# Cornell University
# FY05 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, 2006

**FY2005 Annual Report**
**Cornell University**

**Table of Contents**

## 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. Those 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 new CSREES goals. The conversion back to the older goal framework for this report is less than perfect as pertains to expenditure and effort data.

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. As required this year, 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 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 indicators, we report results for FY 2005 followed by the plan of work target result. Nearly all research indicators were met or exceeded but there was wide variability in meeting targets for patents. In some cases, they were greatly exceeded in others they missed by a few. That has been our experience with this particular indicator – there is significant fluctuation annually. Most extension indicators were met or exceeded, some of them significantly. Several, however, were not met. Indicators 1.3.1 and 5.5.4 relate to agriculture policy and child-care policy education respectively. As was reported last year, the reduced numbers, reflect a strategy shift from broad community awareness activities to focused work with key decision makers. Four other indicators for which we missed targets (3.3.2, 3.5.1, 5.1.3, 5.2.2) relate to health policy, public issues education, and family finance. In these cases, we lost significant faculty resources to support major programming in these areas and are in the process of reassessing our roles in these areas. The targets may well be too high given current resources. Lastly, indicator 4.3.1 relates to biodiversity awareness programming and was new for this reporting period. We believe that several important programs that might have been included here (e.g., invasive species programming and agroforestry programs) were not captured. We will try to address this through improved reporting instructions.

Also included are selected impact statements and short program descriptions to convey the nature of programming within each goal area. We did not attempt to communicate in detail the work within or across goals. Rather, we selected examples to provide a broad view of our efforts related to each goal and to provide examples that demonstrate influence of stakeholder involvement, the latter a request of prior report reviewers. We received over 500 impact statements from research and extension faculty and off-campus educators via annual reporting. The scope of those reports obviously is very broad. We selected about 65 items from both research and extension to illustrate primary themes of our work for 2005. This is considerably more than were included in previous reports in part because we are responding to comments on our 2004 report that asked for more specific illustrations of adaptation of programs to particular audiences. To keep the volume somewhat reasonable, we used a combination of complete stories and briefer program summaries.

While priority was placed on examples that include documented outcomes and impacts, a few stories are included that describe promising new initiatives and/or new program partnerships as evidence of the dynamic nature of our programming. Others included illustrate the value of federal formula funds in “seeding” 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. Reviewers of our 2004 report recommended including key themes and funding sources with the narrative examples. Themes are identified for each story using Version 1.0 of the CSREES Knowledge Area Classification System for Research, Education, and Extension. There are more narrative examples included for Goal 5 than for any of the others. This broad goal cuts across three of our major initiatives and a fuller set of examples was required to give an accurate sense of our work.

Reviewers of our 2004 annual report commented, “Programs of multi-county or state-wide scope that can be aggregated could add strength to the reports.” This is done through the indicator data which captures output and outcome data on a statewide basis. In addition, many of the research narratives have statewide elements…if not multistate or national. For extension, we included a

number of narrative reports that represent statewide activity (*Achieving Nutrition, Health and Agriculture Goals through School-Based Community Strategies; Collaborative Extension and Research Efforts Enhance Forest and Woodlot Owner Agroforestry Production; "Empower New York" Financial and Energy Education; Nutrition Education through EFNEP and ESNY!, Hands-On Water Education for Teachers; Relatives as Parents; Extending Resources to Enrich Afterschool Programs*) and a number of multi-county efforts (*Invasive Species: Controlling Swede Midge; Farming and Environmental Stewardship: Productive Conservation; Biosecurity Through Dairy Herd Health Management; Farm to Chef Express: New Business Established; Regional "Come Farm with Us" Marketing Effort*). Having said that, the significant majority of narratives included for extension are, in fact, representative of local efforts. In one sense, that is a very true picture—ours is primarily a locally driven system. At the same time, we recognize need to strengthen aggregation of outcome information significantly. We have identified four signature programs, are recommending standard evaluation strategies, and have begun to aggregate reporting data around those broad themes. We should be in a position to start incorporating that data in the next annual report. In addition, we see development of the FY07-11 plan of work as a major step toward enhanced accountability at the system level and are investing significant effort in outlining statewide evaluation strategy and resources.

The process for receiving and considering input from stakeholders, described in Cornell University's 5-Year Plan of Work and in the Annual Reports of Accomplishments and Results, also pertains to projects supported by Hatch, McIntire-Stennis and Animal Health and Disease research funds. The Stakeholder Involvement section of this report outlines how our program development process enhances a long tradition of effective stakeholder involvement. Approaches for stakeholder involvement continue to evolve based on feedback from participants and changes in approach are described in the stakeholder section. At least 10 of the impact examples included in this report include specific efforts to reach underserved populations (*Hispanic Workforce Training; Gardens for Low Income Residents; Nutrition Education through EFNEP and ESNY!; Elder Nutrition Program; Helping Birth-Infected Teens Deal with HIV; Connecting Youth and Elders through Garden Mosaics; Study of Latino Immigration in Rural Areas Determines Keys to Community Assimilation; "Empower New York" Financial and Energy Education Program; Seaway Trail Even Start Family Literacy Program; Harlem Teens Present Findings at National Academy of Sciences Symposium*).

Reviewers of our 2004 report asked for "specific illustrations of how under-represented or under-served audiences are specifically targeted for input, and if they are, how many provide input out of the total number providing input, and how their input is considered. We pose the same question regarding youth input." By definition, "under-represented or under-served" audiences are unlikely to be strongly represented among existing advisory bodies. One of the most effective strategies for gaining input and developing working relationships is by networking and partnering with organizations that do have credible relationships with target groups. Our local boards of directors and advisory committees include at least 300 such representatives statewide. Such organizational ties often lead to creative partnerships to engage under-served groups. There are multiple examples of successful implementation of this approach among the narrative reports included for all five goals. Examples include *Hispanic Workforce Training, Elder Nutrition Education Program, Helping Birth-Infected Teens Cope with HIV, Connecting Youth and Elders through Garden Mosaics, Parents Involved in Education, and Cortland Literacy is a Family Experience (LIFE) Program.*

Once credible and respectful relationships are established, full integration in program determination becomes possible. Not very long ago, many small farms and organic producers saw Cornell as not interested in their concerns. (Some were much less polite about the influence of Cornell on their ability to succeed!) As the included story *Integrated Research and Extension Activities Work to Improve Organic Farming Methods* illustrates, there now is a productive ongoing relationship thanks to these efforts and related work of the Cornell Small Farms program. The *Study of Latino Immigration in Rural Areas Determines Keys to Community Assimilation* was done in partnership with immigrant communties and agencies and organizations who serve them and has led to an action agenda for communities and the University. Another example not included among this year's narratives is our relationship with the rapidly growing population of Amish and Mennonite farmers, particularly in the Finger Lakes region. First turned away as representatives of government, our local educators persisted and have established credible and mutually productive ties. In 2005, that relationship matured to the point that the Old-Order community in Yates County made a sizeable contribution to the local extension unit. There still is no formal representation of the community on our county advisory groups because of their non-association beliefs. It is, however, the relationships that count, not the structure.

In terms of youth audiences, our local advisory committees are expected to include youth members as part of the needs assessment and decisionmaking structure. In 2005, more than 3000 youth served in governance and program delivery roles statewide. In addition, one of our four signature programs is Youth Community Action which is a coordinated effort to develop active youth voice and meaningful partnerships between youth and adults. The program descriptions *Children's Garden Consultants Program, Students Design the Meet and Eat Corner Café After School Program, and 4-H Team Offers Technology Skills and labor to Birds of Prey Center* included with the Goal 5 report are good examples of youth-led initiatives.

Lastly, this FY05 report is much longer than reports for previous years, more than twice as long as the FY04 report! The primary difference is the new requirement for narrative documentation of integrated activity expenditures, although modest expansion of the core narrative also was needed to address comments of prior report reviewers. We mention this because one general criticism of previous year's reports was that they typically were longer than necessary. We have attempted to provide content that meets reporting guidelines while responsibly representing our program.

**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:

0) 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;
0) improving our understanding of the nutritional requirements for plants and animals so that inputs and waste products are minimized;
0) improving our understanding of soils in order to maintain or improve the health of the soil;
0) 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:

0) genetic engineering of plants to express pesticidal traits and the development of management systems which ensure the durability of the deployment of these plants;
0) utilization and/or improvement of insects and microbes which may act as pesticides against insects, pathogens and weeds;
0) improvements in the production systems for mass producing natural enemies;
0) 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:

0) recovers components from what would be engineering waste and converts them into marketable items (particular enzymes, flavors, bulk materials, etc.);
0) enhances the food product by preserving or increasing the level of nutrients or flavors;
0) maximizes the freshness of the product through minimal processing;
0) 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 |
|---|---|---|
| **2005** | 1110 (675) | 67 (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 |
|---|---|---|
| **2005** | 8597 (5000) | 4307 (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 |
|---|---|---|
| **2005** | 14766 (10000) | 7729 (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 |
|---|---|---|
| **2005** | 4214 (5500) | 2091 (2400) |

**Resources Allocated to Goal 1 (FFF & Match)**

**Dollars x 1000 and (FTE) or (SY)**

| | FY2005 Target | FY2005 Actual |
|---|---|---|
| **Extension** | 3,378 | 2,856 |
| **Total** | (60.9) | (56.6) |
| **Research** | 5,200 | 3,691 |
| **Total** | (34.1) | (66.8) |

## Impact Examples Related to Goal 1

### Invasive Species: Controlling Swede Midge

**Knowledge Areas:** 211 Insects, Mites, and Other Arthropods Affecting Plants, 216. Integrated Pest Management Systems
**Funding Sources:** County Appropriations, Smith-Lever, Cooperative Agricultural Pest Survey (CAPS) program and the Integrated Pest Management (IPM) program of NYS Department of Agriculture & Markets

New York State is the nation's second leading cabbage producer, with an annual crop value of $42.5 million. Broccoli, cauliflower, Brussels sprouts, Chinese cabbage and other related crops are grown on numerous farms in western New York and contribute more than $2 million in revenue annually. Swede midge is a destructive insect pest of these crops that was detected in Niagara County in 2004. This was the first reported discovery of swede midge in the United States and was considered an immediate threat to farmers and gardeners in the greater Rochester region.

In 2004, extension educators introduced highly sensitive pheromone traps at 42 locations in eight western New York counties, including Erie, Genesee, Monroe, Niagara, Ontario, Orleans, Wayne, and Yates. In 2005 the swede midge was detected on a few farms in four counties in western New York, and efforts focused on helping growers control and/or minimize the impact of the swede midge using best practices. Cornell Cooperative Extension's early intervention and expertise in monitoring, networking, and grower education has helped mitigate a potentially devastating insect pest for farmers and gardeners alike.

### Interdisciplinary Cornell Research Team Seeks Improvements in Storing Strawberries

**Knowledge Areas:** 503. Quality Maintenance in Storing and Marketing Food Products
**Funding Sources:** Hatch, New York State Berry Growers Association

Strawberries are the third most valuable fruit produced in New York State, with the state placing seventh in national production. Typically, over 6 million pounds are harvested each year and return over $8 million to growers. Beyond the fresh-eating market, maintaining the post-harvest quality of strawberries can lead to improved grower profits and expansion of the strawberry's value-added product potential.

Temperature management is regarded as the single-most important factor in minimizing deterioration in harvested berries. Higher storage temperatures lead to shorter storage life and the loss of sweetness and juiciness. For years, rapid cooling (to 32 degrees) and relative humidities of 90 to 95 percent has been recommended to extend shelf life for up to 10 days, depending on variety, ripeness stage at harvest and stress from disease.

Many New York producers found, however, that such rapid cooling to 32 degrees appeared to negatively affect quality and appearance, especially if condensation after removal to sales-shelf warmer temperatures was not controlled. Based on these anecdotal reports, studies were conducted

by horticulturalists and food scientists at Cornell to assess quality/appearance differences between strawberries cooled to and stored at temperatures warmer than 32 degrees for up to 4 days.

Results confirmed that the best temperature for maintaining quality of strawberry fruit was at 32 degrees, due mainly to less decay than would have occurred at higher temperatures. The project also determined that keeping strawberries at 50 degrees for a short period of time prior to customer sale was a useful tool for growers to try to avoid condensation and the loss of visual quality—depending, of course, on the grower's particular marketing strategy. Such warmer was found to have its limitations, however; study experiments showed that warmer storage time durations should be kept to less than 3 days (assuming that relative humidity was not high). High humidity and warmer temperatures were found to encourage decay based on stimulated fungal growth.

One of the most interesting findings of this project related to the nutritional content of the berries during the storage phase. Thorough analysis of health-related components suggested that an intermediate temperature may result in maximizing the antioxidant content of the berries. As consumers become even more health-conscious, the balance between long storage periods and being able to offer this nutritional benefit to consumers may become a significant factor in marketing strategy decisions.

This research was supported under a Cornell University Agricultural Experiment Station-administered Hatch grant, and also by the New York State Berry Growers Association, which brought the research question to the attention of investigators, and, later, the results of the study to its membership.

**Biosecurity through Dairy Herd Health Management**

**Knowledge Areas:** 311. Animal Diseases, 315. Animal Welfare/Well-Being and Protection
**Funding Sources:** County Appropriations, Smith-Lever

Disease outbreaks around the world now mandate that farmers set up protocols to prevent the spread of disease to their herds from visitors or from their own management practices. Extension educators and the Orange/Ulster Counties dairy advisory committee identified the need for an in-depth dairy herd health management program. Over 115 participants attended the resulting Dairy Herd Health Management program workshops and seminars. Dairy and livestock farmers improved their bio-security, calving procedures, and ability to administer treatment and medicine to cattle. They also increased their level of understanding of Bovine Spongiform Encephalopathy (BSE) and their ability to identify and properly treat lame and injured cattle on their farms. Follow up consultations with several farmers saw an increase of 3 to 4 pounds of milk per cow per day for an increase of $80–240 per day based on herd size. Other farmers saw a savings of $10,000 per year by decreasing their culling rate by 7 percent, reducing the need to purchase additional animals.

**Research-based Improvements in Pesticide Application Sprayer Efficiencies Promise Economic Savings and Environmental Benefits**

**Knowledge Areas:** 402. Engineering Systems and Equipment, 711. Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
**Funding Sources:** Hatch

Current pesticide application practices in grape vineyards and apple orchards—New York's most economically important fruit crops—using conventional air-blast sprayers can result in excessive use of pesticide sprays, poor targeting/deposition of pesticides, collateral unintended drift of sprays onto neighboring properties, and inefficient and uneconomical waste of grower inputs. Researchers at Cornell's New York State Agricultural Experiment Station (NYSAES) have developed new sprayer engineering options and applications strategies that promise to save growers money while reducing the unwanted introduction of pesticides into the environment.

In a Hatch-supported project, Geneva researchers sought to re-think and re-prescribe how sprays can be applied for maximum efficiency of pesticide application. They explored the relationships between airblast crop sprayer airflow, volume of spray, and canopy size, and further tested current sprayer designs. This was followed by laboratory and field trials of new design combinations that varied sprayer fan speed, air volume and nozzle orientation.

The research led to development and successful trial of a vertical patternator, a 14-ft. device with branching metal "leaves" that can assist the sprayer/applicator in determining/forming the most efficient pattern of the spray cloud. Now offered via a commercial company, the vertical patternator can result in much better targeting of pesticide sprays, with concomitant reduced drift beyond the vines or trees, less pollution, and a lowered public profile of spraying.

In just one example, an apple grower on a 580 acre farm in Orleans County adjusted his spayer and its nozzle pattern using the vertical patternator. A 20 percent reduction in pesticide use for the same coverage area was immediately realized, with no observed drop off in pest or disease control efficacy. The grower calculated his savings in pesticide spray expenditures to be over $8,000 a year by calibrating his spray pattern with the patternator. He intends to "patternize" his other 4 tower sprayers similarly next season, and noted that the patternator was "an innovative and practical was for many growers to realize significant reductions in costs and chemical use."

**Integrated Research and Extension Activities Work to Improve Organic Farming Methods**

**Knowledge Areas:** 205. Plant Management Systems, 307. Animal Management Systems
**Funding Sources:** Hatch, Smith-Lever

The demand for organic foods has doubled in the past decade and continues to grow. As a result, Cornell University, the land-grant institution of New York State, is increasingly devoting more of its resources to researching ways to improve all aspects of organic agriculture, including soil health, seed availability, dairy health and crop production.

"Over the last five years, Cornell has emerged as a leader in organic agriculture research and extension nationwide," said Anu Rangarajan, associate professor of horticulture at Cornell. "We

have secured competitive funding for several major organic agriculture projects totaling more than $3 million and continue to expand our efforts."

Among the many research and extension projects underway (including several wholly or partially supported by Hatch funding) relating to organic agriculture are:

- A study of milk quality and herd udder health on five farms that are making the transition from conventional dairying methods to organic milk production to develop a list of best practices for dairies interested in producing hormone-free and organic dairy products.
- The Organic Seed Partnership to improve organic seed quality and farm profitability by building a large community of growers and breeders in the Northeast who want to share information gathered from organic seed-breeding field trials.
- In-depth training of agricultural field staff on all aspects of organic vegetable production to enhance the ability of universities to support these farmers.
- Studies of organic grain and vegetable crop rotation systems to research more effective growing and disease-prevention methods and to determine how tillage and manipulating the crops' source of nitrogen affect growth and quality of crops.
- A study to develop a system of organic apple production for the eastern United States.
- A study of 11 exemplary organic farms in the Northeast to better understand how farm practices and pest management strategies are integrated for successful organic farming.

Many of Cornell's efforts in organic agriculture are coordinated by the Cornell Organic Production and Marketing Program Work Team. Co-chaired by Rangarajan and Abby Seaman, a vegetable integrated pest management extension educator at the Geneva Experiment Station, the Program Work Team, or PWT, is sanctioned and supported jointly by both the Cornell University Experiment Station (CUAES and Cornell Cooperative Extension (CCE). It has over 70 members, including faculty, staff, extension educators, farmers and other external stakeholders, all committed to supporting these systems.

The PWT is charged to develop, coordinate and help deliver extension and applied research efforts relating to organic agriculture in New York. In 2005, among other activities, it generated new lists of future research and extension needs in organic culture.

Cornell is also active in the Northeast Organic Network (NEON), which is composed of farmers, researchers, land-grant university personnel, nonprofit organizations and government agencies who work together to improve organic farmers' access to research and technical support. NEON is producing farmer resources on organic practices to enhance production and consumption of locally grown organic food in the Northeast. NEON's establishment in 2004 was led by PWT Co-Chair Rangarajan.

**Farm to Chef Express: New Business Established**

**Knowledge Areas:** 604. Marketing and Distribution Practices
**Funding Sources:** New York State Department of Agriculture & Markets, County Appropriations

Farm to Chef Express is a project of Cornell Cooperative Extension in Washington and Saratoga counties helping farmers to find new markets for their products, and helping chefs purchase products from New York State farms. The program has offered farmers the marketing skills of a part-time representative and a means of delivering fresh products to New York City on a weekly, low-cost basis.

In the 18 months of the program, Farm to Chef Express has helped more than 30 farmers in Saratoga, Washington, and Rensselaer counties sell more than $240,000 of farm products directly to 20 New York City restaurants. Additional information is available online at www.farmtochefexpress.org.

**Value-Added Regional Cheese Project**

**Knowledge Areas:** 604. Marketing and Distribution Practices
**Funding Sources:** New York State Department of Agriculture, Markets Farmland Viability Grant, County Appropriations

New York State dairy farmers are looking for ways to be more financially successful. At the same time, the U.S. market for organic, artisanal, ethnic, farmstead, and local specialty food items is growing. Cornell Cooperative Extension of Chenango County has worked with collaborators to provide hands-on cheese-making workshops, drawing on consultants with expertise in cheese making, dairy business start-up, and marketing and equipment purchasing. Two graduates of the workshops are currently producing and marketing cheese from their dairy farms; another producer who participated in the workshops is seeking state approval of a cheese label and plans to be on the market soon. A consultant who assisted in locating cheese-making equipment has formed a side business in metal fabrication of small-scale cheese vats. The workshops have been successful in providing realistic glimpses of a value-added dairy business and provided much of the knowledge and impetus for the farmers to get started.

**Hispanic Workforce Training**

**Knowledge Areas:** 602. Business Management, Finance, and Taxation
**Funding Sources:** Smith-Lever, Northeast Dairy Producers Association, Agricultural Workforce Certification Program, County Appropriations

Spanish-speaking employees are increasingly being hired to milk cows and manage feeding systems on farms across the North Country. While farm owners report these employees are proving to be an essential source of hard-working, well-trained labor, challenges arise from cultural and language

differences. Cornell Cooperative Extension of Jefferson County is leading educational efforts to support a rapidly increasing Hispanic work force on dairy farms by offering regional training courses on milking and calf care to Spanish-speaking employees, and developing management and cultural training programs for English-speaking dairy farm owners, managers, and employees. More than 60 people have attended the programs, and many continue to comment on the positive impact on their farm operations.

**New Farmer Training Leads to New Farm Enterprises**

**Knowledge Areas:** 602. Business Management, Finance, and Taxation
**Funding Sources:** Agriculture Workforce Development, NYS Department of Agriculture and Markets, County Appropriations

Two years of Agricultural Workforce Development funds from the NYS Department of Agriculture and Markets have resulted in the start-up of eight new agricultural businesses and the improved management of six more businesses in Sullivan County. The new businesses are diverse in both size and type of agriculture. They include two alpaca producers, a flower grower, a horse boarding operation, a pastured poultry producer, a heritage beef producer, and a vegetable grower. Existing businesses include a cow-calf producer, a diversified livestock producer, and a maple producer. As many as four additional businesses have plans to begin operations in 2006.

**Improving Beef Quality through Ultrasound Technology**

**Knowledge Areas:** 307. Animal Management Systems
**Funding Sources:** New York Beef Producers Association, County Appropriations

Beef consumers today demand a product that adheres to their health-conscious lifestyles but still remains juicy, tender, and palatable. The success of the beef industry will depend on producers' ability to provide a high-quality, consistent end product to consumers. The use of ultrasound technology enables faster evaluation of traits that affect meat quality. Ultrasound offers the beef industry a nondestructive alternative to determine end-product merit by measuring intramuscular fat, rib-eye area, and external fat thickness, and predicting percent retail product in live yearling bulls and developing heifers.

From January 2005 to date, Cornell Cooperative Extension of Cortland County in cooperation with Cornell's Animal Science Department has scanned 575 cattle and conducted six demonstrations on the benefits of ultrasound to beef producers and consumers. Together these programs reached more than 450 people. Educational outreach has increased the likelihood that this new technology will be adopted by beef producers. This is important in New York State, where the average livestock herd consists of less than 15 cows. Ultrasound will enable NYS small-herd owners to compete with owners of larger herds, especially those from major beef production areas of the United States.

**Regional Come Farm With Us Marketing Effort**

**Knowledge Areas:** 608. Community Resource Planning and Development
**Funding Sources:** County Appropriations, NYS Legislature, Niagara Mohawk

The regional Come Farm With Us program is a marketing initiative involving Lewis, Jefferson, Oneida, and St. Lawrence counties. Established four years ago, the effort concentrates on promoting the success of agriculture in this North Country region, ensuring its continued strong agribusiness infrastructure, quality rural lifestyle, competitive crop yields, and affordable land prices. It is an effort to promote, educate, and encourage farmers from outside the region to discover all that is available in northern New York. The Come Farm With Us program is credited with the sale or rental of at least 65 farms in four counties over the past four years. Those farms annually generate $9.75 million in milk sales, based on an annual per-farm average of $150,000.

**Improving Apple Grower Profitability**

**Knowledge Areas:** 205 Plant Management Systems
**Funding Sources:** Hatch, County Appropriations

Apple prices have remained stable for the past 20 years. Therefore, improvements in production efficiency have been necessary for New York apple growers to remain profitable and competitive. On-farm research through the New York State Agricultural Experiment Station in cooperation with commercial growers in Monroe, Niagara, Orleans, and Wayne counties provided reliable production figures and identified areas of concern in which additional research was needed. Economic analysis of five planting systems indicates that higher tree density is more profitable than lower tree densities. Growers can use a spreadsheet using their own expenses, farm yields, and returns based on the varieties that they either grow or plan to grow on their farms to analyze and calculate potential planting-system profitability.

