brian M	Sr Extn Associate	0.8		Management and marketing for agricultural business with an emphasis on cooperatives; business structure planning
Uva, Wen-Fei	Sr Extn Associate	0.9		Horticultural business management and marketing; value added horticulture
Stephenson, Mark W	Sr Extn Associate	0.97		Dairy market economics, dairy policy; dairy product value enhancement
Biological and Environmental Engineering				
Scott, Norman	Professorial	0.2		Biothermal engineering for plants, animals, and humans
Bartsch, James	Professorial	0.3		Postharvest storage of horticultural crops
Timmons, Michael	Professorial	0.3		Aquaculture
Geohring, Larry	Sr Extn Assoc	0.8		Water management
Irwin, Lynne	Professorial	0.9		Road engineering

Crop and Soil Sciences				
DeGloria, Stephen D	Professorial	0.16		Resource inventory and analysis
Bonhotal, Jean	Extn Associate	0.15		Waste Management
Ketterings, Quirine M	Professorial	0.7		Nutrient management in agricultural ecosystems
Cherney, Jerome H	Professorial	0.7		Forage crop management
Cox, William J	Professorial	0.7		Grain crop management
Hahn, Russell R	Professorial	0.75		Weed management in field crops
Harrison, Ellen	Sr Extn Assoc	0.95		Waste management
Animal Sciences				
Oltenacu, Pascal A	Professorial	0.1		Dairy cattle management, genetics
Pollak, John	Professorial	0.1		Statistical and quantitative genetics, breeding
Thonney, Michael L	Professorial	0.1		Growth and development, ruminent nutrition, skeletal growth
Bell, Alan W	Professorial	0.3		Nutritional physiology, pregnancy and growth
Galton, David M	Professorial	0.3		Dairy cattle management
Everett, Robert W	Professorial	0.5		Statistical and quantitative genetics, dairy cattle breeding
Overton, Thomas R	Professorial	0.6		Nutritional physiology, dairy cattle nutrition and management
Chase, Larry E	Professorial	0.7		Dairy cattle nutrition
Smith, R David	Professorial	0.8		Reproductive physiology, small farms
Communication				
Scherer, Clifford W	Professorial	0.24		Risk communication
Education				
Camp, William	Professorial	0.34		Teaching and learning
Caffarella, R. S	Professorial	0.34		Adult learning and development
Entomology – Ithaca				
Tingey, Ward M	Professorial	0.2		Development and nature of crop resistance to insects
Calderone, Nicholas W	Professorial	0.35		Apiculture, host-parasite interactions, insect population genetics, sociobiology
Weston, Paul A	Sr Extn Associate	0.35		Woody ornamental entomology, IPM
Rutz, Donald A	Professorial	0.5		Veterinary entomology, livestock and poultry IPM, biological controls
Sanderson, John P	Professorial	0.5		Floricultural entomology, IPM
Hoffman, Michael P	Professorial	0.65		Vegetable IPM, biological contro, sociochemical development and application
Shields, Elson	Professorial	0.5		IPM, population ecology, computer applications in agriculture
Hoebeke, E Richard	Sr Extn Associate	0.9		Systematics of Coleoptera, exotic pest detection
Food Science -- Ithaca				
Hotchkiss, Joseph H	Professorial	0.05		Packaging, chemistry, toxicology
Lawless, Harry T	Professorial	0.05		Sensory evaluation methods; taste and smell perception, flavor chemistry, sensory-instrumental correlations
Miller, Dennis D	Professorial	0.05		Food chemistry, mineral nutrition, iron bioavailability
Regenstein, Joe M	Professorial	0.1		Seafoods and aquaculture, poultry, waste management, food law, kosher and halal Requirements
Barbano, David M	Professorial	0.2		Cheese and dairy processing technology; testing methods for producer payment
Boor, Kathryn J	Professorial	0.6		Dairy and food microbiology and safety
Gravani, Robert B	Professorial	0.7		Food microbiology; food safety and sanitation, regulatory training, consumer information, GAPs
Brown, David P	Sr Extn Associate	0.8		Dairy technology, frozen desserts, quality control

Horticulture -- Ithaca				
Merwin, Ian A	Professorial	0.05		Pomology - orchard management and International Agriculture
Drinkwater, Laurie E	Professorial	0.1		Agroecology, nutrient cycling processes, and sustainable soil management
Miller, William	Professorial	0.15		Floriculture; specializing in bulbs and herbaceous perennials
Wien, Hans C	Professorial	0.15		Cut flower and vegetable production
Whitlow, Thomas	Professorial	0.2		Urban horticulture
Mudge, Kenneth	Professorial	0.25		Plant propagation
Weston, Leslie A	Professorial	0.25		Weed management in landscape, nursery crops, and turfgrass settings
Bassuk, Nina L	Professorial	0.3		Management of woody plants in the landscape/urban horticulture
Cheng, Lailiang	Professorial	0.3		Nutrient management in fruit crops
Petrovic, A. Martin	Professorial	0.3		Nutrient management in turfgrass
Wolfe, David W	Professorial	0.3		Soil quality in vegetable cropping systems; effects of climate change
Bridgen, Mark	Professorial	0.4		Floriculture; new crop development
Pritts, Marvin P	Professorial	0.45		Berry crop management
Watkins, Christopher	Professorial	0.5		Postharvest management of edible crops
Bellinder, Robin R	Professorial	0.55		Weed management in vegetable and fruit crops
Good, George L	Professorial	0.6		Nursery crops
Rangarajan, Anusuya	Professorial	0.6		Organic and conventional vegetable production
Ellerbrock, Leroy A	Professorial	0.7		Vegetable crops
Rossi, Frank S	Professorial	0.7		Turfgrass management
Halseth, Donald E	Professorial	0.75		Cultural practices for potatoes and dry beans
Natural Resources				
Knuth, Barbara	Professorial	0.15		Community-based natural resource management, human dimensions in natural resource management
Lassoie, James P	Professorial	0.2		Forest biology and management, agroforestry
Blossey, Bernd	Professorial	0.3		Invasive plant control
Trautmann, Nancy	Sr Extn Assoc	0.33		Natural resources youth education
Buck, Louise E	Sr Extn Assoc	0.25		Agroforestry
Schneider, Rebecca L	Professorial	0.4		Sustainable water resource management
Kraft, Clifford E	Professorial	0.4		Warm and cold waters fisheries
Krasny, Marianne E	Professorial	0.6		Natural resources youth education
Curtis, Paul D	Professorial	0.7		Nuisance wildlife management
Gavin, Thomas	Professorial	0.1		Wildlife management
Goff, Gary	Sr. Extn Assoc	1.0		
Plant Breeding and Genetics				
Mutschler, Martha A	Professorial	0.1		Tomato and onion breeding
Sorrells, Mark E	Professorial	0.1		Small grains breeding and variety testing
De Jong, Walter	Professorial	0.3		Potato breeding and variety testing
Smith, Margaret E.	Professorial	0.5		Corn breeding and variety testing, variety choice in field crops, quality seed, and genetically engineered crops
Plant Pathology – Ithaca				
Lorbeer, James W	Professorial	0.2		Disease management of crops grown on organic soils
Hudler, George W	Professorial	0.3		Disease management of trees and shrubs; Christmas trees
McGrath, Margaret T	Professorial	0.6		Disease management of vegetable crops
Bergstrom, Gary C	Professorial	0.7		Disease management for field crops
Zitter, Thomas A	Professorial	0.7		Disease management for vegetable crops
Daughtrey, Margery	Sr Extn Associate	0.8		Disease management in ornamentals

Developmental Sociology				
McMichael, Philip D	Professorial	0.1		Political sociology, development sociology
Glasgow, Nina	Sr Extn Associate	0.25		Aging
Eberts, Paul	Professorial	0.75		Local leadership development
Hirschl, Thomas	Professorial	0.75		Poverty and inequality, Teen Assessment Program
Human Development				
Ceci, Stephen J	Professorial	0.15		Delivering judicial training concerning children's testimonial competence, and preparing curricula for judges and lawyers
Eckenrode, John J	Professorial	0.17		Child abuse and neglect
Whittington, MaryEllen	Extension Associate	0.5		Multi-cultural education
Cochran, Moncrieff M	Professorial	0.5		Families with young children, early care and education supports
Pillemer, Karl A	Professorial	0.5		Conducting randomized control trials to improve staff retention and quality of care in nursing homes; professional development of elder care staff; investigator and community development concerning issues in aging, life course development, intergenerational care, health and long-term care, intervention, and policy
Williams, Wendy	Professorial	0.5		Developing, disseminating, and evaluating educational outreach programs for traditionally underrepresented youth
Hamilton, Stephen F	Professorial	0.6		Youth voice and involvement
Policy Analysis and Management				
Burkhauser, Richard V	Professorial	0.2		Retirement and disability
Dunifon, Rachel	Professorial	0.5		Child and family policy
Trochim, William M	Professorial	0.5		Program evaluation systems
Pollak, Patricia B	Professorial	0.7		Housing and community development
Colosi, Laura J	Extn Assoc	0.4		Community leadership development
Design and Environmental Analysis				
Becker, Franklin D	Professorial	0.05		Workplace studies, workplace strategies to leverage people, space, technology and finance resources
Laquatra Jr., Joseph	Professorial	0.6		Sustainable housing, energy efficiency, indoor environmental quality
Textiles and Apparel				
Coffman, Charlotte	Sr Extn Assoc	1.0		Protective clothing
Lemley, Ann T	Professorial	0.5		Water quality
Loker, Suzanne	Professorial	0.6		Apparel industry
Heidekamp, Annelies	Extn Assoc	1.0		Water quality
Division of Nutritional Sciences				
Bisogni, Carole A	Professorial	0.2		Application of consumer food choice research in community nutrition programs; program evaluation
Olson, Christine M	Professorial	0.2		Food insecurity; obesity prevention in pregnant and postpartum women; Cornell NutritionWorks team member
Devine, Carol M	Professorial	0.75		Nutrition for women, work-family nutrition, environmental obesity prevention, Breast Cancer and Environmental Risk Factors, Cornell NutritionWorks
Wilkins, Jennifer	Sr Extn Assoc	1.0		Food insecurity, farm to school
Entomology -- Geneva				
Nault, Brian	Professorial	0.4		Landscape ecology and vegetable entomology
Peck, Daniel	Professorial	0.4		Soil insect ecology and turfgrass entomology
Reissig, William	Professorial	0.2		Biology, ecology, management of arthropod pests of apples and pears