**Meeting Export Requirements for the NY Apple Industry through EUREPGAP(r) Certification Training**

**Knowledge Areas:** 606. International Trade and Development
**Funding Sources:** County Appropriations, NYS Department of Agriculture and Markets, State Legistlature

Cornell Cooperative Extension, the NYS Integrated Pest Management Program, and the NYS Department of Agriculture and Markets developed the EUREPGAP® Audit Workbook for New York State Tree Fruit Growers. (The acronym stands for European Retail Produce Good Agricultural Practices.) The workbook was produced as a management tool to increase the efficiency for growers who needed certification. This market is worth $13 million to the apple industry. Growers can tailor the farm policies to match the actual situation on their own farms using the electronic version on CD. The workbook is being used by other produce commodity groups as a standard.

Approximately 50 apple growers in New York have become certified to the EUREPGAP® standard required by UK apple markets. The objective of the standard is to ensure food safety, environmental

protection, and the health, safety, and welfare of workers in the production of fresh produce. Benefits to the consumer include the assurance of food safety through traceability of the fruit from the farm to the consumer.

**Timely Harvest Increases Farm Profitability**

**Knowledge Areas:** 205. Plant Management Systems
**Funding Sources:** County Appropriations

The timely harvest of forage crops reduces the need to purchase additional feed—lowering the cost of feeds and increasing farm profitability. Growers use accepted methods to estimate the quality of pure stands of alfalfa. The quality of grass hay fields can be accurately estimated based on stage of growth. Many farmers, however, commonly grow mixed swards of alfalfa and grass in order to maximize quality and feed value. Since alfalfa and grass reach peak quality at slightly different stages, estimating when to harvest the stand in order to achieve highest quality can be a difficult decision. Currently, no reliable tool exists to aid growers in making such harvest decisions.

Cornell Cooperative Extension of Oneida County and Cornell's Department of Crop and Soil Sciences helped establish several research trials involving ten local farmers, with the goal of identifying measurable characteristics that can predict the quality of the forage in the stand.

- The immediate impact of the collaboration was to provide rapid information on the current condition (quality) of hay fields and the progress of that crop to an ideal quality for harvest. The information was provided to 90 area farmers and agribusinesses in Oneida County. Farmers throughout the county then used this local data to make informed harvest decisions for their own fields.
- An extension educator from Rensselaer County calculated that harvesting hay eight days later than the optimal stage on a 100-cow dairy increased feed costs by $18,000 annually.

## 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 |
|---|---|---|
| **2005** | 208 (125) | 3 (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 |
|---|---|---|
| **2005** | 22239 (20000) | 14872 (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 |
|---|---|---|
| **2005** | 5583 (2000) | 1336 (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 |
|---|---|---|
| **2005** | 851 (250) | 558 (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 |
|---|---|---|
| **2005** | 27110 (30000) | 18959 (17000) |

**Resources Allocated to Goal 2 (FFF and Match)**

**Dollars (x 1000) and FTE or SY**

| | FY2005 Target | FY2005 Actual |
|---|---|---|
| **Extension Total** | 2,360 (31.5) | 1,924 (29.2) |
| **Research Total** | 790 (5.2) | 2,812 (58.9) |

## Impact Examples Related to Goal 2

### Cornell Study Finds Americans Split (But Growing Somewhat More Skeptical) on the Risks and Benefits of Genetically Modified Foods

**Knowledge Areas:** 607. Consumer Economics, 703. Nutrition Education and Behavior
**Funding Sources:** Hatch, Smith-Lever

More than two-thirds of the food in U.S. markets has at least some amount of a crop that has been genetically engineered (GE). Do Americans believe that GE food is a health risk or benefit? A Cornell University study supported by a federal Hatch grant found that they are pretty evenly split on the issue, but have grown slightly more skeptical over the past three years.

"Depending on whom you ask, the technology is either beneficial or has negative effects on health and environment," said James Shanahan, associate professor of communication at Cornell and lead researcher of the study. "Our study, which consisted of seven data sets, finds continuing ambivalence about GE foods, even despite their successful use in agricultural production."

Women generally and nonwhites of both genders perceived higher risk in using biotechnology in food production than men and whites of both genders. And Republicans showed more overall support for GE foods than others, he said.

John Besley, one of Shanahan's collaborators and a Cornell doctoral candidate in communication, presented the study's findings at the 2006 annual meeting of the American Association for the Advancement of Science.

The study included four annual national surveys from 2003 to 2005 (with samples of about 750 respondents each year) and three annual surveys of New Yorkers from 2003 to 2005 (about 850 respondents each year). The national survey measured support for GE food using a scale from 1 to 10, while the New York survey used a similar scale to measure the perceived health risks of GE food.

"The results of the state and national surveys were very consistent with each other," said Shanahan. "And both showed a slight but significant shift over time toward a little less support and more risk perception."

The researchers also found that people who pay more attention to the news tend to support GE food more than those who don't. "Overall, research shows that GE foods are safe and effective, though some people still harbor reservations about it," said Shanahan. "I suspect that the more people are exposed to the news, the more aware they are of biotechnology and, therefore, more supportive of it."

The New York data were collected by Cornell's Survey Research Institute (SRI), which conducts survey research on par with other academic research facilities. The national data were collected during a research methods course in cooperation with SRI. Shanahan serves as the co-director of the

public issues education project, Genetically Engineered Organisms. The project established an extensive Web site for consumers about GE crops and foods (http://www.geo-pie.cornell.edu), including information on what foods are most frequently engineered (corn and soybeans, followed by canola and cotton, from which cottonseed oil is derived), which traits have been engineered, regulations, and media coverage and opinions about GE foods.

**Research Identifies Enzyme with Potential to Enhance Fruit Quality, Safety and Nutrition**

**Knowledge Areas:** 501. New and Improved Food Processing Technologies, 503. Quality Maintenance in Storing and Marketing Food Products
**Funding Sources:** Hatch

As fruits and vegetables make their way from the producer to the consumer, they are sorted, processed, and packaged. Due to various adverse factors, such produce steadily deteriorates in quality before it can be consumed. Control of pathogens and toxic substances, resulting in food-borne illness and the threat of bio-terrorism, is a critical issue that needs to be addressed. Additionally, it is essential that the quality and safety of the food supply be maintained. As such, developing and improving cultivars and rapid, non-destructive technologies for retaining and assuring the quality, safety, and integrity of fruits and vegetables as they move through the marketing chain is a food science "holy grail."

Cornell scientists have evaluated new methods that can be used to improve product quality, product safety, and to reduce waste during processing. In one 2005 example, it was found that the enzyme, acid phosphatase, had a positive effect on the quality of fresh cherries, as determined by measurements taken through the use of a common fruit quality index (the Brix/acid ratio).

The results of this research with cherries (as reported at the 2005 Annual meeting of the Institute of Food Technologists in New Orleans) and those of previous work in 2004 with apples strongly indicated that acid phosphatase could be adopted as a valuable genetic marker for plant breeders to develop and express in new cherry, apple or other fruit cultivars for fresh sales or processing. Successful development of new fruit cultivars that withstand the stresses of the marketing chain and result in higher quality fruits and vegetables on the dinner table could significantly enhance both the profitability of growers and processors, and the health and nutrition of consumers.

**Hatch Research Having Direct Impact on Dinner Tables of the Needy**

**Knowledge Areas:** 704. Nutrition and Hunger in the Population, 102. Soil, Plant, Water, Nutrient Relationships, 205. Plant Management Systems
**Funding Sources:** Hatch

Typically, researchers must be a patient lot, often waiting years for the results of their investigations to be tested, reviewed, replicated, demonstrated, in some cases patented and commercialized, and then ultimately (and hopefully) applied in the real world for some positive societal purpose and benefit. During recent harvest seasons, however, Cornell researchers have been able appreciate a more immediate benefit of their efforts, as tons of fresh fruits and vegetables produced through

Hatch-supported studies at Cornell's Homer C. Thompson Farm in Freeville, NY have helped needy families from across New York's Southern Tier to put high quality food on the dinner table.

Bushels of fresh-picked tomatoes, sweet corn, potatoes, plums melons and pumpkins have been among the donations of produce from the farm to food pantries associated with the Food Bank of the Southern Tier. The contributions of food all came from researchers who were finishing up their various growing projects during harvest time in fall. "Amazing," said Mark Rockwell, warehouse logistics coordinator for the Food Bank. "The effort that Cornell put into it, the effort of the guys in the field…..It's the best quality produce you can find. To find something like that is great all around." The 2005 harvest also included cabbage, cantaloupe, dry beans, green beans, onions, and squash.

While many research projects underwritten by a wide array of sponsoring organizations are conducted on the farm, those supported under USDA Hatch funds were the major contributors to the abundance of donated food. These included:

- "Improved Weed Control Through Residue Management and Crop Rotation," (a collaborative, multistate project [NE-1000]).
- "Developing New Strategies for Weed Control in Small-Seeded Vegetables."
- "Effect of Soil Fertility Management on Nutrient Dynamics, Weeds and Crop Quality During Transition to Organic Vegetable Production."
- "Development of New Potato Clones for Improved Pest Resistance, Marketability, and Sustainability in the Northeast."
- "Genetic Improvement of Beans for Yield, Pest Resistance and Food Value."
- "Golden nematode Resistant Chipping and Tablestock Varieties to Meet the Evolving Needs of the New York State Potato Industry."
- "Improving Nutrient Management in New York vegetable Production Systems."

During the 2005 harvest season, the total contribution from these and other research projects on-going at the Freeville farm was impressive. Nearly 163,000 pounds, (81 tons) of produce, using conventional and organic growing methods, were donated to the Food Bank between August through early November.

The Food Bank of the Southern Tier supplies food pantries, soup kitchens, shelters, residential programs, day care programs, senior feeding programs and other not-for-profit organizations food pantries and other food providers for the needy in six New York counties, including Tompkins County (where Cornell and the Homer C. Thompson Farm are located). Through its partner network, it distributes well over 7 million pounds of food to over 80,000 households each year.

**Organization of Orleans County Farmers' Market**

**Knowledge Areas:** 704. Nutrition and Hunger in the Population
**Funding Sources:** County Appropriation, Farmer's Market Nutrition Program

Orleans County is rich in local produce, much of it sold at farm markets and farm stands. With 13 percent of its population over the age of 65, demand has been growing to participate in the NYS Farmers' Market Nutrition Program (FMNP). Over a two-year period, Cornell Cooperative Extension of Orleans County facilitated organization of the Orleans County Farmers' Market with

the Office for the Aging and the NYS Farmers' Market Federation. The market was well patronized in 2005, especially by the senior citizens who cashed in thousands of dollars in FMNP coupons.

The new farmers' market provided local access to local produce for senior citizens, WIC program participants, and Orleans County residents. Additionally, seven local producers expanded the market for their produce to an additional countywide outlet, potentially providing increased exposure for their existing business, as well as increasing sales.

**Gardens for Low-Income Residents**

**Knowledge Areas:** 704. Nutrition and Hunger in the Population
**Funding Sources:** Food Bank of Central New York, Jefferson County Public Health Service through Dept of Health funding for Eat Well Play Hard, Steps to a Healthier NY, Eat Smart New York, County Appropriations.

Fresh vegetables are rarely an option at food pantries and are much appreciated by the families that visit monthly. Cornell Cooperative Extension of Jefferson County in conjunction with local agencies created six gardens (three at food pantry sites, three at low-income senior housing sites) to increase access to fresh, nutritious vegetables. Extension educators planted and maintained the pantry gardens. As a result, food pantry clients

- Had more than 250 pounds of fresh produce available to them and
- Had access to information on growing, handling and using fresh produce.

Extension educators built the gardens, but the seniors cared for them. The opportunity to grow their own vegetables in a raised bed (which offers easy access to someone in a walker or wheelchair) also offered seniors new opportunities to socialize.

- Residents had increased access to fresh vegetables and increased food security. This was especially true for mobility-impaired residents via the handicap-accessible gardens.
- Residents had increased physical activity.
- One resident at a senior residence never left her room until she saw the new garden outside her window. She pushed her walker outside to investigate and has been an avid participant since.

**Seneca County Eat Smart New York (ESNY)**

**Knowledge Areas:** 703. Nutrition Education and Behavior, 704. Nutrition and Hunger in the Population
**Funding Sources:** Eat Smart NY!, County Appropriations

In Seneca County 11% of the population is living below the federal poverty level and 960 households participate in the food stamp program each month. 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. The ESNY program empowers at-risk families by providing nutrition information

and helping participants learn the skills needed to choose healthy foods, budget food resources, handle foods safely and prepare healthy meals. In 2005, the Seneca County ESNY program reached 380 people in 123 families. Evaluation data indicate that more than half have adopted specific food safety practices, nearly half read labels to assess nutritional value of foods, and about one-third develop specific meal plans to better manage their food resources.

**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 |
|---|---|---|
| **2005** | 227 (300) | 14 (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 |
|---|---|---|
| **2005** | 53190 (35000) | 35193 (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 |
|---|---|---|
| **2005** | 59217 (38000) | 39479 (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 |
|---|---|---|
| **2005** | 28146 (20030) | 15587 (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 |
|---|---|---|
| **2005** | 4610 (12000) | 3518 (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 |
|---|---|---|
| **2005** | 10432 (4500) | 6962 (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 |
|---|---|---|
| **2005** | 1037 (2500) | 613 (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 |
|---|---|---|
| **2005** | 271 (250) | 170 (125) |

**Resources Allocated to Goal 3 (FFF and Match)**

**Dollars x 1000 and (FTE) or (SY)**

| | FY2005 Target | FY2005 Actual |
|---|---|---|
| **Extension Total** | 3,758 (50.2) | 3,224 (47.1) |
| **Research Total** | 1,295 (8.0) | 348 (8.5) |

## Impact Examples Related to Goal 3

### Foundational Hatch Project Support Helps Cornell Scientist Garner Major National Neuroscience Award and Grant

**Knowledge Areas:** 724. Healthy Lifestyles
**Funding Sources**: Hatch

Ron Harris-Warrick, professor of neurobiology and behavior at Cornell, was awarded the prestigious 2005 Senator Jacob Javits Award in the neurosciences from the National Institute of Neurological Disorders and Stroke (NINDS), an arm of the National Institutes of Health (NIH).

Harris-Warrick was cited by NINDS for “his substantial contribution at the cutting edge of understanding the neural mechanism of motor behavior….[and] in recognition of the potential for continual progress…given his track record as a highly innovative and productive investigator.” With the award comes funding of more than $3 million over the next seven years.

A member of the Cornell faculty since 1980, Harris-Warrick has studied the cellular and molecular mechanisms underlying the activity of small neural networks in crustaceans, such as lobsters (he was partially supported under a Hatch grant for early work in this area a decade ago, on a project entitled “Sensory Neuromodulation in a Small Motor Circuit”). These circuits, called central pattern generators, generate the sequences of commands for simple rhythmic movements. With the grant, he will study the neuronal mechanisms that allow an animal to generate flexible movements rather than robotic ones. His laboratory has found that modulatory neurotransmitters, such as dopamine and serotonin, can reconfigure the central pattern generator network so that the same network can drive a variety of variants on a simple behavior.

"Studies of simple invertebrate neural circuits, such the stomatic gastric ganglia used in Dr. Harris-Warrick's lab, continue to provide surprising and informative insights into motor circuit flexibility and the mechanisms underlying homeostasis," said Daofen Chen, program director of systems and cognitive neuroscience at NINDS. "These studies continue to contribute valuable guidance to work in larger, less-well-characterized vertebrate circuitry, such as that for walking, in the human spinal cord."

Authorized by the U.S. Congress in 1983, the award honors the late U.S. Sen. Jacob K. Javits (R-N.Y.), who was a strong advocate for research on a variety of neurological disorders. Javits suffered from amyotrophic lateral sclerosis, the disabling neurodegenerative disorder also known as Lou Gehrig's disease. A component of the National Institutes of Health, the NINDS is the nation's primary federal sponsor of research on the brain and nervous system.

**Achieving Nutrition, Health and Agriculture Goals Through School-Based Community Strategies**

**Knowledge Areas:** 504. Home and Commercial Food Service, 703. Nutrition Education and Behavior, 608. Community Resource Planning and Development
**Funding Sources:** Hatch

Active applied research projects supported by Hatch funding (*Sustaining Local Food Systems in a Globalizing Environment: Forces, Responses, Impacts* and *Strengthening New York's Economy* and *Communities Through Agriculture and Food Partnerships*) clearly helped bring to focus various key aspects of community-based, or "civic," agriculture and related food system/supply approaches and potential. The former project identified six main elements of civic agriculture, including (1) production for local markets, (2) community integration of farming and food system practices, (3) competition is based on quality, not quantity of produce, (4) production practices are often more labor and land intensive, and (5) farmer reliance on shared, indigenous, and site-specific knowledge, and not on more universal "best management practices," and (6) the forging of more direct-to-consumer marketing linkages (e.g., farmers markets and farm-to-school programs), as opposed to the use of "middlemen."

These and other findings from these research projects led to publication of the first-ever book focused solely on civic agriculture. The book (*Civic Agriculture: Reconnecting Farm, Food and Community*, Tufts University Press, 2004) is a unique resource for practitioners and community-based agriculture promoters on the concept and underpinnings of civic agriculture.

Tied to the more direct-to-consumer aspect of civic agriculture, a highly integrated project at Cornell sought to enhance farm-to-school programs as a means to help achieve improved health and nutrition in schools, as well as local produce marketing and farmer profitability. The project conducted a survey of over 1000 food service directors at NY K-12 schools that explored local produce purchasing practices and assessed farm-to-school marketing potential. The survey found great potential, with directors more likely to purchase more partially-processed produce, but also concerned with the reliability of supply/delivery/affordable cost. Seventy-two (72) percent of those surveyed reported purchasing local (New York) produce, and nearly a quarter purchased produce directly from a farmer.

On the outreach side, interaction with extension nutrition educators showed that target audience definitions for the chief federal nutrition programs (EFNEP and FSNEP) may be perceived as precluding engagement in farm-to-school programming. As a result, new project efforts will emphasize where and how farm-to-school programming may be consistent with such definitions. Further, educators across the state received technical information in support of convening meetings/discussions with school food directors on the potential for enhanced farm-to-school produce marketing.

Over the last year, over 150 inquiries from a broad range of stakeholders on farm-to-school programs helped to develop a Frequently Asked Questions (FAQ) section of the project's website (http://media.cce.cornell.edu/hosts/farmtoschool/). The project has prompted formation of a new New York State Farm-to-School Committee; development and dissemination of the publication *Farm-to-School, Making the Connection: Addressing Questions from Parents, Farmers, and Food*

*Service Directors*, a unique resource for extension educators; and convening of over a dozen regional workshops on the issue across the state.

**Nutrition Researchers' Discovery Opens a Door in the Body's Battle Against Cancer**

**Knowledge Areas:** 723. Hazards to Human Health and Safety
**Funding Sources:** National Institutes of Health, Hatch

Cornell University nutritional science researchers have revealed the workings of a process that has stumped scientists for many years: exactly how an acid derived from vitamin A enters a cell's nucleus, where studies have shown it has strong anti-carcinogenic effects. Discovery of this basic transport mechanism has opened a new portal for future research explorations on a host of related compounds, and thus has important implications for the fight against cancer and other disease.

The research that unraveled the basics of this biological mechanism was supported by a grant from the National Institutes of Health, but important scientific foundational work was laid in the late 1990's under a Hatch project support.

Appearing in the journal Molecular Cell (Vol. 18, No. 3, 2005), the research results explained for the first time how the cancer-fighting vitamin A derivative retinoic acid (RA) gains entry into a cell's nucleus. In short, once vitamin A enters a cell, it can be converted into RA, which, among other compounds, enters the cell's nucleus and plays a role in triggering a process called transcription, which relays genetic information and switches genes on or off. In this role, RA can inhibit tumor growth. Past clinical trials conducted elsewhere showed that RA can help treat many forms of cancer (leukemia, and head, neck and breast cancer). But, unfortunately, treatments using RA require very high and toxic doses of the acid, and tumors can develop resistance to the treatment.

The Cornell researchers knew that for RA to enter a cell's nucleus, it must "hitch" a ride on water-soluble protein called CRABP-II, but, to do this, CRABP-II must have its own amino acids organized in a specific sequence. Until recently, researchers did not know how that sequence in CRABP-II was prompted, as it did not manifest the conventional signaling used by other compounds to sequence amino acids. By comparing the three-dimensional structures of CRABP-II before and after it comes in contact with its RA "passenger," the researchers made a startling discovery: when exposed to RA, 3 amino acids on the CRABP-II molecule "flipped" their positions, resembling the classical signaling necessary to move CRABP-II—and its RA passenger—into the nucleus.

From previous work, the researchers know that by increasing CRABP-II in cells, tumor growth slows dramatically. Armed with their new knowledge of how CRABP-II moves RA quickly into the nucleus, the prospects of finding a natural and non-toxic means to treat tumors with RA have significantly brightened.

Also, the discovery helps other cancer researchers in their now having something new to look for—folds in a molecule's structure and amino acids that flip when exposed to a protein, hormone or drug. This will generate new ideas on how to control the ability of proven or suspected pro- and anti-carcinogens to move into the nucleus.

**Research Explores Situational Food Choice Processes In and Away from Home**

**Knowledge Areas:** 703. Nutrition Education and Behavior
**Funding Sources:** Hatch

Americans are eating more food prepared outside the home, which can promote dietary imbalances and thus raise the risk for health problems. Understanding how food choices and eating behavior can be influenced by situational factors could ultimately help to refine and target American nutrition educational programs, and thus help to change ill-advised eating behaviors.

A Hatch-supported study conducted at Cornell sought to understand the meaning and expectations that a New York sample of non-managerial or non-professionally employed adults held for at-home and away-from-home eating situations. Using in-depth pre-and post-interviews and 24-hour, 7 consecutive day recalls of food and beverages consumed, researchers analyzed 1448 eating/drinking episodes. Based on the information-rich descriptions provided by study participants, a conceptual model was developed that characterized everyday eating and drinking episodes according to 8 interconnected dimensions, i.e., food and drink, reoccurrence, place, activities, social setting, mental processes and physical condition).

Participants used a variety of episodic labels for their consumption, including conventional (breakfast-lunch-dinner), modified conventional (e.g., late dinner or big snack), and uniquely constructed labels (e.g., morning coffee, “unwind time”). An eating map tool was employed to summarize each individual’s eating episodes in terms of place (home, work, car, restaurant) and other people present, and the participant’s cognitions of situational eating were analyzed using label card sorting.

This analysis uncovered 3 bases of situational eating: (1) personal experience (e.g., preference or routines), (2) context (e.g., meal, time, and location), and (3) food properties (food group or physical characteristics). Personal experience and context bases were used to sort eating episodes more often than food properties. Evening meal “scripts” were also identified (e.g., head-of-table cooks, head-of-table does not cook, shared responsibility, trying unsuccessfully to have a nice family meal, etc.).

Findings from the research underscored the importance of understanding the ways people construct their food choice for different situations, and also the types of “ways of eating” variation that occur in a relatively homogenous sample of Americans. Knowing about these situational dimensions of eating can illuminate not only what predisposes current food behaviors, but how such behaviors might be approached educationally to promote healthier eating choices and practices. The results indicated that to affect eating behavior and food choice modification, educators and public health policymakers will need to pay more attention to the eating place, persons present, other activities involved in the eating episode, and the meanings that people give or hold for the situations in which they consume food and beverages. The study also suggested the new methodological concepts and approaches for researchers to use in their research (i.e., situational recalls), and for practitioners to use in conducting individual nutritional assessments and counseling (i.e., eating maps and scripts). Lastly, on the basis of this study, health professionals seeking to change major daily (evening) meal

habits or practices are advised to tailor their recommendations to the scripts that individuals may hold for that meal.