Shelton, Anthony	Professorial	0.2		Vegetable entomology and pest management
English-Loeb, Gregory M	Professorial	0.3		Ecology and management of arthropod pests of small fruits and grapes
Straub, Richard W	Professorial	0.35		Arthropod pests of fruit and vegetables in eastern NY
Agnello, Art	Professorial	0.7		Tree fruit extension entomology and IPM of fruit arthropod pests
Landers, Andrew	Sr Extn Associate	0.75		Pesticide application technology
Food Science -- Geneva				
Acree, Terry	Professorial	0.15		Flavor chemistry
Roberts, John	Professorial	0.2		Fruit and vegetable processing
Worobo, Randy W	Professorial	0.4		Food microbiology, pathogens and spoilage organisms
Henick-Kling, Thomas	Professorial	0.6		Enology, viticulture, vinification
Padilla-Zakour, Olga I	Professorial	0.7		Food processing
Lee, Chang	Professorial	0.1		Food chemistry
Plant Pathology -- Geneva				
Fuchs, Marc	Professorial	0.2		Viral diseases of fruit and vegetables
Abawi, George	Professorial	0.2		Vegetable pathology, integrated disease management, soil health
Rosenberger, David A	Professorial	0.3		Tree fruit diseases and postharvest diseases
Smart, Christine	Professorial	0.4		Vegetable diseases, plant-pathogen interactions
Wilcox, Wayne F	Professorial	0.5		Grapevine diseases
Turechek, William	Professorial	0.6		Tree fruit and berry pathology
Horticulture -- Geneva				
Pool, Robert	Professorial	0.2		Vineyard management and vine physiology
Weber, Courtney	Professorial	0.2		Berry variety trialing and production practices
Robinson, Terence	Professorial	0.6		Tree fruit crop management and applied physiology
Reiners, Stephen	Professorial	0.8		Vegetable stand establishment, soil fertility and variety selection
CCE-New York City: Salary support for integrated activities.				
J.Davis-Manigaulte	Family & Youth	0.25		Family & Youth Development - Addresses the developmental needs of youth and offers individuals, families, and young people support through positive life choices and opportunities.
A.Hajee	Family & Youth	0.20		
P.Warner	Family & Youth	0.25		
N. Mitchell	Family & Youth	0.20		
G Ferenz	Urban Environment	0.25		Urban Environment - Develops and implements educational programs using innovative, science-based, hands-on learning strategies that enable diverse audiences to take action in local environments.
D. Bader	Urban Environment	0.25		
J.Ameroso	Incubator	0.20		Incubator - Explores and develops programs in community, energy and food security that can be placed into existing Program areas after one to two years of development.
J.Nettleton	Incubator	0.5		
J. Vernet	Incubator	0.5		
L.Ameroso	Nutrition & Health	0.25		Nutrition & Health - Helps New York City residents of all ages make informed decisions related to food and nutrition, health, fitness, resource management, food safety, parenting and health care.

Extension Administration: Expenditures in support of integrated activities		
eXtension	Annual assessment making participation in eXtension Communities of Practice available to research and extension faculty and staff for collaborative work.	$60,000
Administrative Support	Partial salary support for administrative professionals involved with administering funding for integrated activities and the associated annual proposal and reporting processes.	$50,561
Area Program Team Leader Salary	All of our area program team leaders have departmental affiliations and are expected to conduct integrated applied research and extension activities. Content areas include commercial vegetables, commercial fruit, dairy industry and field crops.	$241,055
Joint Salary Support with CUAES	Partial salary support for CUAES assistant directors and administrative professionals involved with administering funding for integrated activities and the associated annual proposal and reporting processes.	$37,381
CCE Wide Area Network Support	Our statewide video-conferencing system of 31 sites directly enables collaborative efforts of campus-based researchers with extension educators across the state.	$10,000
Travel Support for Integrated Initiatives	This travel allocation is for the Assistant Director CCE/Cornell University Agricultural Experiment Station for participation in regional and national planning and coordinating activities.	$501
Support for Applied Research and Extension Program Councils and Work Teams		
Our research/extension Program Work Teams (PWTs) are described specifically in the Stakeholder Involvement section of this report. Additional information is available at: http://hosts.cce.cornell.edu/admin/pwt/ During FY05, $15,768 of S-L funding was provided for PWT projects and activities.		$10,328