**Nutrition Education through EFNEP and ESNY!**

**Knowledge Areas:** 703. Nutrition Education and Behavior
**Funding Sources:** EFNEP, ESNY!, Smith-Lever

During 2005, 17,647 adults, representing 33,484 family members, participated in nutrition education opportunities 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, 12,284 (70 percent) completed the series of lessons. Additionally, 17,128 youths received education designed to increase their awareness of healthy eating and the benefits of being physically active.

Evaluation findings demonstrate that EFNEP and Eat Smart New York! programs are effective at:

- Motivating people to adopt healthy eating and lifestyle behaviors
- Enhancing practices related to thrifty shopping and preparation of nutritious foods
- Ensuring that individuals and families have enough to eat without resorting to emergency food assistance.

EFNEP and ESNY! graduates report these improvements in their knowledge and skills:

- 82 percent improved their nutrition practices (e.g.., making healthy food choices, reading nutrition facts labels, drinking lower fat milk, etc.)
- 57 percent improved their food safety practices (e.g., thawing and storing foods properly)
- 75 percent improved their food resource management skills (e.g., planning meals, comparing prices, using grocery lists, etc.)
- 23 percent improved their frequency of being physically active

Retention studies document that these desirable practices continue at least one year after graduation, confirming the intended long-term benefits of the program.

**Elder Nutrition Education Program**

**Knowledge Areas:** 703. Nutrition Education and Behavior, 704. Nutrition and Hunger in the Population
**Funding Sources:** County Appropriations, Columbia County Office of the Aging, Columbia-Greene Nutrition Consortium/Food Stamp Outreach

Senior citizens, many of whom live in subsidized housing units, need to know the importance of eating a variety of nutrient-dense foods to improve their health, how to handle food safely while shopping, as well as how to stretch their food dollars. Limited-resource senior citizens who reside in four housing units in the Columbia County took part in a weekly series of 90-minute lessons with two Eat Smart New York! educators.

The majority of the 45 seniors who took part in the program reported through on-site surveys that they:

- Were better able to stretch their food dollars.
- Employed safer food-handling processes.
- Gained practical knowledge, such as putting together a meal from pantry items, even without cooking, which can come in handy in an emergency situation such as a snowstorm or power outage.

**Helping Birth-Infected Teens Cope with HIV**

**Knowledge Areas:** 723. Hazards to Human Health and Safety
**Funding Sources:** NYS Department of Health AIDS Institute, County Appropriations

Nassau County has one of the highest incidences of diagnosed AIDS cases among suburban counties in New York State. Among these cases are children, born with HIV, who are now reaching adolescence. Working with these adolescents presents challenges never seen before. These young people need to cope with their feelings, understand their illness, and take responsible actions to protect themselves and others from infection.

Registered nurses used information and techniques gained from the Cornell Cooperative Extension Talking with Kids about HIV/AIDS curriculum with a group of adolescents born with HIV, initiating more effective response to other therapy modalities by enabling these adolescents to express their feelings more positively. Talking with Kids about HIV/AIDS presents accurate information about HIV infection, transmission, and prevention in the context of effective, age-appropriate communication with children. The curriculum acknowledges that feelings play an important role in communication. Within two months, use of the materials opened up the girls' ability to talk about HIV. They were able to bring this discussion to their individual therapists. They had not discussed HIV in individual therapy before.

While a small scale program, the results can be profound for the individuals involved. Two registered nurses, who conducted a support group for HIV infected (at birth) adolescents at a local psychiatric hospital, were better equipped to provide therapy to three 15 year-old girls by applying exercises acquired through training at weekly group sessions. One nurse reported that the support group made a difference, especially since she attended the training. She gave the example of one teen saying, "The floodgate opened and she didn't decompensate. She did better and better… Nothing can take away the disease, but the kids feel better and are coping better." In less than five months, the adolescents were able to move on to other placements. One girl is in a family with relatives. The other two moved to a residency unit.

**Healthcare Services: Decreasing Supply + Increasing Demand = Change!**

**Knowledge Areas:** 805. Community Institutions, Health, and Social Services, 724. Healthy Lifestyle
**Funding Sources:** New York State Department of Health, Office of Rural Health, County Appropriations

Providing access to health services in rural areas has long been a challenge for health planners and policymakers. Demographic and workforce changes are conspiring to make access to rural health services even more difficult in coming years. Local elected officials, health administrators and planners often lack access to reliable information on which to base long-term planning, resulting in reactive rather than proactive health policy formation.

The Delaware County Rural Healthcare Alliance (DCRHA) of Cornell University Cooperative Extension of Delaware County (CCE-DC) facilitated a health policy forum to address this issue. The Director of the State University of New York (SUNY) Albany School of Public Health, Center for Health Workforce trends presented compelling new regional and national data demonstrating the breadth and depth of health workforce shortages and factors leading to healthcare worker dissatisfaction. These data clearly show that serious shortages in many health care professions across the nation are threatening our ability to deliver services. These shortages are exacerbated in rural areas. The DCRHA Coordinator presented trend data depicting local demographic projections over the next decade. Delaware County, NY anticipates significant increases in its senior population over the next decade. By 2015, over 35% of county residents will be ages 60 and over, compared with 25% in New York's other rural counties. This significant growth in the elderly population will, among other things, result in less working people contributing to the local economy and an increased demand in health services. In addition to an aging local population, data show that the proportion of young and well-educated residents is declining. These trends result in increasing demand for local health services at a time when supply of healthcare workers is declining.

County administrators and officials are using data presented at this forum for long-range health policy development and health services planning, particularly for senior citizens. For example, the county Office for the Aging is engaging in strategic planning of programs and services through 2015. Schools and universities are using these health workforce data to enhance the educational pipeline through new educational programs, training initiatives and careers marketing. For example, a local university has recently added a 4-year nursing program in addition to an existing 2-year program. Health administrators are using this information to improve health workforce retention through improved working conditions, increased access to education and training, and through restructured wages and benefits. Healthcare providers are seeking new ways of delivery high-quality, cost-effective care. For example, home health service providers are developing plans to reduce demand for labor-intensive care by using new technologies to increase efficiency. One local home health provider has plans to purchase and implement over a dozen tele-homecare units next year.

**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 |
|---|---|---|
| **2005** | 462 (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 |
|---|---|---|
| **2005** | 32295 (15000) | 17665 (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 |
|---|---|---|
| **2005** | 14078 (6500) | 8375 (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 |
|---|---|---|
| **2005** | 10933 (30000) | 4361 (2000) |

**Resources Allocated to Goal 4 (FFF and Match)**

**Dollars x 1000 and (FTE) or (SY)**

| | FY2005 Target | FY2005 Actual |
|---|---|---|
| **Extension Total** | 3,184 (50.4) | 2,666 (46.6) |
| **Research Total** | 2,150 (13.6) | 1,956 (18.6) |

## Impact Examples Related to Goal 4

### Collaborative Extension and Research Efforts Enhance Forest and Woodlot Owners Agroforestry Production Prospects

**Knowledge Areas:** 123. Management and Sustainability of Forest Resources, 125. Agroforestry
**Funding Sources:** Smith Lever, SARE, County Appropriations, Hatch

Over the last few years, a major effort led jointly by Cornell Cooperative Extension educators and campus researchers has led to a greatly enhanced informational resource base and new ideas on farming forests and woodlands in the Northeast. This emerging approach and practice—called agroforestry—is the holistic art and science of forest and woodlot management and production that does not necessarily require the harvest and removal of trees from the environment.

As much as 80 percent of the Northeast, New York State, and the Catskill Mountain area is tree-covered, with up to 70 percent of that land area in the hands of thousands of private forest/woodlot owners. Yet, despite those numbers, the great majority of those land owners are wholly unaware of the various forest management options at their disposal. As a result, many are at risk for making uniformed decisions about their property that could have adverse economic and environmental repercussions.

In 2003, spurred by Cornell Cooperative Extension (CCE) of Greene County, the AgroForestry Resource Center in Acra, NY opened its doors. The first facility of its kind in the Northeast, the ARC helps forest owners reap sustainable economic benefits from their woodlots, and seeks to inform policymakers and the public about the benefits of enhancing while protecting regional forest resources. The facility is directed by CCE of Greene County and supported by Cornell (via its county extension association and the efforts of campus-based educator and researchers, including the Agroforestry and Private Woodland Program Work Team, or PWT) and the New York Forest Owners Association and other partners. Since its opening in September 2003, the ARC has reached over 3,000 people with educational programs and conferences, impacting more than 12,000 acres of privately owned forest land. To date, program participants have come from nearly 20 NY counties, as well as the states of VT, MA, RI, CT and PA.

Hatch-supported applied research projects have played a major role not only in the generation of new and useful agroforestry-related production information, but also in identification of the ARC as a truly integrated educational and research facility. For example, the project “Characterizing Genetic and Biochemical Differences Among American Ginseng Populations,” enhanced the germplasm collection for wild ginseng occurring in New York, as its investigators sought to conserve over-collected naturally-occurring wild ginseng stocks while developing genetic improvements of ginseng for cultivation in the future. Study results showed that genotype and environmental roles differ by ginsenoside variety, which suggested that forest farming of ginseng should focus on site optimization as well as the genotype selected for culture. Further, a new Hatch project begun in 2005 will use the ARC’s demonstration forest as a research site to test and develop new best management practices to increase the reliability and profitability of forest mushroom production.

Members of the Cornell Agroforestry PWT member have developed several instructional resources, including the *New York State Agroforestry Marketing Guide* (funded by the NY Dept. of Ag and Markets), the expanded and on-line *The How, When and Why of Forest Farming* curriculum for extension educators and landowners, and a permanent agroforestry component to he *Master Forest Owners (MFO)* educational curriculum.

**Applied Research and Extension Engineering Program Addresses Animal Waste Management Issues in New York State**

> **Knowledge Areas:** 12. Watershed Protection and Management, 403. Waste Disposal, Recycling, and Reuse, 141. Air Resource Protection and Management
> **Funding Sources:** State Appropriation, Smith-Lever, County Appropriations, Hatch

Environmental and waste management issues and practices is a major area concern of concern for New York 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 practical solutions to achieve regulatory compliance. Researchers and extension educators allied with the Cornell Manure Management Program (CMMP) have been actively engaged in integrated efforts to provide useful solutions on waste management to the industry.

Manure treatment research conducted by the state-funded PRO-DAIRY Team in 2005 included two projects, one to monitor and evaluate manure digester performance on 5 dairy farms, and another to evaluate the financial viability of digestion, and also a sand separation project examining the effectiveness of mechanical manure-sand separation to recover sand for use as bedding. Furthermore, new farm technologies or practices relating to energy use and consumption on farms and by manure treatment systems, air ammonia emissions, long-term manure storage and separation of manure solids and liquids were conducted.

The results of these applied research efforts were shared and disseminated through various extension approaches, including conferences, workshops, industry communications vehicles, websites, and producer meetings. A major conference on manure treatment, which drew over 250 attendees and featured over 30 presentations (many by Team members), was sponsored by the Natural Resource, Agriculture and Engineering Service (NRAES). Five articles on dairy manure treatment were printed in *Northeast Dairy Business* magazine, while 4 research project reports and 2 factsheets were authored and then posted on the CMMP website (http://www.manuremanagement.cornell.edu) and the CIG technology transfer website (http://northeast.manuremanagement.cornell.edu).

Collectively, the CMMP and PRO-DAIRY Team have had a positive impact on the NY dairy industry in several ways. Beyond, a palpable generally improved understanding within the industry about cost-effective dairy manure management options available, the program has spurred the implementation of several new manure treatment projects in NY in 2005 alone, including 4 new anaerobic digester projects valued at approximately $5 million, and several smaller solid separation/composting projects. IN addition, business and financial planning consultations carried out by team members have resulted in awards of over $100,000 in grants to dairy farm to demonstrate and/or evaluate innovative value-added manure treatment systems. Lastly, effective educational and communications leadership efforts in 2005 resulted in the signing of the EPA Air

Emissions Consent Agreement by over 150 dairy farm owners in the state, indicative of progressive and forward-thinking environmental stewardship of the state's dairy industry.

**Discovery of Chronic Wasting Disease in New York Deer Prompts Rapid Researcher, Extension Educator Response**

**Knowledge Areas:** 134. Outdoor Recreation, 135. Aquatic and Terrestrial Wildlife, 311. Animal Diseases
**Funding Sources:** Hatch, Smith-Lever

In March of 2006, tissue samples from five deer at two captured deer farms in Oneida County, NY tested positive for chronic wasting disease, or CWD, a fatal condition affecting deer and elk, and which may yet be found to have some human health implications. The confirmatory tests, which were conducted at the New York State Diagnostic Disease Laboratory at Cornell's College of Veterinary Medicine, prompted quick responses from a collaborating team of Cornell researchers and extension educators, all designed to raise public and agency understanding of the disease and its effects on the wildlife resource, public hunting activities, and potentially on human health.

CWD in deer and elk is similar to bovine spongiform encephalopathy (mad cow disease), which can affect domestic livestock such as beef cattle, in that it ultimately destroys the central nervous system of its victims. There is no known cure for either malady.

Cornell faculty consulted with state and federal wildlife agency personnel in the harvest and sampling of nearby free-ranging wild deer herds for infection with CWD (ultimately, the disease was found in 2 wild white-tailed deer harvested in this sampling). Following that, an existing CUAES/CCE-sanctioned Program Work Team (PWT) on Human Wildlife Conflict proposed developing a set of special educational programs relating to CWD. At Cornell, PWTs are self-forming, self-directed teams of faculty, educators and external stakeholders who collaboratively plan and deliver outreach programs, as well as getting involved in applied research, in their programming focus area.

To inform and update extension educators throughout the state about CWD in New York, the team began a series of CWD news updates, placed in Cornell Cooperative Extension's *CCE News*, an electronic newsletter that is sent throughout the extension system each week.

Working with colleagues in the College of Agriculture and Life Sciences, the College of Veterinary Medicine, the NYS Department of Environmental Conservation (DEC), and the NYS Department of Ag and Markets (NYSDAM), the team established a special CWD website, and a new publication, "Understanding Chronic Wasting Disease in New York State" (see by following link found at http://wildlifecontrol.info/CWD/), was produced and posted on the site. This publication was included as a special insert in DEC's magazine, *The New York State Conservationist.*

The PWT also planned and convened a CWD symposium in August that brought together some of the nation's leading authorities on CWD. The event was co-sponsored by the team, CCE , the American Wildlife Conservation Foundation, the Chronic Wasting Disease Alliance, and the DEC. Presentations were made by staff from the National Wildlife Health Center in Colorado, the Cornell

College of Veterinary Medicine, and the state departments of Health, Agriculture and Markets, and Environmental Conservation.

Lastly, four workshops, to provide extension educators, Master Forest Owner volunteers, and interested others with in-depth familiarity with CWD, its incursion into New York, and its implications were held in Dryden, Van Etten, Oswego and Ithaca.

**Cornell Researchers Lead Efforts in the Discovery and Control of Harmful Exotic Species**

**Knowledge Areas:** 211. Insects, Mites, and other Arthropods Affecting Plants, 213. Weeds Affecting Plants
**Funding Sources:** Hatch

Across the US, more than 4,500 non-indigenous species have established self-sustaining populations and pose a serious threat to agriculture and to the ecological integrity of our lands and waters. The nation pays a high price for invasive species in direct negative economic costs, environmental degradation, and aesthetic, public health and safety costs.

Invasive species affect every region of New York State, and hold enormous potential for causing adverse economic and ecological impacts. Cornell researchers, including those under Hatch support, are conducting considerable invasive species-related research in an effort to minimize such impacts.

Two Eurasian vines, the pale and black swallow-worts, are growing unchecked in forests and fields, threatening reforestation efforts, killing monarch butterfly larvae, and disrupting bird habitats. While they have been in the U.S. for over 100 years, their reach has exploded in the last 15 years. Cornell and USDA ARS researchers are collaborating on identifying natural biological controls on the swallow-worts. Meanwhile, a Hatch project at Cornell is exploring whether root chemicals possibly being released by the invaders help them to ward off other plant growth nearby; understanding this possible mechanism can help biologists ultimately determine plants that would be immune to those chemicals and thus help crowd out the swallow-wort.

The Asian longhorned beetle (ALB), a native of China and Japan, “hitchhikes” to North American port cities in solid wood packing material. In its larval stage, the beetle bores into live trees. It prefers deciduous hardwoods, such as maple, birch, horse chestnut, elm and poplar, girdles their vascular system, and ultimately causes death of the tree. U.S. federal and state governments have already spent over $168 million for control and removal of infested trees. The USDA’s Animal and Plant Health Inspection Service (APHIS) estimates that the beetle could potentially wreak over $41 billion in damages to the timber, maple syrup, nursery, and tourism industries. Other estimates of the impact, direct and indirect, of potential ALB infestation in all U.S. urban areas have reached over $650 billion.

Cornell University scientists have been at the forefront of the fight to track and control ALB. Entomologist E. Richard Hoebeke was the first to officially identify the beetle in 1996 from a sample collected in Brooklyn, N.Y. Hoebeke, along with Cornell colleagues and state and federal scientists, continues to conduct identification and delimiting surveys in port cities on North American shores to discover any new outbreaks of ALB and other exotic insects. These efforts have

identified several more introduced species in the U.S., including the viburnum leaf beetle, European crane fly, and woodwasp.

The viburnum leaf beetle devastated large swaths of native and imported viburnum species in 2004 and 2005, and continues to chow down on susceptible viburnum shrubs in New York State and New England. Paul Weston, a Cornell researcher who specializes in pests that attack woody ornamentals, is conducting several studies of biological control and minimally toxic control methods. In new plantings, he recommends planting non-susceptible varieties. The leaf beetle has already invaded 39 of New York's 62 counties as well as Maine, Vermont, New Hampshire, Pennsylvania, Massachusetts, Connecticut and Ohio.

European crane flies look like oversized mosquitoes. The good news is they don't bite. The bad news is they can severely damage all types of turfgrass and forage grass species and are known to attack seedling nurseries and a wide range of vegetable and small fruits crops. There are 3.4 million acres of turfgrass in the state and the turfgrass industry contributes $5.1 billion to the state's economy each year. The arrival of the European crane fly is of major significance to the golf industry and other sectors of the turfgrass industry. A Hatch-supported Cornell researcher is currently testing various chemical and biological pesticides in hope that treatment recommendations can be made when crane fly larvae are on the attack.

Despite dozens of interceptions at U.S. ports, a public enemy infiltrated the nation's borders in 2005. A single specimen from Fulton, NY, was identified by Cornell entomologist Hoebeke as the alien woodwasp. Subsequent surveys have found it in five New York counties and along the St. Lawrence River in Canada. These discoveries raised red flags across the nation because the invasive insect species has devastated up to 80 percent of pine trees in areas of New Zealand, Australia, South America, and South Africa. The woodwasp kills pines and other conifers by releasing a toxic stew of mucus and fungal spores when the female lays her eggs through the bark of the tree.

**Research Explores Grass as an Economical and Environment-Friendly Biofuel Alternative**

> **Knowledge Areas:** 131. Alternative Uses of Land, 133. Pollution Prevention and Mitigation
> **Funding Sources:** Hatch

In recent times of spiraling petroleum prices, all alternatives to fossil fuels as sources of energy are being closely scrutinized. Burning grass for energy has been a well-accepted technology in Europe for decades, but not so here in the U.S.

But a Cornell researcher says that burning grass pellets as a biofuel is economical, energy-efficient, environmentally friendly and sustainable. He bases his viewpoint on a research and demonstration project funded by the federal Hatch program through the Cornell University Agricultural Experiment Station.

This alternative fuel easily could be produced and pelleted by farmers and burned in modified stoves built to burn wood pellets or corn, said Jerry Cherney, the E.V. Baker Professor of Agriculture. Burning grass pellets hasn't caught on in the United States, however, Cherney said, primarily because Washington, D.C., agencies have made no effort to support the technology with subsidies or

research dollars. "Burning grass pellets makes sense; after all, it takes 70 days to grow a crop of grass for pellets, but it takes 70 million years to make fossil fuels," said Cherney, who noted that a grass-for-fuel crop could help supplement farmers' incomes. Cherney presented the case for grass biofuel at a U.S. Department of Agriculture-sponsored conference, in Baltimore in 2005.

"Grass pellets have great potential as a low-tech, small-scale, renewable energy system that can be locally produced, locally processed and locally consumed, while having a positive impact on rural communities," Cherney told those at the conference.

The downside? "Unfortunately grass has no political lobby, which makes the startup of any new alternative energy industry problematic," Cherney said. He noted that a pellet-fuel industry was successfully established in Europe by providing subsidies to the industry. And even though the ratio of the amount of energy needed to produce grass pellets to the amount of energy they produce is much more favorable than for other biomass crops, the lack of government support prevents the industry from going forward, he said.

Cherney has made a comparison of wood pellets with various mixes of grasses and the BTUs (British Thermal Units) produced per pound. He has found that grass pellets can be burned without emissions problems, and they have 96 percent of the BTUs of wood pellets. He also noted that grass produces more ash than wood -- meaning more frequent cleaning of stoves. Currently, he is testing the burning of pellets made from grasses, such as timothy and orchardgrass, as well as weeds, such as goldenrod, in pellet stoves at Cornell's Mt. Pleasant Research Farm.

Cherney pointed out that grass biofuel pellets are much better for the environment because they emit up to 90 percent less greenhouse gases than do oil, coal and natural gas. Furthermore, he said, grass is perennial, does not require fertilization and can be grown on marginal farmland. "Any mixture of grasses can be used, cut in mid- to late summer, left in the field to leach out minerals, then baled and pelleted. Drying of the hay is not required for pelleting, making the cost of processing less than with wood pelleting," Cherney said. "The bottom line is that pelletized grass has the potential to be a major affordable, unsubsidized fuel source capable of meeting home and small business heating requirements at less cost than all available alternatives."

**Hands-On Water Education for Teachers**

**Knowledge Areas:** 112. Watershed Protection and Management, 806. Youth Development
**Funding Sources:** NYS Department of Environmental Conservation

Project WET (Water Education for Teachers) is a national nonprofit water education program for educators and young people ages 5 to 18. The NYS Water Resources Institute at Cornell University, as part of its state and federal mandates, works in partnership with the NYS Department of Environmental Conservation to promote awareness, appreciation, and stewardship of New York State’s water resources through NY Project WET.

This program reached 860 educators through workshops in 2005, and nearly 4,000 educators since the New York program began in 2001. Educators include elementary, secondary, middle and high school teachers; college students and faculty members; pre-service teachers; youth organization

staff; Scouts; nature center educators; and camp counselors. Project WET reached an additional 24,000 adults and children in 2005 through conferences, water-testing programs, pond ecology classes, storm water education, and wetland classes. In addition, each year, NY Project WET convenes a Make-A-Splash Festival for 200 to 400 fourth- and fifth-grade students and emphasizes water education through interactive activities.

**Weeds Watch Out! Stops Invasive Aquatic Plants**

**Knowledge Areas:** 112. Watershed Protection and Management
**Funding Sources:** Great Lakes National Program Office, National Fish and Wildlife Foundation, County Appropriations

Weeds Watch Out! is a Finger Lakes region invasive aquatic plant early detection, monitoring, and control effort. Prior to 2005 there was no region-wide effort. Cornell Cooperative Extension of Cayuga County collaborated with several other local and regional organizations to develop the Weeds Watch Out! program.

Volunteers currently monitor more than 75 miles of shoreline on Cayuga, Oneida, Onondaga, Owasco, Seneca, and Skaneateles Lakes as well as the Three Rivers System and Sterling Creek. Volunteer monitoring efforts in 2005 resulted in the identification in Cayuga County of two water chestnut infestations and a European frog-bit infestation which were previously unknown. Control efforts, including chemical control and volunteers pulling weeds by hand, began in 2005 on the water chestnut infestations and will continue in 2006.

**Improving Agricultural Practices to Reduce Pathogens in the Water Supply**

**Knowledge Areas:** 112. Watershed Protection and Management, 307. Animal Management Systems, 311. Animal Diseases
**Funding Sources:** New York City Watershed Agricultural Council Educational Program

Cornell Cooperative Extension of Delaware County in cooperation with the Watershed Agricultural Program, Cornell University, and local dairy producers and veterinarians, developed Calf Assess, a hands-on workshop on calf care. The program improves skills for raising healthy animals in an effort to reduce pathogens that can affect water quality in the New York City watershed. Farm operators implemented whole farm plans that address their farms' potential to harm water quality. The course teaches various skills including the physical exam, esophageal tube feeding, and intravenous access for dehydrated calves. Calf Assess also provides knowledge on best management practices for raising healthy calves including colostrum management and calf environment. The focus is on dairy calf health and manure management to minimize the transference and shedding of pathogens into the city's water supply.

Sixty-eight producers completed the Calf Assess workshop in 2005 and 65 reported increased confidence in calf-raising. All participants reported learning at least one new technique that would apply to their calf duties or teaching. In following up with participants, producers reported that their calves are improving, reducing their death loss and number of sick calves. In one case, a farm reported

a reduction of sick calve from 50% to less than 3% from skills learned in Calf Assess. Another farm reported their calf raiser identified and treated a calf with a herniated navel appropriately, saving the calf and extra veterinary costs.

**Connecting Youths and Elders through Garden Mosaics**

> **Knowledge Areas:** 131. Alternative Uses of Land, 802. Human Development and Family Well-Being, 806. Youth Development, 608. Community Resource Planning and Development
> **Funding Sources:** USDA/CSREES special grant, National Science Foundation, Private Donors

Garden Mosaics is a science education and community action program that connects youths and elders. Garden Mosaics can help young people, often in urban settings, appreciate the diversity of plants and cultures in their community, form positive relationships with adults, learn about science, take action to benefit their neighborhood, and participate in a global project to help the environment and food system. Garden Mosaics is funded by the National Science Foundation and private donors.

Nationally, nearly 100 educators actively include Garden Mosaics in their informal science education offerings, with each educator reaching an average of 20 learners. More than 700 educators nationally have been introduced to Garden Mosaics, and many of them implement smaller portions of the program. In New York State, two Cornell Cooperative Extension sites (New York City and Tompkins County) actively implement Garden Mosaics. Many others, including Albany, Erie, and Monroe counties are making plans or have expressed interest in the program.

Cornell University's Garden Mosaics program recently released an innovative series of new products, including an interactive training DVD for educators. DVD users can view live footage of educators conducting program activities with youths and elders, download the program manual including a series of illustrated activity and fact sheets, and link to many other educational resources. Additional products available through the Garden Mosaics web site include 37 colorful illustrated Science Pages, covering topics ranging from aerial perspectives to soil sampling, an instructional manual, and an educators' kit.

Cornell's Garden Mosaics program has earned four international multimedia awards for its interactive DVD. The program also has been featured in the NSF Discovery series, Parents.com, at a USDA Sustainable Agriculture Research and Education program, and other venues. Additional information is at www.gardenmosaics.org.

**Linking Water Quality to Native Plants, Ecosystem Health**

**Knowledge Areas:** 112. Watershed Protection and Management
**Funding Sources:** National Fish & Wildlife Foundation, County Appropriations

Students in the environmental science class at Mahopac High School were faced with a problem and an opportunity: how to convince school board members that they could design a stream restoration program for a stream that runs in front of the school. Students would monitor water quality and design a native plant education garden, stabilize the stream banks, define point-source pollution and water quality, remove non-native plant species, and improve community awareness of the biodiversity of the natural landscape. The project received a Five-Star Restoration Matching Grant from the National Fish and Wildlife Foundation.

The staff at Cornell Cooperative Extension of Putnam County worked with students to identify plants native to streams and wetlands in the Hudson Valley, helped them plan beds and paths for the native plant garden areas, and taught basic landscape design concepts and how to take soil samples for submission to the Cornell University Nutrient Analysis Laboratories. Extension educators also instructed the students in designing an informational presentation for the school board.

The students were successful in their request to the school board—which gave permission for the garden, with the condition that students consult with the school maintenance staff about the feasibility and expense of caring for the garden.

**Trained Logger Certification Program**

**Knowledge Areas:** 123. Management and Sustainability of Forest Resources
**Funding Sources:** New York City Watershed Agricultural Council – Forestry Program, County Appropriations

In 2005 Cornell Cooperative Extension of Greene County partnered with the Watershed Agricultural Council and Cornell's Department of Natural Resources to coordinate a logger-training program. This involved promoting a Trained Logger Certification (TLC) to logging contractors and others involved in logging in the NYC watershed and neighboring regions, and a revised publication of the Forest Ecology and Silviculture curriculum.

Through the TLC program loggers learn environmentally sound practices and improved skills that afford them a safer means to greater productivity, increased profitability, and ways to sustainably manage forested resources. During the initial offering in Fall 2005, Greene County extension educators coordinated nine workshops and registered 84 participants. "This class is extremely important for the future of our forests," said one participant, echoing the views of others.

**Farming and Environmental Stewardship: Productive Conservation**

**Knowledge Areas:** 136. Conservation of Biological Diversity
**Funding Sources:** National Fish and Wildlife Grant administered through Finger lakes Resource Conservation and Development Council, County Appropriations

Habitat loss is the leading environmental concern in the Northeast. Bird species in particular are declining from loss of grasslands and the loss of continuous mature forests and hedgerow corridors. Since 2002 the Cornell Cooperative Extension South Central New York Agriculture Team (Cortland, Tioga, and Tompkins counties) has been using individual consultations, interactive workshops, and electronic outreach materials to help rural landowners merge profitable agriculture production with verifiable wildlife habitat development.

As a result of this multi-year program,

- Volunteer surveyors have documented the presence and likely breeding of grassland birds in active livestock pastures.
- More than 100 people have assessed their property and are implementing trial American ginseng plots.
- About 50 local novice mushroom growers have explored the production and marketing of gourmet mushrooms like shiitake, oyster, and lion's mane.
- A new 45-page forest crop marketing guide is now available to highlight selling points, handling techniques, and retail opportunities, reducing the level of trial-and-error necessary to become profitable.

With increased financial success, grassland and forest owners will have increased ability to keep their lands in uses that promote habitat protection.

**Engaging New York Communities in Community Forestry Management**

**Knowledge Areas:** 124. Urban Forestry
**Funding Sources:** County Appropriations, Smith-Lever, Niagara Mohawk

New York land is being developed at an ever-faster pace, and the importance of establishing and maintaining community trees and open spaces is key to creating sustainable communities. Trees and parks are an integral component of livable communities. Among the many benefits of trees in urban areas, they

- Contribute to improved water quality by slowing urban run-off and preventing erosion,
- Conserve energy by direct cooling of structures,
- Sequester carbon dioxide,
- Contribute to noise reduction,
- Provide habitat for wildlife,
- Buffer residential from commercial land uses,
- Provide recreational opportunities, and
- Improve property values.

Cornell Cooperative Extension of Onondaga County and researchers in Cornell's Urban Horticulture Institute piloted a street tree inventory and planning program with students from Cornell University, SUNY Morrisville, and SUNY College of Environmental Science and Forestry. Students were trained to take street tree data on location, species, size, condition, and management recommendations using hand-held computers. The Student Weekend Arborist Team (SWAT) then inventoried trees in two villages on successive weekends. The USDA Forest Service Northeast Urban Forest Experiment Station was engaged and modified its Urban Forest Effects Model (UFORE) to use municipal tree census data, thus allowing dollar values to be assigned to a community's tree resource.

Communities involved in the project attended workshops to learn how to analyze findings and use the data to develop community forest plans. Each community received its street tree data, environmental benefits dollar values, and sample analysis. They used the data and technical training to develop their collective vision and operational plans to enhance their community forests and most effectively apply future funding.

In 2003 Niagara Mohawk (now National Grid) recognized an additional benefit from the program—preventing powerline damage by street trees—resulting in the utility funding a train-the-trainer project to involve volunteers and expand to four more communities.

In 2004 the program expanded to a pilot regional SWAT program. SUNY Cobleskill students and staff members inventoried the Village of Cobleskill as a pilot project. Later in 2006 the Cobleskill team will be available for communities in that area of the state. The goal is to establish regional SWAT teams with other colleges around the state to better serve communities. The various SWAT teams involved have assessed more than 15,000 trees and planting sites to date.

**Organic Landscape Management**

**Knowledge Areas:** 112. Watershed Protection and Management
**Funding Sources:** County Appropriations

Arborists, landscape gardeners, and landscape design firms on Long Island must be particularly attentive to the environmental implications of their operations due to the Island's well-drained soils and reliance on groundwater for drinking supplies. As a result of participating in Cornell Cooperative Extension programs in Suffolk County, more than 300 businesses have expanded use of organic plant management methods, significantly reducing risks of pesticide contamination.

**Restoring Shellfish to Long Island Bays**

**Knowledge Areas:** 135. Aquatic and Terrestrial Wildlife
**Funding Sources:** County Appropriations, Town Appropriations

Spat is the word for the tiniest form of shellfish that has settled onto the place where it will live out its life. The SPAT (Southold Project in Aquaculture Training) program was created by the Marine Program of Cornell Cooperative Extension of Suffolk County, to encourage community members to become stewards of their environment and to restore shellfish to the bays. To augment the limited staff of the CCE Marine Program, volunteers help produce shellfish to seed the bays. SPAT volunteers grow minuscule shellfish in containment, away from predators, until they reach adult size when they are released into local creeks and bays. Volunteers are offered monthly workshops and provided with shellfish seed and necessary tools and supplies to grow their shellfish gardens either at their own waterfront or in the SPAT community garden. In exchange for a minimal fee, all permits are secured and volunteers may harvest half of the shellfish for personal use while the other half is returned to the waters. Volunteers maintain the hatchery ("SPAT Shack"), and nursery. Over 400 people have taken part in this program and it continues to grow each year. The SPAT Program is financed by federal grants, corporate sponsorships, foundation support, participant fees and fund raising. Over 11,000 hours of volunteer service were logged by SPAT volunteers in 2005. This program is working as an integral component of a 4-year, $1.75 million effort to restore bay scallops to the Peconic Bay.

**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:

<u>The Economy</u>

- 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.

<u>Family and Community</u>

- 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 |
|---|---|
| **2005** | 285 (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 |
|---|---|---|
| **2005** | 2317 (3500) | 835 (850) |

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

| Year | Output: # persons completing programs | Outcome: # who actually adopt practices |
|---|---|---|
| **2005** | 1653 (3500) | 835 (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 |
|---|---|---|
| **2005** | 2231 (6500) | 1561 (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 |
|---|---|---|
| **2005** | 18718 (10500) | 5224 (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 |
|---|---|---|
| **2005** | 4516 (10500) | 2285 (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 |
|---|---|---|
| **2005** | 17913 (6500) | 10483 (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 |
|---|---|---|
| **2005** | 55888 (15000) | 32421 (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 |
|---|---|---|
| **2005** | 35909 (15000) | 19916 (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. |
|---|---|---|
| **2005** | 9402 (7500) | 5180 (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. |
|---|---|---|
| **2005** | 9519 (20030) | 6222 (8500) |

**INDICATOR 5.4.3** The total number of persons completing non-formal education programs on 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. |
|---|---|---|
| **2005** | 16394 (18000) | 12305 (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 |
|---|---|---|
| **2005** | 345 (750) | 254 (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. |
|---|---|---|
| **2005** | 21394 (20000) | 12556 (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 |
|---|---|---|
| **2005** | 15142 (3500) | 5798 (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 |
|---|---|---|
| **2005** | 8709 (3000) | 6066 (1200) |

**Resources Allocated to Goal 5 (FFF and Match)**

**Dollars x 1000 and (FTE) or (SY)**

| | FY2005 Target | FY2005 Actual |
|---|---|---|
| **Extension Total** | 4,842 (80.6) | 4,216 (75.3) |
| **Research Total** | 1,825 (11.5) | 1,725 (16.5) |

## 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.

### 1. Community and Economic Vitality

### Concept Mapping for Community Planning

**Knowledge Areas:** 608. Community Resource Planning and Development
**Funding Sources:** Smith-Lever, Grants and Contracts

Community strategic planning, especially with respect to Main Street revitalization, can be problematic due to the diverse interests of stakeholders in the community. Concept mapping is an innovative approach to large-group decision-making and strategic-planning efforts. It uses innovative software and a process developed by Cornell faculty members to easily facilitate participation and represent relationships between ideas and concepts pictorially, in a way that most people can readily comprehend. Concept mapping has been successfully used in large group processes with business corporations, state and national agencies, and higher education institutions. Cornell Cooperative Extension associations also can connect with the Community and Rural Development Institute (CaRDI) to offer concept mapping as another community development tool when working with communities or organizations in their county.

CaRDI completed three concept mapping projects in 2005, in partnership with extension educators in Erie and Ontario counties. As a result:

- The Village of Hamburg (Erie) has improved communications between the village board and main street businesses; created committees for design issues, cultural events, and small business assistance; and brought the village board together to work smarter and more efficiently.
- The Town of Victor (Ontario) has identified key development issues—thereby strengthening the board's planning decisions—and is enhancing the cooperation between the Town and Village of Victor with respect to traffic planning, economic development, and shared services.
- The City of Canandaigua (Ontario) successfully applied the process to updating its economic development strategy as part of the community comprehensive plan.

CaRDI is currently working with Cornell Cooperative Extension of Greene County on a project applying concept mapping to determine outreach efforts and programming needs for the Agroforestry Resource Center (ARC). Greene County extension educators are engaging users, stakeholders, elected officials, and Cooperative Extension staff members to determine the role of the ARC in a regional context and to plan programming and services accordingly.

**Lake Erie Concord Grape Belt Heritage Project**

**Knowledge Areas:** 604. Marketing and Distribution Practices, 608. Community Resource Planning and Development
**Funding Sources:** New York Wine and Grape Foundation, New York State Assembly and Senate, Chautauqua County Economic and Planning Department, and Coastal Region NYSCRIP Signage grant.

The Lake Erie Concord Grape Belt is a region 50 miles long, but only a few miles wide, and includes 30,000 acres of grapes in Chautauqua County, NY, and Erie County, PA—making it the largest Concord grape region in the world. The Grape Belt is faced with a stagnant local economy as well as competition from other regions and countries..

The Lake Erie Concord Grape Belt Heritage Association—supported by Cornell Cooperative Extension of Chautauqua County—along with the Community, Food, and Agriculture Program (CFAP) in the Department of Development Sociology and other programs and departments at Cornell University—is on the verge of becoming the first agricultural heritage area in the United States. A bill creating the heritage area is being drafted for the current legislative session.

The Lake Erie Concord Grape Belt Industry has realized significant impacts to date through:

- Securing $85,000 in grants for promotion and tourism projects;
- Expanding the organization to 125 members including grape growers, cooperatives, processors, and allied businesses and organizations;
- Implementing an economic impact study of the Concord Grape Belt;
- Designing a culinary bounty program to encourage Concord grape–related cuisine and product development; and
- Developing the first Lake Erie Concord Grape Heritage product (with 100 percent Concord grape juice) for retail sale and to market as a nutritious alternative to sodas and other beverages typically sold to students in local schools.

**Managing Community Agricultural and Land Use Conflicts**

**Knowledge Areas:** 131. Alternative Uses of Land, 608. Community Resource Planning and Development, Sociological and Technological Change Affecting Individuals, Families, and Communities
**Funding Sources:** State Appropriations, New York State Agricultural Mediation Program, Smith-Lever

The NYS Partnership to Manage Community Agricultural and Land Use Conflicts is designed to

0) document the nature and extent of conflicts in New York State involving agriculture,
0) build statewide and regional partnerships to manage farm and related land use conflicts,
0) stimulate training and regional team building, and
0) offer project resources.

The partnership includes 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.

The partnership focuses on county-based research and outreach in agricultural counties, with several successful outcomes:

- Cooperation on situation pre-assessments concerning several significant and long-standing farm-related conflicts.
- Statewide involvement in building consensus around the issue of Concentrated Animal Feeding Operations (CAFOs)—in particular after a manure spill in northern New York.
- Working with Cayuga County extension educators to address an agriculture and land-use issue.
- Offering training opportunities across the state, which many Cornell Cooperative Extension agricultural educators have attended.
- Distribution of numerous copies of the publication Farms, Communities, and Collaboration: A Guide to Resolving Farm Neighbor Conflict.

**Developing Improved Agricultural Neighbor and Community Relations**

**Knowledge Areas:** 131. Alternative Uses of Land, 608. Community Resource Planning and Development, Sociological and Technological Change Affecting Individuals, Families, and Communities
**Funding Sources:** County Appropriations

An increasing number of new residents are purchasing land in rural Chenango County…more than thirty percent of rural land has been sold in the last five years. Many of these new landowners will be starting new businesses or tourism enterprises. Cooperative Extension has been instrumental in bringing programs to new residents to assist in their assimilation in the community and has been an important representative on the Agriculture and Farmland Protection Board with emphasis on reducing the impact of conflict and misunderstanding in our rural environment. One major point of confusion associated with modern and especially large scale farming centers around manure, its storage and distribution. To have the greatest positive impact upon the environment with our weather and cropping patterns, manure needs to be stored and distributed over a large geographic area. In the process of storing manure it develops an unfavorable aroma and distributing it over great distances creates challenges for drivers on our roads.

One example of how CCE provided a successful intervention was between a new business owner and his neighboring farmer. A new Fruit Winery was having customers call to request a "road condition report" from the entrepreneur before they would plan to attend a tasting session at the new business. The owner of the winery asked extension to determine how he might impress upon his neighboring dairy farmer that the practices that he had been conducting had a negative impact on the potential of his growing business.

In response from a training session developed two years ago by the USDA agencies, Chenango County Farm Bureau and county-based USDA employees have responded to agricultural based complaints and have recoded the instances and responded in most cases with a site visit within seventy-two hours. This process has been instrumental to assist in the conveyance of solutions or

communication to the New York Agriculture and Markets, law enforcement or local officials when requested. Since the conflict over the road condition cited as an Issue has been improved, the winery has doubled its capacity to produce as has the size of the building to market its product. The entrepreneur said, "CCE's involvement was timely and effective".

Eight out of the ten farmers with large manure storage devices have attended a session where the CCE, and the other agricultural agencies facilitated a dialog that resulted in communication about the concerns associated with owning and operating these structures and transporting manure off the immediate site. We have received supportive comments and responses back from the operators who spread manure on one out of every six acres of crops in the entire County.

**Consumer Demographics and Market Strategies Program**

**Knowledge Areas:** 604. Marketing and Distribution Practices, 608. Community Resource Planning and Development
**Funding Sources:** City of Auburn, County Appropriations

The Consumer Demographics and Market Strategies (CDMS) program enhances connections between campuses and communities involved in main-street revitalization efforts. The CDMS approach integrated with main-street revitalization represents a collaboration between the Community and Rural Development Institute (CaRDI) and the Cornell Institute for Social and Economic Research (CISER). CDMS projects help municipalities revitalize economically distressed downtown shopping districts, promote business development, and better serve local residents.

Cornell Cooperative Extension of Cayuga County recently played a pivotal role in recognizing the value of the CDMS program and connecting with representatives of the City of Auburn Economic Development Department and the downtown Auburn Business Improvement District (BID). Downtown Auburn's consumer market analysis defined the spending potential of the BID's customer base and obtained demographic information useful in determining who lives around downtown Auburn and whom BID businesses (and potential businesses) should be targeting.

The Downtown Auburn BID has developed a three-phase economic growth plan to retain and grow the existing businesses while creating an environment that will attract new ones. Ultimately, the addition of successful businesses will further enhance the business climate and bring more consumers to the area.

**New York Extension Disaster Education Network**

**Knowledge Areas:** 608. Community Resource Planning and Development, 723. Hazards to Human Health and Safety
**Funding Sources:** Smith-Lever

The New York Extension Disaster Education Network (NY EDEN) provides education in disaster preparedness, recovery, and mitigation for New York State residents and their communities. A major role of NY EDEN is to link state and national emergency preparedness resources with the

networking and outreach capabilities of local Cornell Cooperative Extension offices throughout the state.

NY EDEN assists county extension offices in developing emergency preparedness plans and expanding working relationships with other community agencies that respond to emergencies. Extension staff members from 54 counties have completed training in preparing emergency plans; regional network-building seminars have been conducted in 12 counties involving governmental and volunteer agencies; and 70 Cornell staff members have participated in Incident Command System training.

NY EDEN assisted with relief efforts during the Katrina and Rita hurricane disasters by maintaining a direct link to the Louisiana Cooperative Extension Service and providing Cornell resources to national EDEN. Through its web site, NY EDEN coordinates the development and distribution of information addressing specific emergency issues facing New York communities—such as manure spills, floods, and ice storms. An active disaster listserv also provides extension staffs with immediate preparedness information.

## 2. Quality of Life for Individuals and Families

### Cornell Researchers Uncover Linkages Between Child Care Services and Economic Development

**Knowledge Areas:** 801. Individual and Family Resource Management, 802. Human Development and Family Well-Being, 805. Community Institutions, Health, and Social Services
**Funding Sources:** Hatch, US Department of Health and Human Services, Kellogg Foundation, Smith-Lever

Child care is part of the social support infrastructure that undergirds economic development, but its role in such has not been recognized or appreciated by public policymakers and appropriators. In 2002, Cornell researchers initiated a collaborative research project to build understanding of a new policy framework for child care that addresses the sector's importance from an economic development perspective. Using input/output modeling, this project sought to help state and local policy makers build coalitions to enhance child care in rural areas in need of economic development assistance.

With co-funding from CUAES (Hatch), the U.S. Department of Health and Human Service (DHHS) Child Care Bureau, and the Kellogg Foundation, researchers conducted (1) economic impact analyses to demonstrate the economic returns resulting from investments in child care; (2) outreach and participatory research to develop a method/tool that state and local administrators could use to measure the economic impact of the child care industry; and (3) by linking states doing similar work, built a data base on the impact of the child care sector in participating state and local jurisdictions.

Outcomes from this effort included key extension reports, including *Economic Development Strategies to Promote Quality Child Care, Comparing Child Care Multipliers in the Regional*

*Economy: Analysis from 50 States*, and *Child Care and Parent Productivity: Making the Business Case*. These materials have become the anchoring resources in an outreach effort that has included workshops, conferences, tactical publication, direct technical assistance, and consultation services. The project's website (http://government.cce.cornell.edu/doc/viewpage_e.asp?ID=Child_Care) is viewed as a preeminent electronic source of information, educational resources, and economic developer tools on child care and economic development relationships.

This project has had major effects on child care and economic development policy across the country. Over 30 state and local teams have utilized the new Cornell methodological guide to conduct regional economic studies of their child care sectors. These teams have also adopted and adapted the Cornell economic development strategy guide and parent productivity report to assist development and business partners craft new economic development solutions to child care service limitations in their communities. The 50-state analysis of child care was distributed to lead administrators in every state, and was followed-up by a telephone conference workshop co-sponsored by the DHHS Child Care Bureau. Some 1500 practicing planners nationwide were reached with project publications run in the *Planning Advisory Service (PAS) Memo* and *Economic Development Quarterly*, the leading professional journal among economic developers. Within the economic development disciplinary and scholarship realm, the project has successfully addressed the conceptual/methodological problems associated with accounting for local service sector contributions within regional economic models—models that have historically privileged export sectors as the leading stimulants to economic development.

**Study of Latino Immigration in Rural Areas Determines Keys to Community Assimilation**

> **Knowledge Areas:** 802. Human Development and Family Well-Being, 803. Sociological and Technological Change Affecting Individuals, Families, and Communities
> **Funding Sources:** Hatch, USDA/CSREES Special Grant

Data from the U.S. Labor Department indicate that up to 80 percent of all U.S. farm workers are Mexican born. In New York State, Mexican immigrants now make up more than 90 percent of the fruit and vegetable workforce, and an increasing number are working on dairy farms. Unlike transient migrant workers of the past, more Mexican families are choosing to settle in the rural community. Positive and productive assimilation and integration into the rural community is not only a desire of the immigrants themselves, but it is also a critical need for the farm owner, who needs to retain reliable and trained-on-the-job labor force, the receiving community, and for rural development agencies and programs.

Since late 2001, studies conducted by Cornell faculty and funded with Hatch support and a USDA/CSREES special grant have sought to provide a better understanding of the factors that enhance immigrant social and economic integration within rural New York communities, and to develop and evaluate educational resources—for immigrants and community leaders alike—that promote that assimilation. Through key informant interviews, focus group interaction, and surveys conducted in 5 NY rural communities, the research brought to light several factors that would likely affect full integration into the social and economic life of the community.

These factors included the abilities of the immigrants to speak, read and write in English. Proficiency in English as a second language was seen a critical to immigrants finding year-round employment, opening bank accounts, and, in general, becoming self-reliant in terms of their ability to travel, easily communicate, and gaining social services unaided. English language abilities were found to be key in the formation of interpersonal relations and close friendships with other community members that are neither Hispanic nor a farm worker. Such friendships are an important aspect of becoming fully integrated into a community's mainstream, because they help immigrants gain access to needed goods and services.

Future extensions of these studies will focus on how to best assist the immigrants in moving "out of the migrant stream" via English language programs and adult educational opportunities. In addition, the concluded studies strongly suggested that enhanced awareness within the entire community of the new immigrant culture and the social changes that are taking place in the community could go a long way in encouraging fuller social integration. As such, efforts have focused on public discussions to bring about greater understanding of the new make-up and culture within the community fabric. A new related study, also funded with Hatch support, will seek to determine how undocumented immigrant farmworkers are gaining access to basic health care services.

As a way to extend the findings and recommendations of their work, the researchers have produced and distributed a four-part publication series "Immigrants and the Community" (http://rnyi.cornell.edu/poverty_and_social_inequality/), and a factsheet entitled "The New Immigrants: Hispanics Settling in Rural Communities" (http://rnyi.cornell.edu/community_and_economic_development/000177.php).

**Building Research and Extension Capacity in Child and Family Policy**

> **Knowledge Areas:** 801. Individual and Family Resource Management, 802. Human Development and Family Well-Being, 805. Community Institutions, Health, and Social Services
> **Funding Sources:** Hatch, Smith-Lever

Strategic investments of federal formula funds by state agricultural experiment stations and cooperative extension programs should not only focus on addressing national goals and emphases, but also should seek to develop the capacity of the land grant institution partner to contribute to future research and outreach scholarship as related emerging issues arise. At Cornell, efforts have been undertaken to develop such key and thoughtful institutional "capacity-building" in the national goal area of *Supporting Increased Economic Opportunities and Improved Quality of Life* and national emphasis area of *Families, Youth and Communities.* These efforts have resulted in a faculty-led and functionally integrated (research-extension) program in family well-being and parent-child relationships.

In response to reductions in campus effort available to partner with local extension educators, a competitively-funded Smith-Lever extension project was launched in 2001 to strengthen the county-county and campus-county connection in that programming area. It established a unique mentoring program wherein educators in counties demonstrating successful, research-based parenting education programs provided leadership and training for other county educators. In a classic "teach-the-

teachers" multiplier approach, mentors taught workshops on topics such as teens as parents, fathers as parents, grandparents raising grandchildren, and parenting for literacy. One of the resulting curricula publications, "Parenting the Second Time Around," won first-place in at the national conference of the Association of Family and Consumer Sciences.

The program also hosted an annual conversational session with invited research faculty, who would overview their research work and entertain educator questions. These sessions became institutionalized on an annual basis, due to increasing attendance (typically over 40 educators and/or faculty attend) and interest, and positive session evaluations.

Coincident with this project was the hiring by the College of Human Ecology (CHE) of a new tenure-track faculty member in 2001 in the area of child and family policy. CUAES jump-started establishment of her research program at Cornell via Hatch funding of a project entitled "*Social Context and Youth Competence: Assessing the Benefits of Community Resources*." This research examined the how demographic factors and parents' perception of community quality might influence youth outcomes. The results of this work offered important national policy implications, as it found a strong association between immigrants living in a community and positive youth outcomes, countering prevailing theory and other studies that suggested immigrant status as an impediment to social integration and positive youth outcomes.

This study and others established the investigator's research footing at Cornell and benchmarked subsequent explorations, which have attracted sponsored support from the William T. Grant Foundation (on grandparent roles with adolescents), NIH (on welfare, family and child well-being) and USDA (on household and government subsidized food security programs). Further, using data from the National Longitudinal Study of Youth, she determined that academic achievement for children living in single-parent families does not significantly differ from children living with married parents—if a grandparent lives in the home. This finding could substantively affect policy and practices developed and followed by public welfare agencies.

Joint competitively-awarded support from CUAES and CCE to this faculty member has further integrated applied research and extension programming on parenting and child well-being at Cornell. As a result of that support and her related activities, she has established:

- A "Parenting in Context" website for educators (www.parenting.cit.cornell.edu),with the number of "hits" suggesting 20 visits from each CCE parent educator over the last 2 years;
- A Parenting Education Program Work Team (PWT), composed of researchers, educators and external stakeholders, which has developed new curricula, refined programming evaluation tools, produced 6 new publications on parenting education; and
- A regular video-conference for parenting educators, using distance-learningtechnology. This electronic conference evolved out of the aforementioned research conversation sessions.

In sum, strategic investment of research and extension federal funds, in concert with faculty hiring decisions at CHE, and strong, sustained, integrated and collaborative efforts by new Cornell faculty and extension educators have provided a new and cutting-edge capacity to address family, parenting, and child well-being issues well into the decade.

**"EmPower New York" Financial and Energy Education Program**

**Knowledge Areas:** 801. Individual and Family Resource Management
**Funding Sources:** NYS Energy Research and Development Authority, NYS Electric and Gas, National Grid, County appropriations

Limited-income households have trouble meeting the cost of energy used in their homes. It is a major expense, consuming resources needed for other basic living expenses. Cornell Cooperative Extension educators collaborate with Honeywell DMC to conduct educational programs for customers enrolled in NYSERDA's limited-income energy assistance EmPower New York[sm] program. Participants have the opportunity to enroll in Cornell Cooperative Extension energy-use management (Save Energy, Save Dollars) and financial management (Making Ends Meet and Exploring Credit/Debt Management Issues) workshops. Extension educators from Cortland and Tompkins counties provide statewide leadership for the program.

Currently, 28 Cornell Cooperative Extension associations offer workshops in 30 counties throughout the New York State Electric and Gas (NYSEG) and National Grid service areas. During 2005, extension educators conducted 334 workshops, reaching 3,072 participants. Attendees received an assortment of energy-saving items at the energy workshop and money-management tools at the financial management workshops. Nearly 12,000 households are enrolled in EmPower New York[sm], and the number continues to grow.

**Relatives as Parents Program**

**Knowledge Areas:** 801. Individual and Family Resource Management, 802. Human Development and Family Well-Being
**Funding Sources:** NYS Office of Children and Family Services, County Appropriations

In New York 140,000 children less than 18 years of age are being cared for by kin, mainly grandparents, with an estimated 5 million children being raised by relatives in the US. The ***Relatives as Parents Program (RAPP)*** offers support for kinship caregivers to provide a caring, safe and supportive environment for the children and youth in their care, while also developing the supports, skills and resource networks needed to promote the retention of their relative children and build strong and healthy kincare families.

The NYS Office of Children and Family Services (OCFS) recently awarded funds to operate the core RAPP program in Orange County NY, expand services provided in the core program (i.e. adding mental health counseling and legal consultation), and to replicate the Cornell Cooperative Extension (CCE) Orange County model for use with grandparent and relative caretaker families in Dutchess and Ulster Counties as the Hudson Valley Regional RAPP Program. Approximately 20 additional CCE county associations conduct grandparents as parents programs and have a strong connection with a Cornell faculty member's research.

The RAPP program has collaborations across New York including with the NYS Office on Aging and AARP. Teaching materials developed, entitled *Parenting a Second Time Around (PASTA)*, won first place for Educational Curriculum Package through the National Extension Association of Family and Consumer Sciences and Orange CCE received the *Help for Caretaker Relative Award* from the NYS OCFS. The curriculum can be ordered at: http://store.cce.cornell.edu/. Over 300 copies of the teaching curriculum are in use by educators throughout the US.

Grandparents who are participating in RAPP in Orange County made comments such as:

- "I now have the knowledge to help my grandson and myself."
- "The first workshop helped me to deal with my own frustrations as a grandparent caregiver."
- "I liked the way *discipline* was explained. I tried some of the suggestions and they helped."

Over 200 parenting professionals were trained to deliver *PASTA* by CCE Orange and Ontario educators in 2004 via the Caregiver Forum series for the NYS Association of Area Agencies on Aging, thus extending the potential impact of the workshops. Parenting educators trained to deliver PASTA are enthusiastic about curriculum:

- "Relative caregivers have so many needs; *PASTA* did a wonderful job of choosing the most important to highlight."
- "Having worked for many years in adult literacy, I was pleased to see the effort to make the text easy to read and understandable."
- "This is an excellent program and can be easily used to train those who work with kinship care families across the nation."

**Parents Involved in Education (PIE)**

**Knowledge Areas:** 802. Human Development and Family Well-Being, 806. Youth Development
**Funding Sources:** County Appropriations, Schenectady City School District, Schenectady County Youth Bureau

The Hamilton Elementary School community in Schenectady County is a diverse population that includes families dealing with limited resources financial poverty and many other sources of stress in their lives. On average, the students in grades 3, 4, and 5 score 6 to 12 months below grade level in math and reading. This program is based on research and experience showing that children do better academically and socially with increased parent involvement.

Cornell Cooperative Extension of Schenectady County collaborated with the Schenectady City School District and the Schenectady County Youth Bureau to implement a program that provides valuable education to families in the community through the Hamilton Family Room. As a result,

- 150 parents/caregivers and children attended the Second Annual Hamilton School Math Night; attendees learned ways to promote everyday math at home.
- 75 children completed the TV Turn-Off Week program sponsored by the PIE program, demonstrating success in setting goals, decision-making, and self-discipline.
- 32 children have shown an increase in the positive character traits of responsibility, caring, and citizenship.
- Discipline referrals within the school have decreased by 40 percent compared to the previous year.

**Seaway Trail Even Start Family Literacy Program**

**Knowledge Areas:** 802. Human Development and Family Well-Being
**Funding Sources:** NYS Education Department, County Appropriations

Cornell Cooperative Extension of Jefferson County has partnered with Jefferson-Lewis BOCES since 2003 to implement the Seaway Trail Even Start program. Even Start is a family literacy program providing educational opportunities to parents with young children in order to break the generational cycle of poverty and illiteracy. Since the program began, 11 parent participants have achieved GED certification, and several are now preparing for college, gaining skills necessary to be full partners in their children's education. As a result of the program, one participant who earned his GED said, "Without Even Start believing in me, I could not have done this."

**Family Budget Education Program**

**Knowledge Areas:** 801. Individual and Family Resource Management
**Funding Sources:** County Appropriations

Increased debt loads and the lack of savings have placed many low- and moderate-income individuals and families in financial stress or close to insolvency. Through the Family Budget Education Program in Dutchess County, individuals and families improved their financial management skills in order to increase savings, reduce debt, and incorporate best practices into their personal financial matters.

One participant reduced debt load by $400 per month; another reduced debt load by $10,000 overall. Yet another participant wrote in a letter, "I thought I was doomed. [My educator] gave me the faith that my poor money management skills could turn around, and they have! [My educator] has given me the confidence that I can change and she has given me the suggestions on how to do this."

**Cortland Literacy is a Family Experience (LIFE) Program**

**Knowledge Areas:** 801. Individual and Family Resource Management, 802. Human Development and Family Well-Being
**Funding Sources:** Workforce Investment Act Family Literacy grant, County Appropriations

A Cortland County partnership addresses the family literacy need for low-income families. Cornell Cooperative Extension and Onondaga-Cortand-Madison BOCES collaborate to offer nutrition education, budgeting, mentoring, educational resources, and literacy information through the Cortland Literacy Is a Family Experience (LIFE) program.

The LIFE program has helped low-income families make significant changes over the past two years. Children do better in school, parents become teachers of their children, and parents move on to better-paying jobs and buy their first new homes. Parents become more in control of their financial situation, and they learn to provide more nutritional meals for their families. They obtain a sense of pride in their accomplishments that affects their families and their communities.

Six adult participants graduated from adult education programs at OCM BOCES Center for New Careers. Of the parents who earned their high school diplomas through the LIFE Program this year, one stands out as an example of all that is possible for these families. "M" obtained her diploma through the GED program while working with LIFE. After doing so, she and her fiancee, "B" completed a LIFE administered BOCES LMS (life management skills) parenting course, in order to to obtain custody of his two children. She is now studying successfully in college, and her four children are in school, three in Head Start and one in Kindergarten. She is a member of the Head Start Policy Council, and the Classroom Parent Committee. She and her fiancée are committed to a better life for themselves and their children. When M entered the LIFE Program, she was withdrawn and quiet and fearful. She has become a vibrant, involved parent and student with much to be proud of.

**Managing Family Financial Resources**

**Knowledge Areas:** 801. Individual and Family Resource Management
**Funding Sources:** County Appropriations, United Way of Greater Utica

Oneida County has a diverse population of 234,373. With 10,362 children living in poverty, 73% of the households under age 65, and 41.8% of total households under age 65 having household income of less than $35,000, many families are dealing with limited resources. Many low-wage earners in our community are finding the need to use more of the community-based resources available such as TANF, Food stamps, and HEAP. Ongoing research shows that individuals and families with financial difficulties are struggling emotionally as well which impacts the well being of the family structure, and the economic vitality of the local community and the state. Cornell Cooperative Extension of Oneida County (CCE) partnered with the Resource Center for Independent Living (RCIL) to implement a three-year program that provides free tax preparation and valuable financial education to individuals and families throughout the county. This initiative brought together many community resource agencies, and a coalition was formed to address these issues. The United Way of Greater Utica funds the Mohawk Valley Asset Building Coalition (MVABC). RCIL coordinated the coalition and Extension offered and delivered the researched-based resources for financial education. Through free tax preparation, low-wage earners would be offered a service to recover many of the IRS tax credits and benefits to which they are entitled. The free tax service was implemented with local volunteers trained by the IRS. Students from a local college were part of this volunteer base. In addition to offering free tax service, the program also allowed Cornell Cooperative Extension to offer researcher-based resources for individuals and families through workshops that focused on savings, budgeting, banking, keeping good credit, talking to your children about money, and how to develop practical financial skills. Workshops were provided to the general public and staff personnel to increase their knowledge and skills to manage financial resources toward becoming economically self-sufficient.

More than 507 individuals attended financial literacy classes such as: Save Energy, Save Dollars workshop: attendees gained knowledge on low or no cost ways to reduce energy consumption. Over 275 individuals from the local Refugee Center were introduced to the workings of the United Stated Tax and Banking systems. More than 330 Individuals and families received free income tax preparation. This benefited Oneida County with over $374,129 of tax credits.

## 3. Youth Development

### Children's Garden Consultants Program

**Knowledge Areas:** 806. Youth Development

Children's gardens and garden programs are increasingly popular throughout NYS because they offer numerous benefits to children. Yet adults leading those programs often do not engage young people in the planning, implementation, or any other aspects of the decision-making process. They may view the involvement of children and youth as messy, difficult, time-consuming, and may under-estimate their capabilities. As a result, the gardens and garden-based learning activities often do not reflect young people's interests, could be much richer in design, and could provide more exciting opportunities for community-based education. It is unfortunate, since young people can offer significant contributions to their communities and schools, while learning much in the process. Young children can share their opinions, while older youth can be actively involved in garden design, and with most facets of decision-making regarding outreach, fundraising, organizing, and all aspects of garden planning and implementation. Garden planning and design give a "real life" context for learning about relationships in the community; youth gain the chance to wrestle with all the experiences necessary to resolve issues, seek alternatives, and affect real change in their environment – excellent preparation for leading a life as an engaged community member.

Given the realities of time constraints and the busy lives of children, youth, and their leaders, we sought a model that could gather information from young people over a relatively brief period of time, while still offering a meaningful and genuine decision-making experience. Annie Ceccarini, a plant sciences senior at Cornell, worked with Marcia Eames-Sheavly as an independent study project to plan and host a three day "Children's Garden Consultants" program for youth through the 4-H Career Explorations program. Over a 3-day period, seven teen-aged youth formed two teams to actively research children's garden design and educational programming. These youth learned about the "state of the union" with respect to children's gardens through presentations, site visits, briefing sessions, assignments, and activities. They then gave presentations to an adult audience of children's garden experts and youth development specialists, sharing their perspective about what is working well, and what needs improvement, regarding children's garden design and educational activities. Children's garden adult specialists from other states mailed numerous questions to be asked of the youth during their presentations.

Dr. Kristi Lekies, Human Development (HD), conducted an evaluation of the program, with the assistance of HD senior undergraduate Kimberly Wong. Pre- and post-surveys, observations, and discussions with youth, adults in attendance, and program organizers indicated the event was highly valuable and worth repeating. It provided a unique learning opportunity for youth, and it also gave adults new perspectives on youth's views of children's gardens. The youth rated their overall experience as a consultant very highly and they enjoyed the activities, which they described as both fun and educational. In addition to learning significantly about all aspects of children's garden settings, the program generated enthusiasm among the youth, and the desire to try intriguing garden elements when they returned home. They appreciated being in the role of expert and partner. The

program clearly demonstrated the need to engage youth in roles beyond traditional garden-based learning activities. The Garden-Based Learning Program is currently developing this approach into a model that can be adapted for use throughout county CCE programs.

**Enhancing the Engagement of Youth in the Environmental Aspects of Community Development**

**Knowledge Areas:** 806. Youth Development
**Funding Sources:** Hatch, Smith-Lever

The goal of a bi-functional (integrated research and extension) project launched in 2003 with Hatch and Smith-Lever support (provided by CUAES and CCE) was to identify the practices, activities and approaches that extension educators might take to spur greater participation and interest in gardening and social skills, and, by extension of these, greater awareness and interest in positive environmental and community action.

Over a two-year period, educational materials and mentoring and consultative services were provide to adult youth leaders and extension staff to increase their grasp of child development theory, plant-based learning approaches, and various ways to raise children's involvement in group activities. Further, the concept of the *ladder of children's participation*, as developed by Roger Hart, was expanded to include gardening examples and then used in leader discussions. Other activities included: on-going communications with leaders and educators; sharing of other books and materials regarding youth participation and gardening (e.g., *Creating Better Cities for Children and Youth: A Manual for Participation* by David Driskell); development of a case study (of one of the project sites) and a project website; and sharing of additional literature and potential gardening engagement funding sources. Most recently, site visits, direct observation, in-person interviews and surveys of both the youth involved and the adult leaders were used probe levels of Hart's Ladder effectiveness, effectiveness of other activities, and increased children participation levels.

Surveys revealed that project site leaders all felt that the ladder of participation construct, coupled side-by-side with examples specific to garden-based projects, was useful as a tool. As a group, project leaders also found the materials, meeting, surveys and consultations to be very supportive of their efforts to raise youth engagement in community gardening activities. Preliminary analysis of the youth surveys administered suggested a strong connection between levels of children's engagement/participation and greater interest in gardening, nature, and in their schools and communities, and also in increased social skills.

**4-H Camp Wabasso Hosts Operation Purple Camp New York**

**Knowledge Areas:** 806. Youth Development
**Funding Sources:** Sears American Dream Campaign, National Military Family Association, County Appropriations

Operation Purple was a free week of residential camping for military youth associated with Fort Drum who had a parent that was currently deployed, just home from a deployment, or expecting to deploy shortly. The counselors were trained in stress management, military culture, the deployment cycle and the affects of each on children and youth. In addition to traditional camp programming (including swimming, crafts, nature activities, camp songs, etc.) special programming was provided to encourage the youth in being proud of themselves and their military parent. Likewise, campers were given the opportunity to stay connected to their parent through a Mobile Technology lab and letter writing. Camp activities were also provided that promoted a sense of connectedness among the military youth as they realized there were others who had moved many times, watched a parent deploy, said goodbye to friends, etc. 100 military youth attended and left the week feeling a greater sense of belonging to the local community, the Fort Drum community and the larger military community. Additionally, they were able to bring their newly learned coping and stress management skills home to their families, where they could share their appreciation and pride, enhancing the lives of their loved ones at home and supporting their military parent.

**Students Design the Meet and Eat Corner Café After-School Program**

**Knowledge Areas:** 806. Youth Development
**Funding Sources:** West Valley Central School District, County Appropriations, Local Businesses

For eight years, families and students in the West Valley Central School (WVCS) District in rural Cattaraugus County talked about the need for a safe, enriching after-school environment. Last year, a team of WVCS teens and adults attended a statewide 4-H Youth Community Action (YCA) training workshop.

At the training the team created an action plan. They listed partners who could help the café succeed, give the necessary permissions, and extend resources that would be necessary to achieve their goal. In doing so, the team members discovered that they needed to partner with many others, including the Board of Education, cafeteria personnel, students, parents, the janitorial crew, and business office staff in order to have an after-school café in the school itself.

Five months later, after building partnerships and meeting their goals, the student-designed and run Meet and Eat Corner Café opened. According to the project coordinator, “Adults, teachers, and volunteers have had an opportunity to partner with the students to achieve a common goal and enjoy better relationships. With the café open, fewer students stay on the street, and as the project has evolved youths have had opportunities for leadership and involvement. The young people who worked on this project are recognized as having made a difference in their community. They know, too, that they have gained valuable skills, that they can overcome obstacles, work together with others, and get things done.”

**Harlem Teens Present Findings at National Academy of Sciences Symposium**

**Knowledge Areas:** 806. Youth Development

Communicating original ideas is one of the most important skills people need in order to make a difference in their communities. That's one lesson a group of Harlem teens learned through a Youth Community Action (YCA) program sponsored by Cornell Cooperative Extension of New York City. They also learned how to conduct research and interpret the findings.

The Harlem 4-H group taught peers how to use simple, inexpensive scientific food tests to illustrate the difference in fat content of foods available in grocery stores. Their lessons demonstrated that food choices can impact health. The teens found that healthy food options are inconsistently available in local food stores. They reasoned that not having access to healthy foods could impair community health.

This YCA program to teach important life skills brought together many community partners. Individuals from Cornell Cooperative Extension of New York City and the Harlem Children's Zone worked in collaboration with the Growing Up in New York City (GUiNYC) project of Cornell University's Department of City and Regional Planning and UNESCO's Growing Up in Cities project.

**4-H Team Offers Technology Skills and Labor to Birds of Prey Center**

**Knowledge Areas:** 806. Youth Development
**Funding Sources:** Buffalo Audubon Society, NYS Parks, County Appropriations

Sometimes when adults hear that teens want to help, they envision giving youths the "easy tasks." But, in fact, teens often have much more to offer. Such was the experience of the Niagara County 4-H Outdoor Club when they first began to help the Buffalo Audubon Society and the new Birds of Prey Center in Lewiston, New York. With an action plan and with local partnerships and supportive leaders, it didn't take long for the teens to move from rock picking to computer programming. They were inspired to learn more about raptors and technology, and they were motivated to teach others what they were learning.

"It was a natural progression," teen member Marie Erck explains. "While looking for interested stakeholders we teamed up with the Buffalo Audubon Society. We learned new skills and knowledge from their educational workshops and field trips. And we helped them with community events." Club members also attended eight training meetings on handling birds of prey.

As club members became more familiar with birds of prey, their activities became more intensive. The club received a grant to create educational kiosks and an interactive computerized touch-screen quiz game for the center. The second project required learning how to use new computer software, identifying effective questions, and researching correct answers. The teens also created a videotape

to promote the opening of the new Birds of Prey Center. A 4-H youth-run Lockport Cable Television show aired the video.

As the group became more passionate about birds of prey and the process of Youth Community Action (YCA), they shared their story with others. In addition to formal 4-H public presentations on these topics, Niagara County teens participated in a panel discussion on YCA on the Cornell campus in October. The presentation was videostreamed over the Internet and can be seen on our web site, www.cce.cornell.edu.

**Extending Resources to Enrich Afterschool Programs**

**Knowledge Areas:** 806. Youth Development
**Funding Sources:** YWCA, County Appropriations

Research suggests that youths who do not have a place to be or structured activities that they take part in after school have a higher likelihood of being involved in crime. (According to one study, juvenile crime triples after 3 p.m.). With as many as 15 million children returning to an empty house on any given afternoon nationally, after-school programs are essential for communities.

Across the state, extension educators are helping after-school programs connect to hands-on curricula, Cornell University resources, and successful models for working with youths in out-of-school settings. For example:

- Cornell Cooperative Extension of Cortland County is partnering with two YWCA after-school sites (Marathon and Truxton) to teach the staff about experiential learning. As a result of this partnership, young people have tried new, hands-on activities that they might not otherwise experience, and some have even taken the opportunity to join 4-H.
- Cornell Cooperative Extension of Genesee County provided science education training for after-school programs. In one example, 500 youths, 50 adults, and 25 professional teachers and colleagues learned about the science of hydroponics, and they built their own model units to grow vegetables and/or flowers. In another example, 350 youths and adults learned to use hand-held Global Positioning System (GPS) units and how GPS technology applies to community agriculture, recreation, and public emergency response.
- Cornell Cooperative Extension of Schoharie County coordinates a 4-H club in every public school in its locality during after-school time. This helps youths overcome participation barriers such as transportation and the need for parental involvement.
  4-H After school resources are readily available to professionals, organizations, parents and school districts at www.4hafterschool.org and www.cerp.cornell.edu/4h.

**Helping Elementary School Students Meet NYS Math, Science and Technology Standards**

**Knowledge Areas:** 806. Youth Development
**Funding Sources:** County Appropriations, Nassau County School Districts

Elementary school teachers typically have limited physical science coursework background and, thus, lack the subject matter knowledge and confidence to effectively teach physical science segments of their science curriculum. The most common physical science units taught in the elementary classroom are simple machines and electricity. Concepts related to both units are included in the required NYS Elementary Science Core Curriculum and are tested as part of the Elementary Science Assessment administered in 4th grade. Students must be prepared academically to perform successfully on related segments of this exam. The direct teaching of students and teacher training are two effective delivery modes for developing students' mastery of core content. "Machines Are Simply Terrific" and/or "Let's Look at Electricity" classroom presentations were provided to 27 schools within 16 Nassau County public schools districts and the Diocese of Rockville Centre. More than 3,065 students and 175 teachers learned to interpret/employ science and technology concepts through teacher professional development and classroom presentations on simple machines and electrical circuits. Feedback from both students and teachers indicated increased content understanding and interest in these topics.

**STAKEHOLDER INPUT PROCESS**

During this reporting period, the stakeholder input approach to statewide program development jointly utilized by Cornell Cooperative Extension (CCE), the Cornell University Agricultural Experiment Station (CUAES), and the New York State Agricultural Experiment Station (NYSAES) since February 2001 developed further in its engagement in federal formula funding priority setting and federal plan-of-work development. Program advisory councils and program work teams worked to improve program focus, relevance, and planning activities.

Five Program Councils 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 130, including more than 60 persons external to the university or the extension associations. In the past, the Councils advised the directors of CCE and CUAES on annual statewide program priorities, reviewed PWT performance and "gaps" in programmatic coverage, and commented on the relevancy of preproposals seeking federal formula fund (FFF) support.

Over calendar year 2005, the Program Councils continued to generate priorities for our annual call for preproposals and provided welcomed stakeholder reviews of projects seeking FFF support. Going beyond these customary activities, however, the councils were led through a multi-staged, web-based survey process to not only revise priorities for research and extension support, but also for incorporation into the foundational phase of the year-long process to develop the CUAES/CCE/NYSAES 2007-2011 Federal Plan of Work.

The annual Program Council conference, typically held in mid-winter on the Cornell campus, was deferred again. In lieu of convening physically, council members were communicated with via electronic means, including via the dissemination of 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.

Most important during this hiatus from convening of annual council conferences, however, was the extended discussion on PCs that transpired 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. The guidelines will foster important and advantageous changes, to be implemented in 2006, in how the councils convene and function.

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, thirty-eight (38) 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. PWTs were sanctioned for 2 or 3 years. Approximately 750 individuals serve on at least one PWT, including more than 260 external stakeholders. The externals come from the business, banking, local/state/federal government, non-government organization and educational sectors.

Noteworthy in 2005 was the continued activity by 33 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 2005 PWT annual reports (viewable at: http://cuaes.cornell.edu/PWTPublic/ann_rpt05_list.htm) In addition, as offered as a "accomplishment story" in this report (under Goal 4), the Human –Wildlife Conflicts PWT took on an ambitious complement of extension activities and programs in response to the discovery of chronic wasting disease in New York State.

New projects proposed by more than 15 PWTs to address "special needs" in emerging areas or in on-going program development/dissemination were reviewed and approved. A listing of these projects can be viewed at: http://hosts.cce.cornell.edu/admin/pwt/05-06_spec_needs.htm

Beyond the new 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 were 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 continued to 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.

Many of the "Impact Examples" presented under each CSREES goal in this report demonstrate substantive stakeholder involvement in our applied research and extension programming processes. Here is a sampler of titles

Goal 1

*Interdisciplinary Cornell Research Team Seeks Improvements in Storing Strawberries* (berry growers)
*Biosecurity through Dairy Herd Health Management* (Orange/Ulster Counties Dairy Advisory Committee)
*Integrated Research and Extension Activities Work to Improve Organic Farming Methods* (Program Work Team stakeholders, NEON)
*Improving Apple Grower Profitability* (Commercials growers)
*Meeting Export Requirements for the NY Apple Industry through EUREGAP Certification Training* (NYS Dept. of Agriculture and Markets)
*Timely Harvest Increases Farm Profitability* (10 local farmers)

Goal 2

*Hatch Research Having Direct Impact on Dinner Tables of the Needy* (Food Bank of the Southern Tier)
*Organization of Orleans County Farmers' Market* (Orleans County Office of the Aging, NYS Farmers' Market Association)
*Gardens for Low Income Residents* (local humanitarian agencies, food pantries, senior housing sites)

Goal 3

*Foundational Hatch Project Support Helps Cornell Scientist Garner Major National Neuroscience Award and Grant* (National Institute of neurological Disorders and Stroke)
*Achieving Nutrition, Health, and Agriculture Goals Through School-Based Community Strategies* (K-12 food service directors)
*Elder Nutrition Education Program* (Columbia County Office of the Aging, Columbia-Greene Nutrition Consortium)
*Helping Birth-Infected Teens Cope with HIV* (NYS Dept. of Health AIDS Institute)
*Healthcare Services: Decreasing Supply and Increasing Demand = Change!* (Delaware *County Rural Healthcare Alliance*, NYS Office of Rural Health)

Goal 4

Collaborative Extension and Research Efforts Enhance Forest and Woodlot Owners Agroforestry Production Prospects (Agroforestry Resource Center)
*Discovery of Chronic Wasting Disease in New York Prompts Rapid Researcher, Extension Educator Response* (NYS Dept. of Environmental Conservation, NYS Dept. of Agriculture and Markets, American Wildlife Conservation Foundation, Chronic Wasting Disease Alliance, National Wildlife Health Center)
*Cornell Researchers Lead Efforts in the Discovery and Control of Harmful Exotic Speci*es (U.S. Agricultural Research Service, U.S. Animal and Plant Health Inspection Service)
Hands-On Water Education for Teachers (NYS Water Resources Institute, Project WET, NYS Dept. of Environmental Conservation)
*Weeds Watch Out! Stops Invasive Aquatic Plants* (NOAA Great Lakes National Program Office, National Fish and Wildlife Foundation)
*Improving Agricultural Practices to reduce Pathogens in Water Supply* (NY City Watershed Agricultural Council)
*Connecting Youth and Elders Through Garden Mosaics* (USDA, NSF, private donors)

*Linking Water Quality to Native Plants, Ecosystem Health* (National Fish and Wildlife Foundation)
*Trained Logger Certification Program* (NY City Watershed Agricultural Council)
*Farming and Environmental Stewardship: Productive Conservation* (National Fish and Wildlife Foundation, Finger Lakes Resource Conservation and Development Council)
*Engaging NY Communities in Community Forestry Management* (Niagara Mohawk Power Corporation, SUNY-Morrisville, SUNY-CESF, USDA Forest Service, SUNY-Cobleskill, Village of Cobleskill)
*Restoring Shellfish to Long Island Bays* (Town of Southold)

Goal 5

*Lake Erie Concord Grape Belt Heritage Project* (NY Wine and Grape Foundation, NYS Assembly and Senate, Chautauqua County Economic and Planning Dept., NYSCRIP)
*Managing Community Agricultural and Land Use Conflicts* (NYS Agricultural Mediation Program, Tompkins County Community Dispute Resolution Center, NYS Agricultural Mediation Program)
*Consumer Demographics and Market Strategies Program* (City of Auburn)
*Cornell Researchers Uncover Linkages Between Child Care Services and Economic Development* (U.S. DHHS, Kellogg Foundation)
*Building Research and Extension Capacity in Child and Family Policy* (W.T. Grant Foundation, NIH)
*"EmPower NY" Financial and Energy Education Program* (NYS Energy Research and Development Authority, NYSEG, National Grid)
*Relatives as Parents* (NYS Office of Children and Family Services, AARP, NYS Office of the Aging)
*Parents Involved in Education* (Schenectady City School District, Schenectady County Youth Bureau)
*Seaway Trail Even Start Family Literacy Program* (Jefferson-Lewis BOCES, NYS Dept. of Education)
*Cortland Literacy is a Family Experience* (LIFE) Program (Onondaga-Cortland-Madison County BOCES)
*Managing Family Financial Resources* (United Way of Greater Utica)
*4-H Camp Wabasso Hosts Operation Purple Camp New York* (Sears, National Military Family Association, U.S. Army)
*Students Design the Meet and Eat Corner Café After-School Program* (West Valley Central School District
*Harlem Teens Present Findings at National Academy of Sciences Symposium* (Harlem Children's Zone, UNESCO)
*4-H Team Offers Technology Skills and Labor to Birds of Prey Center* (Buffalo Audubon Society, NYS Office of Parks, Recreation and Historic Preservation)
*Extending Resources to Enrich After-School Programs* (YWCA)
*Helping Elementary School Students Meet NYS Math, Science and Technology Standards* (School districts in Nassau County, Diocese of Rockville Center)

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 130 members, broken into 5 councils by principal program areas. About half of council members are stakeholders external to the Cornell system (e.g., growers, practitioners, public officials, NGO representatives, etc.), while about a quarter are executive directors of Cornell Cooperative Extension county associations located across the state (the remaining quarter is composed of Cornell campus academic department chairs).

To solicit and accommodate their input on preproposals received for federal research and extension support, these off-campus stakeholders are asked to review a special second 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 component part of the "first-cut" phase of proposals review and advancement.

For example, in 2003-04, all 43 of the 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 advance for funding, while 19 of 30 similarly rated extension preproposals ultimately received support. In 2004-05, all but one of 37 research preproposals meriting such higher across-the-board scores were eventually funded, with 25 out of 37 so rated extension preproposals given support. In the latest cycle (2005-06), 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)**

0. 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. In 2005 (for projects to be funded beginning on October 1, 2005), 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.
0. 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.
0. Pre-proposals are accepted/rejected; accepted proposals are developed into full project outlines by the Principal Investigator.

**For research proposals:**

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

**For extension proposals:**

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

**Cornell Review Criteria**

0. Anticipated significance of results relative to current priority needs or opportunities
0. Scientific merit of objectives
0. Clarity of objectives
0. Appropriate methodology
0. Feasibility of attaining objectives
0. Accomplishment during preceding project (for revisions)
0. Research performance and competence of investigator(s)
0. Relevance of the proposed work to regional or national goals
0. 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 met our 12% target. Multistate extension activity is documented in Appendix B.

## INTEGRATED RESEARCH AND EXTENSION ACTIVITIES

During 2005 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.

**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, we currently are in the recruitment process for a multi-county team coordinator for agriculture programs, a major investment in today's fiscal climate. (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 more than 31 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. The conveners meet regularly with the CCE Director as a "Directors Cabinet" to address system issues.

## Appendix A – FY05-06 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. A 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:

0. 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,
0. identify critical data and analysis needs in understanding the decline and renewal potential for New York State regions and communities,
0. compile and summarize available research and understandings of economic growth and decline, including effectiveness of community economic renewal strategies,
0. develop a vision for CCE's Community and Economic Vitality initiative (starting with CCE's vision of "building strong and vibrant communities"),
0. 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: 2005**

**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)*** | | **$8,908,045** | |
| ***This FY Target Amount*** | | **$1,068,965** | |
| **Title of Planned Program Activity** | | | |
| Multi-state project support (see following Pages for titles and project descriptions) | | **1,127,289** | |
| eXtension assessment | | **60,000** | |
| Multi-state diversity initiatives | | **38,053** | |
| | | | |
| **Total** | | **$1,225,342** | |
| **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.

**Director** **Date**

**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)

| Proposal Number | Title | Project Goals/Objectives | Expenditure |
|---|---|---|---|
| 2002-03-105 | Youth At Risk | This Department of Human Development effort was initiatlly part of the national CYFAR project. Purposes include assisting schools and community groups to increase capability to design and implement appropriate programs for youth. The Teen Assessment component is conducted in direct collaboration with University of Wisconsin Extension. | $13,000.00 |
| 2002-03-136 | Family Economics and Resource Management | This project based in the Department of Policy Analysis and Management includes colleagues in four Cornell Departments and land grant collaborators in Minnesota and New Jersey. It is directed to creating financial management curricula for use by teachers, human service providers, and community organizations. | $40,000.00 |
| 2002-03-138 | Community Health Programs: Prevention, Education, and Policy Networks | This Department of Policy Analysis and Management Project has objectives to improve health policy infrastructure at the community level, increase multi-agency efforts in health education and wellness, increase consumer representation in health policy decisions, facilitate multiple human service collaboration in health programming, improve both planning and evaluation of community health programs. Several land grant collaborators including Iowa State. | $38,000.00 |
| 2002-03-140 | Building Capacity and Sustainability in Extension Workforce Development Programs for the Food System | This program is based in the Departments of Education and Policy Analysis and Management and includes collaborators at Rutgers, Delaware State University, and Penn State University. It is a comprehensive package of workforce needs assessment and training through various employment related organizations. | $170,000.00 |
| 2002-03-164 | Development of Synchronous and Asynchronous Horticulture Distance Learning for Cooperative Extension | Based in the Horticulture Department, this project is working with the Natural Resource, Agriculture and Engineering Service to develop and deliver this effort through the 14 northeast land grant colleges. It includes modules for both commercial and consumer horticulture audiences. | $33,000.00 |

| | | | |
|---|---|---|---|
| 2002-03-189 | HD Youth Development Program: Program, Training, and Policy Development | This Department of Human Development based project includes collaborators in Wisconsin and California and many private youth organizations. It is both a professional development strategy for youth service providers and a means for informing local youth policy development. | $50,075.97 |
| 2002-03-189 | HD Youth Development Program: Program, Training, and Policy Development | This Department of Human Development based project includes collaborators in Wisconsin and California and many private youth organizations. It is both a professional development strategy for youth service providers and a means for informing local youth policy development. | $33,947.15 |
| 2002-03-189 | HD Youth Development Program: Program, Training, and Policy Development | This Department of Human Development based project includes collaborators in Wisconsin and California and many private youth organizations. It is both a professional development strategy for youth service providers and a means for informing local youth policy development. | $5,070.00 |
| 2002-03-196a | Enhancing Youth Voice with Youth as Evaluation Partners | This Human Development Department project explores current practices for effectively involving youth in program planning and evaluation. Key collaborators include WI and MI. | $15,000.00 |
| 2002-03-219 | Calibration of a simple amino-sugar soil test for determining sites that are non-responsive to N fertilization to corn. | The Crop and Soil Sciences Department in collaboration with University of Illinois is conducting this field test of an approach developed at the University of Illinois. | $35,000.00 |
| 2002-03-220 | An Online Community Profile Approach to Accessing Community Data | Local elected and appointed officials, state agency and local government association staffers will have ready access to key data for use in decision-making and grant writing. This is being developed in collaboration with Penn State. | $19,000.00 |
| 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. Collaborating states: NE, VT, CT, PA, and WI. | $36,209.80 |
| 2003-04-106 | Engaging Children in Environmental Aspects of Community Development | This Horticulture Department project uses multiple methods to identify practices, activities, and approaches employed during the planning and implementation of local landscapes that lead to greater youth | $15,000.00 |

| | | | |
|---|---|---|---|
| | | participation and higher achievement of selected developmental outcomes among participating youth. Multistate involvement through juried curriculum project and consultation with horticulture colleagues in other states. | |
| 2003-04-109 | Agricultural Health and Safety Program | Currently, the Agricultural Health & Safety Program works collaboratively with many other state Extension Farm Safety programs. Examples would include the Cornell Farmedic Training program that works collaboratively with Extension Specialists in other states to provide farm rescue training. Secondly, the NY AgrAbility project collaborates and shares information with 29 other Land Grant Institutions in the US. Additionally, plans are being developed to share in farm safety research and prevention activities between NY, PA, OH and WI. | $11,903.61 |
| 2003-04-113 | Youth Community Action | Stimulate an increase in YCA programming in areas of service-learning, civic engagement, youth in governance, civics programs, and community asset mapping. Collaborating states: NH and WI. | $5,000.00 |
| 2003-04-130 | Plant Health Education | 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. Collaborating states: national collaboration on diagnostic clinic. | $10,000.00 |
| 2003-04-135 | Animal Behavior: Train the Trainer Model for Youth and Adult Volunteer Dog Trainers | Focus is on development of comprehensive and consistent volunteer training programs. Multi-state contribution through the national 4-H juried curriculum system. | $5,000.00 |
| 2003-04-156 | Implementation of Precision Feeding Approaches to Reduce Nutrient Excretion in Manure | Objectives are to increase the adoption of precision feeding through use of the CNCPS ration formulation model by the feed industry in New York and to use commercial dairy farms to demonstrate the reductions in nitrogen and phosphorus excretion that can be attained using the CNCPS model. Collaborating states: VT and CA. | $10,000.00 |

| | | | |
|---|---|---|---|
| 2003-04-162 | Parenting in Context: Integrating Extension and Research Activities | This is a joint project of the Department of Policy Analysis and Management and the Human Development Department. 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. The project will contribute to and benefit from curriculum development nationwide based on the involvement of the principle investigators on national parenting education initiatives. | $25,000.00 |
| 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. Collaborating states: NJ | $30,000.00 |
| 2003-04-240 | Building Leadership for a Productive Satisfied Hispanic Workforce | 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. Collaborating states: PA, VT, CT, NH, MA, and ME. | $23,878.56 |
| 2003-04-250 | Practical Management of Indoor Environmental Risks | Intent is 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. Healthy Indoor Air for America's Homes is a national Extension program funded through a cooperative agreement between USDA/CSREES and the U.S. EPA. | $25,000.00 |
| 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 | $8,017.25 |

| | | | |
|---|---|---|---|
| | | horticultural industries (fruit, vegetable and ornamental sectors) and educators who work with these sectors. Collaborating state: MI. | |
| 2003-04-267 | Creating New Partnerships and New Tools to Enhance Local Government Education | The project goal is to 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. Project leaders are linking to efforts in OH, MD, and VT. | $10,000.00 |
| 2003-04-271 | Fertilizer Recommendations for Field Crops: The Basis for Environmentally and Economically Sound Nutrient Management | The 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. Collaborating states: The PI is the Cornell representative for NEC-67, a group of faculty and staff at Northeastern US land grant universities. NE is another active collaborator. | $24,946.84 |
| 2003-04-279 | Main Street Revitalization: Building Capacity for Community Economic Development | The MSR process promotes sustainable development because the communities themselves determine program direction: through a community visioning and planning process, communities identify problems to be addressed and strategies to be pursued. Collaborating states: WI and PA. | $15,000.00 |
| 2003-04-280 | Strengthening New York's Economy and Communities through Agriculture and Food Partnerships | Goals include strengthening inter-agency working relationships between professionals pursuing agriculture and economic development (agriculture developers, economic developers and community developers, planners, etc.) and supporting public issues education on the topic of agriculture economic development. Collaborating states: Northeastern states through collaborative research and resource development. | $10,000.00 |
| 2003-04-300 | Dissemination of Horticultural Information to the Ornamental and Vegetable Industries | Objectives include: To improve productivity and profitability of 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, and, to highlight applied research about new reduced-risk plant protectant materials, IPM methods, and best management practices. Collaborating states: CT and NJ and other New England and Mid-Atlantic states. | $6,000.00 |

| | | | |
|---|---|---|---|
| 2004-05-107 | New York State Extension Disaster Education Network (NY EDEN) | The USDA Federal Extension Disaster Education Network (EDEN) has organized the various states that have EDEN type programs. This multi-state collaboration has resulted in the sharing of information and resources. Participating states contribute to the national EDEN website for sharing of information, and likewise can access resources created around the country. Programs developed here in NY as a result of this support will be shared with the other 46 EDEN states/Land Grant Institutions across the country who are actively supporting state EDEN programs. | $43,000.00 |
| 2004-05-121 | Educating Consumers: Development of an Interactive Web Site on Drinking Water | The overall goal of the project is to improve the education of consumers about drinking water testing and treatment. Many other state extension educational materials and web sites on water quality will be part of the final project. The PI has worked with water quality extension colleagues throughout the country, and they will be asked to review the web site as it is being developed. Water resource extension programming is organized at the federal level through USDA-CSREES into regions that coincide with USEPA regions. Colleagues at two other universities in Region II (Rutgers and U of Virgin Islands) and colleagues in Region I at the University of Rhode Island will do primary review of the web site. | $24,998.80 |
| 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. The proposed project arose out of successful externally funded multi-state collaboration to develop farm-to-school strategies through a targeted number of pilot projects in NJ, PA, NY and CA. | $40,500.00 |
| 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. The web-based arm of the project will reach professionals beyond NYS. Distance technology will allow the research-based information and interaction opportunities to be available to anyone with | $15,000.00 |

| | | | |
|---|---|---|---|
| | | web access. For two years, Cornell NutritionWorks (CNW) has been providing web-based continuing professional education to nutrition practitioners from 35 states and 9 countries. | |
| 2004-05-138 | Innovative Educational Programs for Small Farms | Small farm operations statewide will be profitable and provide important contributions to the incomes and lifestyles of farm families statewide. Small farms will be recognized for the contributions they make to environmental protection and enhancement as well as to the viability, vitality and aesthetics of communities in which they reside.The Principal Investigator is the USDA-CSREES Small Farm Contact as well as the NESARE Professional Development Coordinator. Project staff have developed ties with the New England Small Farm Institute. | $21,500.00 |
| 2004-05-163 | Managing Wastes | This project works to improve management and recycling of organic residuals from farms, residences, institutions and businesses through new and continued research and outreach programs. It is part of a broader multistate effort that involves New Hampshire, Pennsylvania, Massachusetts, and New Jersey. | $60,000.00 |
| 2004-05-173 | Establishment and Maintenance of Long-Term Soil Health Sites | Assessment of the impact of soil and crop management practices on the physical, chemical and biological properties of soils as well as crop yield and quality are on-going. The main approach of this project is demonstrating and validating differences in soil health status for multidisciplinary research, outreach and training. Connections will be established with the National soil tilth laboratory in Ames, Iowa, the NE Pest management center and others. | $10,000.00 |
| 2004-05-178 | Leadership Development to Foster Acceptance of Hispanic Dairy Workers in Rural Communities | use these sites for multidisciplinary research aimed at the elucidation of the complex interactions among the physical, chemical and biological components of soil health and their impact on crop productivity. | $14,143.03 |

| | | | |
|---|---|---|---|
| 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/ | $38,053 |
| 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: 2005**

**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)*** | **$ 5,198,850** | | |
| ***This FY Target Amount*** | **$ 1,299,713** | | |
| **Title of Planned Program Activity** | | | |
| See Following Pages | | | |
| | | | |
| **Total** | **$ 1,299,713** | | |
| **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.

**Director** **Date**

**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 | Account | Leader | Title | Summary of Integrated Activities | FY 05 Expense |
|---|---|---|---|---|---|
| 0030193 | 1027700 | Hoffmann, M.P. | Administration Costs - AES | Assume 25% of Experiment Station office expenses are attributable to directing and coordinating integrated activities. | 46,014 |
| 0059865 | 1497484 | 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 | 1497485 | Jahn, M.M. | 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 |
| 0074482 | 1497416 | 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 | 1497369 | Hoffmann, M.P. | Genetic Manipulation of Sweet Corn, Quality and Stress Resistance | This project involves close interaction with extension staff and the sweet corn seed, processing, pest control and food industries. 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. | 10,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0080615 | 1257380 | Fick, G.W. | Environmental and Economic Impacts of Nutrient Management on Dairy Forage Systems | This project engages extension educators in development of management tools for use by producers and farm advisors, and in the field work, testing, and modeling components of the work. Persons with extension and classroom teaching responsibilities are integrated into the project. Individual 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. | 12,000 |
| 0096620 | 1237919 | Gebremehdin, K.G. | Stress Factors of Farm Animals and Their Effects on Performance | This project 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. | 9,500 |
| 0131837 | 1397422 | 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 lead to further collaborations and rapid implementation in northeastern U.S. commercial greenhouses. | 11,000 |
| 0133342 | 1537405 | 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. | 15,020 |
| 0150629 | 1537417 | Zitter, T.A. | Biology and Management of Diseases of Potato and Tomato | 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. | 20,012 |
| 0154007 | 1237539 | Datta, A.K | Improvement of Thermal and Alternative Processes for Foods | This project 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. | 22,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0155501 | 1237406 | 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 invesigator 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. | 8,500 |
| 0165276 | 1217578 | Bills,Nelson Lawrence | 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. | 13,452 |
| 0165276 | 1337478 | Brown,Warren Alfred | 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. | 14,617 |
| 0165276 | 1457278 | Eames-Sheavly,Marcia | 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 | 1457478 | Eames-Sheavly,Marcia | 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. | 5,003 |
| 0165276 | 1457578 | Bridgen,Mark 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. Results from this project not only assist the farmers and professional horticulturalists in New York, but they also increased the quality of life and economic well-being of communities and individuals. | 3,999 |
| 0165276 | 1597278 | Lyson,Thomas A | 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 | 1597478 | Brown,David L | Integrated Research and Extension Approach to Community Economic Development | One highly integrated feature of this project has been the Rural NY Initiative. The overall objective of the RNYI is to strengthen the engagement between research, outreach and rural development policy in NYS. Over the past year the RNYI has made significant progress towards our central goal. The RNYI commissioned a survey of non-metropolitan county residents in NYS, with a sampling framework that distinguishes Micropolitan and Non-core based counties from Metropolitan counties. A workshop was held for poll users to address issues of complex sampling in survey data. The poll is a method for strengthening relationships with stakeholders and policymakers around the state by obtaining data on specific items of interest to these groups. This statewide engagement is institutionalized through formal relationships between Cornell University and the NYS Legislative Commission on Rural Resources, SUNY, CCE, other state and local policymakers and supports more systematic public input into research and extension programs focused on rural development. Continued engagement will ensure that Cornell University is responsive to stakeholder needs, informs the policymaking process, and contributes to enhanced jobs, incomes and communities for rural New York. | 22,500 |
| 0165276 | 1997478 | Stark,Christina May | 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. | 15,000 |
| 0165276 | 3217478 | Pillemer,Karl Andrew | 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 | 3237478 | Powers,Jane | Youth Development in New York State: A Survey of Capacity and Need | This applied research-extension project generates knowledge for improving programs and services, and increases opportunities for youth development. The research tools and approach will be informed by a partnership of researchers, state officials, community agencies, and intermediary organizations. The results of the research will be disseminated in a user-friendly report and through presentations around the state. Research results will directly shape extension/outreach while extension/outreach will contribute to and inform the research process. | 7,500 |
| 0166779 | 1397413 | Hoebeke, R. | Exotic Pest Detection and Survey in the Northeast: Safeguarding Cultivated and Native Plant Resources from Harmful Non-Indigenous Species | Direct audiences for information generated by this project include personnel of U.S. Dept. of Agriculture, U.S. Forest Service, New York State Dept. of Agriculture & Markets, and NYS Dept. of Environmental Conservation. Outreach and public awareness initiatives (via internet, news media, newspapers, radio, television) inform the general public on the task of preventing the entry of exotic organisms. The project has worked with NYS Dept. of Environmental Conservation personnel to provide an exhibit of arthropods (insect diversity, etc.) at the NYS Fair. | 2,500 |
| 0170387 | 6217506 | 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 compnent 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. | 7,000 |
| 0172506 | 1497419 | 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 | 1477412 | Curtis, P.D. | Technology Applications for Wildlife Damage Management | This project links directly to a wholly integrated and separate project (147-7478). It 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. | 31,784 |

| | | | | | |
|---|---|---|---|---|---|
| 0177628 | 4737834 | Antczak, D.F. | National Animal Genome Research Program | This project links research and extension in at least 4 ways. First, the Horse Genome Project maintains 3 web sites used by the general public to find current information on the state of horse genetics. Second, members of the project make reports to various horsemen's organizations at national meetings (in 2002 to the American Quarter Horse Association (March), the Jockey Club (August), and the American Association of Equine Practitioners (to be made in December). Third, articles on the Horse Genome Project appear periodically in horsemen's magazines and other print media. Finally, the Horse Genome Project has been featured on television 3 times during the past 18 months (ABC News, NY Times television, and PBS). | 12,000 |
| 0181801 | 1027701 | Hoffmann, M.P. | Administration Costs - AES | Assume 25% of Experiment Station office expenses are attributable to directing and coordinating integrated activities. | 9,831 |
| 0181801 | 1027703 | Hoffmann, M.P. | Administration Costs - AES | Assume 25% of Experiment Station office expenses are attributable to directing and coordinating integrated activities. | 4,234 |
| 0181852 | 6257507 | 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. | 2,000 |
| 0183473 | 1317420 | Shanahan, J. | 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. | 30,000 |
| 0183956 | 6217308 | Peck, D.C. | Best Management Practices for Turf Systems in the East | This highly integrated project develops and then shares BMPs with sod farmers, NYSTA, extension agents, and golf course superintendents relating to the annual bluegrass weevil . In addition, information dissemination, query fielding, taxonomic identification, and consulting occurs in the areas of biology, ecology and management of grass-feeding spittlebugs. | 29,978 |
| 0184034 | 1457901 | Petrovic, A.M. | Best Management Practices for Turf Systems in the East | The project provides research results on phosphorus and nitrogen enrichment directly to state and regional water quality policy-makers. It also uses educational programs (conferences) co-sponsored by the turfgrass management industry and county extension to disseminate its research findings. | 12,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0184073 | 1397803 | Thies, J.E. | Development of Pest Management Strategies for Forage Alfalfa Persistence | This integrated pest management project uses a multi-faceted approach to garner feedback on its research effort and to extend its findings. The investigator serves on two research-extension program work teams (on Soil Health and Integrated Nutrient Management), that are both made up of stakeholders, faculty, and extension educators. These teams develop and deliver outreach efforts. The investigator also conducts on-campus workshops for both faculty and field educators. | 10,033 |
| 0184917 | 6327421 | Weber, C.A. | Improvement of Strawberry and Raspberry Cultivars | Ths 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. | 6,000 |
| 0185459 | 6237306 | Lee, C.Y. | Postharvest Quality and Safety in Fresh-Cut Vegetables and Fruits | This project 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. | 3,000 |
| 0186502 | 6237307 | Worobo, R.W. | Enhancing Food Safety Through Control of Foodborne Disease Agents | This 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%. | 7,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0187473 | 1457350 | Bellinder, R. | Improved Weed Control Through Residue Management and Crop Rotation | This project 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 their academic department. | 17,000 |
| 0187486 | 3217401 | 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 |
| 0187877 | 1237375 | Steenhuis, T. | Application of Sewage Biosolids to Agricultural Soils in the Northeast: Long-term Impacts and Beneficial Uses | This project formally involves extension faculty and associates in crops, soils and waste management as project advisers. Project results are conveyed to key user groups (agency personnel, interest groups, other scientists, extension educators) via workshops, bulletins, and on-line channels. As an outgrowth of this project, the collaborating Cornell faculty have been tapped by the state of NY to assist in the development of methods and standards for soils in the clean-up of Brownfield sites. | 48,000 |
| 0189873 | 1497400 | De Jong, W.S. | Molecular Genetic Accelerated Development of Red-Skinned, Golden Nematode Resistant Potato | This project integrates basic genetic methodologies with an applied potato variety development program. It is linked to a multistate project (NE184) which cooperates to develop and trial potato varieties around the Northeast. Accordingly, varieties from the Cornell breeding program are routinely evaluated by cooperators in many states, including Pennsylvania, Maine, New Jersey, Virginia, and North Carolina. Annual progress of the variety development program is presented regularly at several sites, including a Show and Tell demonstration event every November in Ithaca, at the annual vegetable meeting each February in Syracuse, and to NE184 collaborators every January at rotating venues. | 7,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0190039 | 1397402 | 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 | 1257411 | 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. | 12,039 |
| 0190519 | 1477216 | Curtis, P.D. | Management of Wildlife Damage in Suburban and Rural Landscapes | This project 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. | 50,046 |
| 0190695 | 3997482 | Dollahite, J. | Factors in Local Food Systems Affecting Fruit and Vegetable Acquisition by Low-Income Residents in New York State | This highly integrated project informs extension educators and others who wish to develop strategies to assist low-income people in making healthy, economically responsible food choices. Intent is to instruct grocery chair personnel via informed extension effort. The project explores the use of viable extension mechanisms to realize this intent. | 5,440 |
| 0191175 | 1397917 | Rutz, D. | Sources, Dispersal and Management of Stable Flies on Grazing Beef and Dairy Cattle | This project 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 | 1497456 | 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. | 56,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0191258 | 1477419 | Rudstam, L. | 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 |
| 0193449 | 1277461 | Thonney, M.L. | Effect of Vaccination Against Paratuberculosis (Johne's Disease) in Sheep | The lead investigator of this integrated project is director of the Cornell Sheep Program (sheep.cornell.edu) which evaluates and disseminates information on management strategies for highly productive sheep systems. The 12-state Northeast Region Sheep and Goat Marketing Program (sheepgoatmarketing.org) is used as a vehicle to disseminate project findings. Among the approaches and activities used to extend research results are the annual Cornell Sheep Short Course, a summer field day, and numerous presentations at producer and extension meetings. | 9,433 |
| 0193547 | 6217401 | Shelton, A.M. | Monitoring for Resistance to Pyrethroid, Carbamate and Organophosphate Insecticides in the Onion Thrips on Onions | The investigator conducts project research and also extends project results directly to clientele groups, via field workshops, conference presentations, extension educator trainings, and production of a manual on insect/disease control for organic growers. The project utilizes several websites to disseminate research results; these include websites on biological control methods, biotechnology, pests of the Northeast, and the diamondback moth. | 8,000 |
| 0193672 | 1497455 | Earle, E.D. | Development and Evaluation of Bt-Transgenic Collards as a Trap Crop for Lepidopteran Pests of Cabbage | The project's laboratory-based research activities are organized and intended for field trial evaluation, to be followed by dissemination of the results via a range of extension approaches. The investigator works closely with faculty who lead vegetable extension programs, and organizes the research component of the project to be used an d publicized via a formal extension project on agricultural technology known as GEO-PIE. The project interacts directly with seed companies interested in novel Brassica line seeds. | 20,000 |
| 0193707 | 1247460 | DeGaetano, A.T | Turf Disease Monitoring Using Regional Weather Observations and Forecasts | This project has clearly integrated research and outreach goals and components. In the research phase, weather-based disease monitoring models are refined and validated. Then through field trials, the feasibility and value of these monitoring tools in an operational setting are evaluated. In its outreach component, a system to disseminate this information to users is developed, including use of existing Northeast Regional Climate Center infrastructure for providing raw climate information. | 8,500 |
| 0193766 | 1917420 | 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. | 5,954 |

| | | | | | |
|---|---|---|---|---|---|
| 0193802 | 1437407 | Liu, R.H. | Effect of Thermal Processing on the Nutritional Quality of Processed Vegetables | The project collaborates closely with Cornell Cooperation Extension of Oswego County on research activities and trials regarding the health benefits of New York onions. It works both with the Cornell Cooperative Extension system and the food processing industry in NYS to deliver the project's results to the general public and special segments of the processing industry. | 19,998 |
| 0193840 | 1477413 | Wolf, S. | Associational Forestry in the U.S.: Organizational Alternatives in Non-Industrial Private Forest Management for Environment, Economy and Community | This project is well integrated via its listed collaborators and the organizations they represent. It plans to gain input from and utilize the Agroforestry and Private Woodlot Program Work Team to inform the research and extend its findings. This team is made up of researchers, extension educators, and stakeholders holding interest in the private forestry industry. | 10,000 |
| 0193856 | 1437409 | Gravani, R.B. | Determining Human Pathogen Survival in Irrigation Water and Spray Mixes Applied to Four Different Produce Commodities | The project investigator plays the lead role in the award-winning applied research-extension National GAPs (Good Ahricultural Practices) Program, and this project is conducted with direct integration into planned GAPs activities in mind. The National GAPs Program was established in 1999. It is funded through a grant from the USDA-CSREES and the US FDA. The GAPs Team establishes recommendations, develops educational materials and assists growers and packers in implementing best farming practices tat reduce microbial risks on the farm. A key component of reaching growers is extension educator interaction. GAPs trains educators throughout N.Y and the U.S. | 29,000 |
| 0193891 | 6327452 | Weber, C. | Redefining IPM for Strawberry Production In New York Under the Threat of Anthracnose and Strawberry Sap Beetle | Ths 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. | 3,000 |
| 0193906 | 1497489 | 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 |

| | | | | | |
|---|---|---|---|---|---|
| 0193957 | 1457474 | Mudge, K.W. | Characterizing Genetic and Biochemical Differences Among American Ginseng Populations | This project strategically integrates research and extension, as it is part of an on-going forest farming learning community that links research and extension to improve agroforestry approaches to forest management. The Agroforestry and Private Woodlands Program Work Team, made up of researchers, educators and stakeholders, plays a role in planning the project, conducting the research, and disseminating results. The practices that are evaluated include cultivating herbal medicinal and mushroom crops in forest shade. | 15,017 |
| 0194013 | 1457435 | Rangarajan, A. | Improving Nutrient Management in New York Vegetable Production Systems | The successful implementation of this research requires close grower and extension educator planning and collaboration. In addition, the research team includes horticulturists, soil scientists and plant pathologists all committed to enhancing the integrated management of vegetable systems to address diverse goals of soil health and crop quality. This proposal represents the initiation of a long term collaborative effort among Cornell faculty and extension staff interested in enhancing the sustainability of NY vegetable systems. The results of this research not only affect grower nutrient planning; they are incorporated into the Cornell Guidelines for Integrated Vegetable Crop Production. | 24,874 |
| 0194059 | 1457468 | 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. | 25,000 |
| 0194073 | 1257924 | Thies, J.E. | Soil Microbial Taxonomic and Functional Diversity as Affected by Land Use and Management | In the Hudson River Estuary, this research integrates with current efforts by the DEC and community-led watershed management groups to identify sources of non-point pollution that can be targeted for intervention. In many watersheds listed on the 303(d) list, pathogen sources are listed as 'suspected'. There is no current means being employed to track these sources definitively. Hence, this work builds upon and adds value to current efforts. In the Peconic Estuary, Cornell Cooperative Extension-Suffolk Couny staff are currently funded to identify which E. coli isolates are being characterized by PFGE. The work proposed here will expand that work by including an additional watershed and by augmenting the analysis by using two additional fingerprinting techniques to make host source identification more robust. | 20,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0194088 | 1217449 | Warner, M.E. | Linking Child Care and Economic Development | This research integrates extension components by involving stakeholders in the design, implementation and evaluation process. Working jointly with economic development agencies and child care resource and referral agencies to design the impact analysis creates the foundation for continued collaboration. Involvement of businesses in identifying new administrative and fiscal strategies strengthens the linkage between child care and other business sectors. Funders and government are key players in evaluating the impact of the economic development approach on community and state level policy change. | 19,909 |
| 0194096 | 1457923 | Halseth, D.E. | Development of New Potato Clones for Improved Pest Resistance, Marketability, and Sustainability in the Northeast | This multidisciplinary integrated project 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. | 37,000 |
| 0194108 | 1237433 | Steenhuis, T. | Field Identification of Hydrologically Sensitive Areas and their Water Quality Implications | This highly integrated project is closely linked to ongoing research activities in the Cannonsville watershed by an unofficial coalition of researchers from Cornell, USDA-ARS at Pennsylvania State University, SUNY Brockport, USGS, the NYC-DEP, WAC, and local landowners, primarily dairy producers. These activities seek to improve our understanding of environmental pollutant transport at is relates to hydrology, soils, landuses, and farmer decisions. All activities are designed to promote cooperation among the research parties and conduct as much research as possible in the field on the primary stakeholders' land in order to help bridge between research, extension, and end users. | 12,000 |
| 0194109 | 1597403 | Francis, J. | Developing Innovative Marketing Tools for Farmers and Agribusiness | The goal of this project is to develop marketing software that will serve as a new and innovative tool for extension educators and community/business outreach programs. To insure that this tool will be useful, adoptable and adaptable, potential users, especially extension educators, serve as advisors on software development | 25,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0194110 | 1277438 | 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 such as the precision feeding project of Paul Cerosaletti. Feeding advisors use the CNCPS routinely to improve performance on farms. We 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. | 44,000 |
| 0194262 | 1847416 | Rose, J.K.C. | Elucidation of Xyloglucan Metabolism in Ripening Fruit as a Means to Improve Postharvest Quality | The proposed research will be fully integrated into an extension initiative through a number of channels and the existing framework of research in fruit biology involving the PI, Rangarajan and Jahn through other funded projects has already been integrated with a network of individuals and organizations. Thus the lines of communication that are required to present new knowledge bases from research projects are already in place. These include meetings and workshops in which the PI and colleagues will participate fully. The involvement of Profs. Rose, Watkins and Rangarajan will ensure that the expertise in various fruit biology-related fields is melded into coherent strategies for crop improvement that will be easily understood and applied when presented though the extension programs. | 23,674 |
| 0194342 | 1457440 | Rossi, F. S | Turfgrass Nutrient Management to Reduce Pesticide Use | This project has implicit educational opportunities with existing soil nutrient analysis labs, as well as turfgrass managers who currently implement the subsequent nutrient recommendations. The project will serve as a basis for educational opportunities with industry trade associations and regulatory agencies in the New York City Watershed. This project is a logical next step for our turfgrass water quality research and education program that developed the award winning 'Homeowner Lawn Care and Water Quality Almanac' that is currently being delivered throughout New York by our Extension Educators. The involvement of Cobleskill faculty will include professional development and educational opportunities for technical students. | 34,500 |
| 0194425 | 6217301 | Shelton A.M. | Ecology and Management of European Corn Borer and Other Lepidopteran Pests of Corn | The investigator conducts project research and also extends project results directly to clientele groups, via field workshops, conference presentations, extension educator trainings, and production of a manual on insect/disease control for organic growers. The project utilizes several websites to disseminate research results; these include websites on biological control methods, biotechnology, pests of the Northeast. | 6,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0194457 | 6257458 | Rosenberger, D. | Development Of An Integrated Fruit Production (IFP) For NY Apples | The planned objective of extension programming in this topical area and relating to this project is to provide useful information about diseases on tree fruits to clientele groups that include fruit farmers, extension professionals, private and corporate consultants working with tree fruit growers, and agrichemical company representatives working on development and sales of fungicides. Information from a broad range of sources (journal articles, oral communications from colleagues and consultants, information from the world-wide web, as well as results from this research) are collected, compiled and integrated into extension publications and presentations at fruit grower meetings and at in-service education events. Information relevant to understanding the preceding season and preparing for the next season is emphasized. In 2005, 28 extension articles were reproduced in various newsletters throughout eastern United States, thereby resulting in a total of 55 citable publications. Of the 38 related oral presentations made in 2005, 17 were out-of-state presentations (WI, PA, VT, NC, NJ, CA, VA, Ontario). | 1,500 |
| 0194772 | 1277922 | Butler, W.R. | Ovarian and Environmental Influences on Embryonic/Fetal Mortality in Ruminants | Research and extension program plans for this project 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 (eg. demonstrating new nutritional technology). Fact sheets will be prepared for distribution by dairy Extension Staff. | 16,461 |
| 0194854 | 1477830 | Brown, T.L. | Landscape Ecology of Whitetailed Deer in Agro-Forest Ecosystems: A Cooperative Approach to Support Management | This project 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 | 1597925 | Brown, D.L. | Population Change in Rural Communities | Research and extension/outreach are integrally linked in this proposal. 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 |
| 0194935 | 1477415 | Richmond, M.E | Design a Partnership Framework to Implement an IPM Model for Aquatic Invasive Plants in the NY State Adirondack Park | The focus group methodology and use of key stakeholders has been effectively demonstrated as an approach to secure consensus on developing a framework for managing discussions on joint activities involving complicated jurisdictional/interest group relationships. Applying this methodology to secure a governance framework for managing invasive plants links current research on biological control of EWM with possible approved chemical and mechanical means in a IPM model to address threats to the ecological integrity of water bodies in the Adirondack region. Preparing materials and conducting training for county CCE educators in the region as well as early involvement in the focus groups assures further integration. | 19,250 |
| 0195183 | 3217406 | Temple, E. | Brain Mechanisms Important for Reading and Reading Disorders: Understanding the Brain Processes Required for Literacy | This research integrates basic research and community outreach in its specific goals which include both an understanding of the basic mechanisms underlying a fundamental human cognitive skill as well as an understanding of how these basic mechanisms may be impacted by specific educational and interventional programs. Adequate literacy is essential for the economic well-being and quality of life of individuals and families. This research promises to directly impact that literacy through a further understanding of the brain mechanisms that support it, and how those mechanisms can be affected by behavioral experience. | 10,000 |
| 0195291 | 1537827 | McGrath, M.T. | Mechanisms of Plant Responses to Ozone in the Northeastern U.S. | Results from this project 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 holds a split research-extension appointment, and, as such, these extension activities was part and parcel of proposal planning. | 5,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0195429 | 3277405 | Elliott, J.R. | Rusticity Reconsidered: New Production Technologies for the Rustic Furniture Industry | This project has a number of integrated components. In addition to the technology transfer of advanced wood processing technologies to a local stakeholder, this project can have a wider impact. Demonstrations and training workshops at the stakeholder's facility and showcasing these new technologies can benefit other furniture manufacturers in the region. In addition, a planned website will provide information on the project, as well as some of the issues it addresses, such as sustainable forestry and green manufacturing. | 23,400 |
| 0195579 | 4787801 | Schukken, Y.H. | Mastitis Resistance to Enhance Dairy Food Safety | This multistate project 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 extsnion 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. | 25,000 |
| 0195641 | 1477802 | Blossey, B. | Biological Control in Pest Management Systems of Plants | This project is highly integrated in terms of how it was planned and is conducted. The investigator has a partial 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 | 3997833 | Olson, C.M. | Rural Low Income Families: Tracking Their Well-Being and Function in an Era of Welfare Reform | While the proposed project 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 and Extension Work Groups in which the Cornell Cooperative Extension Associate Director participates. | 23,926 |

| | | | | | |
|---|---|---|---|---|---|
| 0197895 | 1257401 | 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. | 25,000 |
| 0197898 | 1457465 | 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. | 15,061 |
| 0197898 | 1497465 | De Jong, W.S. | Golden Nematode Resistant Chipping and Tablestock Varieties to Meet the Evolving Needs of the NYS Potato Industry | Extension and stakeholder feedback channels are directly integrated into this effort. At about 20 venues each year, both formal and on-farm, the salient properties of advanced potato clones developed by the related breeding program are describe verbally, and an annual report is produced and disseminated. At these same venues, and also via phone and email, grower input as to their need for new varieties is heard, noted, and often taken into consideration. This feedback from growers and the processing industry help project investigators make decisions on which clones best meet current needs and should be released as new varieties. The goal is to discern, via year-to-year and farm-to-farm input, what is truly important to growers, and then design breeding strategies to develop varieties with the most desirable new characteristics. | 7,500 |

| | | | | | |
|---|---|---|---|---|---|
| 0197898 | 1537265 | De Jong, W.S. | Golden Nematode Resistant Chipping and Tablestock Varieties to Meet the Evolving Needs of the NYS Potato Industry | Extension and stakeholder feedback channels are directly integrated into this effort. At about 20 venues each year, both formal and on-farm, the salient properties of advanced potato clones developed by the related breeding program are describe verbally, and an annual report is produced and disseminated. At these same venues, and also via phone and email, grower input as to their need for new varieties is heard, noted, and often taken into consideration. This feedback from growers and the processing industry help project investigators make decisions on which clones best meet current needs and should be released as new varieties. The goal is to discern, via year-to-year and farm-to-farm input, what is truly important to growers, and then design breeding strategies to develop varieties with the most desirable new characteristics. | 8,563 |
| 0197900 | 1457483 | 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). | 33,000 |
| 0197901 | 1317412 | Walther, J. B. | Enhanced Decision-Making and Community through Alternative Approaches to Internet Groups | This project promotes community decision-making and collaborative partnerships by enhancing the use the Internet for group discussions. Groups are formed to collaborate online to address extension concerns and topics (such as program council administration, agricultural practices/promotion, or responses to policy changes), and, as such, extension educator and administrator perspectives have been included in project planning. Experimental composition of groups (varying in degree of familiarity and proximity) allows testing whether people disregard information from unknown partners when groups contain both known and unknown partners, versus using all partners' inputs when all group members are unknown to one another. Plans call for results to be part of a publication called 'A Guide to Virtual Groups and Communities,' for implementation by extension with other groups across the state and the region. | 20,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0197984 | 1277468 | 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. | 10,383 |
| 0198000 | 3997407 | Frongillo, Jr., E.A. | Improving Targeting and Service Delivery of Elderly Food Assistance Programs | This research was proposed and planned with a direct role for Cooperative Extension in disseminating information, and, more importantly, in spurring efforts to continue to develop integrated, coordinated approaches to the multi-factorial challenges inherent in supporting healthy aging. This research is directly tied to intended users of the information produced. We will take advantage of our strong links to various relevant national, state, and community agencies to develop means to communicate the information in ways that will allow these agencies to apply it. | 30,500 |
| 0198001 | 1397425 | 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 asthe identification and diagnostic activities supported by Cooperative Extension.. Enhancing the holdings of the CUIC will permit greater added value to those activities. | 9,021 |
| 0198003 | 1497410 | Earle, E.D. | Faster Breeding of Vegetable Crops through Doubled-Haploid Techniques | This proect 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 | 1477433 | Knuth, B.A. | Human Dimensions Inquiry to Improve Community-based Wildlife and Natural Resources Management | Two of the principal 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). | 49,992 |
| 0198032 | 4337803 | 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-60 multistate group. NE-60 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. | 39,739 |
| 0198085 | 1237403 | 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 actively interact with researchers, both formally and informally, throughout the research process--including project proposal development phase--and work collaboratively with researchers in the development of training and outreach materials (presentations, brochures, etc.) | 11,000 |
| 0198086 | 1317408 | Hancock, J.T. | Technology Use in Local Contexts | The proposed research integrates the results derived from the field and experimental phases of the project with extension efforts by developing techniques and procedures for evaluating communication systems designed to support extension and outreach activities. With the assistance of internal stakeholders, a communication system is identified (e.g., systems implemented in a CCE Learning Center) and evaluated in terms of its usability and effectiveness in facilitating programmatic objectives (e.g., the transmission and exchange of extension information). The procedures and results from this evaluation are then compiled into a publication for Cornell Cooperative Extension that can be used as a set of guidelines for the evaluation of future implementations of information technology. | 15,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0198087 | 1537429 | McGrath, M. T. | Improving the Understanding and Management of Diseases Affecting Long Island Vegetable Crops | The proposed 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. | 19,028 |
| 0198143 | 1437411 | 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 integrated. | 12,002 |
| 0198204 | 1437451 | Wiedmann, M. | Mathematical Modeling of Farm-to-Table Foodborne Pathogen Transmission | This is a highly integrated project, linking closely with 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. | 20,000 |
| 0198222 | 3217453 | Haugaard, J.J. | Stalking and Other Forms of Intrusive Contact after Adolescent Dating and Romantic Relationships | As described throughout this proposal, research and direct intervention occur simultaneously in this project. Research with college and high school students provides additional needed information that will help to inform the development of more effective interventions. The interventions will be evaluated for their effectiveness. We expect to add to the literature on these relationships and the principal investigators have a long history of publication. Thus, information about these relationships and interventions for them will be available nationwide. | 17,000 |
| 0198223 | 1537425 | 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 | 3297450 | 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. | 30,000 |
| 0198378 | 1317470 | Lewenstein, B.V. | Teachers and Breast Cancer: Understanding the Knowledge and Perceptions of a Population at Risk | This research activity has been proposed and planned with future effective extension and outreach interventions in mind. Before proposing such an intervention, it is necessary to better understand the needs, knowledge and networks of the target population. 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. | 19,970 |
| 0198414 | 1257462 | Harrison, E. | 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 | 3217409 | 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). | 37,178 |

| | | | | | |
|---|---|---|---|---|---|
| 0198542 | 1537430 | Daughtrey, M. | 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. | 18,000 |
| 0198625 | 1457838 | Davies, P. | Postharvest Biology of Fruit | The investigator holds a split research-extension appointment, and integrates both functions in his work. Extensive collaborations with faculty, extension educators and industry are tapped in this project. 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. | 25,000 |
| 0198716 | 1477506 | 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. | 61,504 |
| 0198743 | 1277435 | 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, ad feed industry personnel. | 15,244 |

| | | | | | |
|---|---|---|---|---|---|
| 0198751 | 1217421 | Henehan, B.M. | 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. | 5,872 |
| 0198910 | 1397461 | 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 | 1397403 | Weston, P.A. | Managing Arthropod Pests of Woody Plants by Manipulating Plant Defensive Chemistry | This highly applied research effort in also highly integrated. There is clearly an extension component to this project in addition to the research component. 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 |
| 0199252 | 1277839 | Van Amburgh, M.E. | Management Systems to Improve the Economic and Environmental Sustainability of Dairy Enterprises | This multi-state, regional project 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 replacer 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. | 11,086 |

| | | | | | |
|---|---|---|---|---|---|
| 0201287 | 1477473 | Walters, M.T. (Todd) | 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. | 65,001 |
| 0201580 | 1377423 | 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. | 13,267 |
| 0201586 | 1237418 | 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 |
| 0201654 | 1317457 | McComas, K. A. | Public Engagement in Collective Deliberation about Nanoscale Science and Engineering for Agriculture and Food Systems | At heart, this project is an concerted effort to link ag nanoscale science and engineering (NSE) research and extension/outreach. It includes working with extension educators in the selection of deliberative meeting sites and recruitment of participants. Extension agents, who are the front-line in these communication efforts, are asked to participate in these meetings, and are prepared, via project progress reports, to respond to questions and concerns related to NSE in agricultural and food systems. | 30,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0201778 | 1217486 | Bills, N. | 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. | 26,195 |
| 0201946 | 1837460 | 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 | 1597491 | Gillespie, G. | 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. | 23,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0202603 | 4787475 | 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 | 1457459 | Weston, L.A. | Studies on the Interference, Spread and Genetic Diversity Encountered in Three Important Invasive Perennial Weeds | 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. | 10,000 |
| 0202706 | 6327402 | 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., 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. | 14,500 |
| 0202742 | 6217314 | Abawi, G.S. | Managing Plant Microbe Interactions in Soil to Promote Sustainable Agriculture | This integrated project 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. | 20,000 |

| | | | | | |
|---|---|---|---|---|---|
| 0202878 | 1457454 | 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 Program Work Team and other extension collaborators. | 9,000 |

**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: 2005**

**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)*** | | | **8,908,045** |
| ***This FY Target Amount*** | | | **2,227,011** |
| **Title of Planned Program Activity** | | | |
| Support of integrated projects (see following pages) | | | **1,409,683** |
| Support for Program Councils and Work Teams | | | **15,768** |
| FTE-based support for integrated activity (see following pages) | | | **307,940** |
| Support for CCE-NYC integrated activities | | | **205,584** |
| Extension Administration expenditures in support of integrated activities (see following pages) | | | **306,413** |
| **Total** | | | **2,245,388** |
| **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.

**Director** **Date**

# 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)

| Proposal Number | Title | Project Goals/Objectives | Expenditure |
|---|---|---|---|
| 2002-03-105 | **Youth At Risk** | Determine the needs and supports of NYS youth through the Teen Assessment Program and educate youth, parents and decision-makers about the results; Provide increased opportunities for youth to contribute to their communities through volunteer service; Support experiential education such as youth involvement in local government programs. | $13,000.00 |
| 2002-03-136 | **Family Economics and Resource Management** | Increase the quantity and quality of financial literacy, outreach education extended to low and moderate income and youth audiences, Implement a child care quality rating system in four pilot counties. | $40,000.00 |
| 2002-03-138 | **Community Health Programs: Prevention, Education, and Policy Networks** | Community health issues cover a broad spectrum of individual and community needs that are often specific to a location or subject matter approach. These objectives focus on the more generic program aspects of community health, i.e., planning, evaluation, collaboration, representation and policy development. Issues ranging from distribution and use of tobacco control settlement funds to workforce development are requiring higher levels of citizen participation and new community involvement paradigms. | $38,000.00 |
| 2002-03-140 | **Building Capacity and Sustainability in Extension Workforce Development Programs for the Food System** | Assist local, state, and regional CCE workforce development efforts through a concept mapping and strategic planning process Assist local workforce investment boards to engage in strategic planning. Develop new program models such as the Invest Program in Albany County and expand and facilitate current successful models developed by the Pathways Project. | $170,000.00 |
| 2002-03-154 | **Evaluation of Dialogue-based Methods in Facilitating Public Discussion about Genetic Engineering** | The primary objective of the proposed project is to evaluate the utility of dialogue-based communication strategies in facilitating discussion about public controversies— in this case, genetic engineering in US agriculture. | $42,478.93 |
| 2002-03-164 | **Development of Synchronous and Asynchronous Horticulture Distance Learning for Cooperative Extension** | The overall goal is to utilize asynchronous and synchronous technologies to develop a high quality structured learning and interactive communications networks that emphasize horticultural principles, practices, and hands-on skills. To build on our existing expertise in horticultural distance education but incorporates new approaches both pedagogically and technically. | $33,000.00 |
| 2002-03-189 | **Youth Development Program, Training, and Policy Development** | Increase internal and external assets in young people from two high need communities in Upstate 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 other key youth development state agencies in NY and nationally, | $50,075.97 |

| | | | |
|---|---|---|---|
| | | Strengthen the CCE 4-H voice in state government on youth development policy issues. | |
| 2002-03-189 | **HD Youth Development Program: Program, Training, and Policy Development** | Increase internal and external assets in young people from two high need communities in Upstate 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 other key youth development state agencies in NY and nationally, Strengthen the CCE 4-H voice in state government on youth development policy issues | $33,947.15 |
| 2002-03-189 | **HD Youth Development Program: Program, Training, and Policy Development** | Increase internal and external assets in young people from two high need communities in Upstate 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 other key youth development state agencies in NY and nationally, Strengthen the CCE 4-H voice in state government on youth development policy issues | $5,070.00 |
| 2002-03-196a | **Enhancing Youth Voice with Youth as Evaluation Partners** | The overall goal of the proposed project is to develop an innovative methodology and approach for engaging youth as partners in the evaluation process. | $15,000.00 |
| 2002-03-219 | **Calibration of a simple amino-sugar soil test for determining sites that are non-responsive to N fertilization to corn.** | Three years of soil samples under differential compost and manure management regimens were analyzed to investigate the impact of organic amendments on aminosugar N. The research resulted in development of critical soil test levels. The research was conducted jointly with extension educators and results have been incorporated directly in current programming. | $35,000.00 |
| 2002-03-220 | **An Online Community Profile Approach to Accessing Community Data** | This project is designed to develop municipal community profiles that are easily grasped and based on research-based knowledge. Campus-based researchers work with community leaders and local extension educators to inform local decision-making. | $19,000.00 |
| 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. | $36,209.80 |
| 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. | $15,000.00 |
| 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 | $11,903.61 |

| | | | |
|---|---|---|---|
| | | 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. | |
| 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. | $5,000.00 |
| 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. | $10,000.00 |
| 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. | $10,000.00 |
| 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. | $25,000.00 |
| 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. | $30,000.00 |
| 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 | $3,002.60 |

| | | | |
|---|---|---|---|
| | | research questions into textile programs; Engage underserved audiences; Support CCE educators, volunteer leaders, and others who implement these programs. | |
| 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. | $23,878.56 |
| 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. | $25,000.00 |
| 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. | $10,000.00 |

| | | | |
|---|---|---|---|
| 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. | $24,946.84 |
| 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. | $15,000.00 |
| 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. | $10,000.00 |
| 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. | $9,935.80 |
| 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. | $6,000.00 |

| | | | |
|---|---|---|---|
| 2004-05-107 | **New York State Extension Disaster Education Network** | 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. | $43,000.00 |
| 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. | $43,000.00 |
| 2004-05-109 | **Marketing and Management of Sheep and Goats in New York** | The specific objectives are to: 1) Develop and provide information about how to manage sheep and goat farms to sustain profitable production; 2) Increase the number of farms utilizing bulk purchases of feed ingredients; 3) Reduce the incidence of pneumonia and other diseases that cause economic losses to sheep and goat farmers; 4) Increase the number of farms doing some form of rotational and extended grazing; 5) Increase the number of lambs and goats marketed per dam; 6) Increase the number of farmers taking advantage of special marketing opportunities to increase net returns. | $10,000.00 |
| 2004-05-121 | **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. | $24998.80 |
| 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. | $40,500.00 |
| 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. | |
| 2004-05-126 | **Building Capacity to Address Childhood Obesity in Low** | As a result of participation, nutrition professionals will improve their capacity to collaboratively address childhood obesity in their communities. As it relates to | $15,000.00 |

| | | | |
|---|---|---|---|
| | **Income Communities: Linking Research and Practice** | 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. | |
| 2004-05-138 | **Innovative Educational Programs for Small Farms** | 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. | $21,500.00 |
| 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 developing the kits will need to be aware of what this research is and how it might be used in outreach. | $28,000.00 |
| 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 | $60,000.00 |
| 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. | $25,000.00 |
| 2004-05-173 | **Establishment and Maintenance of Long-Term Soil Health Sites** | To establish, maintain, and characterize two new, long – term soil health sites on the Geneva and Ithaca campuses. Also, to characterize and utilize on-going secondary long-term sites that are being used for IPM systems, crop rotation schemes and various soil amendments on and off campus. To use these sites for | $10,000.00 |

| | | | |
|---|---|---|---|
| | | multidisciplinary research aimed at the elucidation of the complex interactions among the physical, chemical and biological components of soil health and their impact on crop productivity. | |
| 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. | $25,000.00 |
| 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. | $22,000.00 |
| 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. | $50,040.42 |
| 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 | $25,000.00 |
| 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 | $10,000.00 |

| | | | |
|---|---|---|---|
| | | 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. | |
| 2004-05-248 | **NYS 4-H Horse Program Inititive** | 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, 973.97 |
| 2004-05-249 | **Total Dairy Management** | Educational programs for multiplier groups are inherently research-driven in their nature. One task of the stakeholder focus group that will be formed during the initial stages of this project will be to identify key areas requiring industry-based research on commercial dairy farms for full implementation across the industry. This research links Cornell faculty and PRO-DAIRY staff with CCE educators, agriservice professionals and veterinarians, and dairy farm businesses. We expect that at least several key areas will be identified that will merit this type of integrated research/extension approach during the project period. | $8,000.00 |
| 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. | $19,999.17 |
| 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. | $15,943.00 |
| ODP115 | **Integrated Research and 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. | $22,500.00 |
| ODP128 | **Community And Rural Dev Outreach And Support** | CaRDI is a network of applied research and extension initiatives address community and environment, economic opportunity, and community capacity initiatives state wide. | $18,000.00 |
| ODP130 | **Plant Management Network** | The Plant Management Network is a unique cooperative resource for the applied plant sciences. Designed to provide plant science practitioners fast electronic access to proven solutions, the Plant Management Network offers an extensive searchable database or applied plant managment research. | $1,300.00 |

| | | | |
|---|---|---|---|
| SC2004-05-172 | **Green Communities: Improving Vegetation Management** | To understand the opportunities and limitations of any given site for sustainable tree growth. Describe and demonstrate a process for synthesizing site information in order to make the best selection of tree species, or equally important, to know when site conditions must be modified in order for trees to grow successfully. | $10,000.00 |
| SC2004-05-198 | **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. | $35,000.00 |
| SC2004-05-198 | **Investigating Roadside Ditches for Water Resource Management and Implementation of EPA Phase II Storm water Regulations** | 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. | $35,000.00 |
| SC2004-05-237 | **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. | $24,959.96 |

**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 $307,940 in FY05. Since the funds typically are small amounts, we do not request project reports or proposals. The allocations for FY05 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 ($205,584) and within Extension Administration ($306,413) in direct support of integrated activities.

| Name | Title | FTE | Sub | 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 |
| Tauer, Janelle R (Loren) | Professorial | 0.1 | | Production economics and finance |
| Streeter, Deborah H | Professorial | 0.15 | | Personal Enterprise and Small Business Management |
| Chapman, L Duane | Professorial | 0.2 | | Environmental economics |
| Christy, Ralph | Professorial | 0.2 | | Entrepreneurship and personal enterprise |
| Novakovic, Andrew M | Professorial | 0.2 | | Dairy market economics, diary policy, agricultural policy, agricultural tra |
| McLaughlin, Edward W | Professorial | 0.25 | | Food industry management program |
| 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 |
| Anderson, Bruce L | Professorial | 0.65 | | Marketing and cooperatives |
| White, Gerald B | Professorial | 0.7 | | Farm business management, horticultural business management and marketing, risk management |
| Henehan, Brian M | Sr Extn Associate | 0.8 | | Management and marketing for agricultural business with an emphasis on cooperatives; business structure planning |
| Maloney, Thomas R | Sr Extn Associate | 0.81 | | Improving the human resource management skills of agricultural and horticultural employers |
| 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** | | | | |
| Walter, Michael | Professorial | 0.15 | | Waste management |
| 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 Associate | 0.8 | | Water management |
| Irwin, Lynne | Professorial | 0.9 | | Road engineering |
| **Crop and Soil Sciences** | | | | |
| DeGloria, Stephen D | Professorial | 0.15 | | Resource inventory and analysis |
| Bonhotal, Jean | Extn Associate | 0.3 | | Waste Management |
| Van Es, Harold M | Professorial | 0.4 | | Soil and water management |
| Grantham, Deborah | Sr Extn Associate | 0.5 | | Water quality |
| Melkonian, Jeffrey | Sr Extn Associate | 0.5 | | Nitrogen fate and transport |
| Ketterings, Quirine M | Professorial | 0.6 | | 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 |
| **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 |
| Fox, Danny G | Professorial | 0.4 | | Ruminant nutrition |
| 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** | | | | |
| Trumbull, Deborah J | Professorial | 0.1 | | Teaching and learning |
| Caffarella, R. S | Professorial | 0.34 | | Adult learning and development |
| **Entomology – Ithaca** | | | | |
| Wheeler, Quentin | Professorial | 0.1 | | Insect systematics and morphology |
| 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 | 0.7 | | 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 B | Professorial | 0.5 | | Postharvest management of edible crops |
| Weiler, Thomas C | Professorial | 0.5 | | Greenhouse crop production |
| Bushway, Lori | Sr Extn Associate | 0.5 | | Garden-based Learning |
| Eames-Sheavly, Marcia | Sr Extn Associate | 0.5 | | Youth development/garden-based learning |
| 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 |
| Sullivan, Kristi | Extension Associate | 0.25 | | Wildlife and conservation education |
| Blossey, Bernd | Professorial | 0.3 | | Invasive plant control |

| | | | | |
|---|---|---|---|---|
| Trautmann, Nancy | Sr Extn Associate | 0.3 | | Natural resources youth education |
| Buck, Louise E | Sr Extn Associate | 0.35 | | Agroforestry |
| Schneider, Rebecca L | Professorial | 0.4 | | Sustainable water resource management |
| Kraft, Clifford E | Professorial | 0.5 | | Warm and cold waters fisheries |
| Krasny, Marianne E | Professorial | 0.5 | | Natural resources youth education |
| Curtis, Paul D | Professorial | 0.7 | | Nuisance wildlife management |
| **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** | | | | |
| Peters, H Elizabeth | Professorial | 0.1 | | Family policy |
| 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 |
| Tobias, Donald J | Professorial | 0.8 | | 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 |
| Maxwell, Lorraine | Professorial | 0.6 | | Role of physical environment in child behavior, health and development |
| **Textiles and Apparel** | | | | |
| Kozen, Frances | Extension Associate | 0.5 | | Apparel industry |
| Lemley, Ann T | Professorial | 0.5 | | Water quality |
| Loker, Suzanne | Professorial | 0.6 | | Apparel industry |
| **Division of Nutritional Sciences** | | | | |
| Bisogni, Carole A | Professorial | 0.2 | | Application of consumer food choice research in community nutrition programs; program evaluation |
| Garza, Cutberto | Professorial | 0.2 | | Metabolic imprinting, physiologic growth, GMOs and nutrition |
| Olson, Christine M | Professorial | 0.2 | | Food insecurity; obesity prevention in pregnant and postpartum women; Cornell NutritionWorks team member |
| Pelletier, David L | Professorial | 0.2 | | Nutrition policy; public issues education; safety of genetically engineered foods |
| Farrell, Tracy | Extn Associate | 0.65 | | Farm to school programs |
| Gillespie, Ardyth H | Professorial | 0.7 | | Family and Community Food Decision-making Program; Leadership and professional development integrating research, education and action |
| Devine, Carol M | Professorial | 0.75 | | Nutrition for women, work-family nutrition, environmental obesity prevention, Breast Cancer and Environmental Risk Factors, Cornell NutritionWorks |
| Dollahite, Jamie S | Professorial | 0.75 | | Food and Nutrition Education in Communities |
| **Entomology -- Geneva** | | | | |
| Nault, Brian | Professorial | 0.2 | | Landscape ecology and vegetable entomology |
| Peck, Daniel | Professorial | 0.2 | | 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 |
| **Plant Pathology -- Geneva** | | | | |
| Fuchs, Marc | Professorial | 0.2 | | Viral diseases of fruit and vegetables |
| Cadle-Davidson, Lance | Professorial | 0.18 | | Fungal pathogens of grapevines |
| Abawi, George | Professorial | 0.2 | | Vegetable pathology, integrated disease management, soil health |
| Burr, Tom | Professorial | 0.2 | | Diseases of fruit crops |
| 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 |
| Schupp, James R | Professorial | 0.4 | | Pomology |
| Andersen, Robert | Professorial | 0.5 | | Tree fruit breeding |
| 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 | 0.25 | | |
| P.Warner | Family & Youth | 0.25 | | |
| L. Randolph-Benjamin | Family & Youth | 0.25 | | |
| L. Almeyda | Family & Youth | 0.12 | | |
| N. Mitchell | Family & Youth | 0.25 | | |
| B. Dailey | 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. |
| G Ferenz | Urban Environment | 0.25 | | |
| D. Bader | Urban Environment | 0.25 | | |
| L. Babcock | Urban Environment | 0.25 | | |
| J.Ameroso | Incubator | 0.2 | | 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. | $27,408 |
| 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. | $174,588 |
| 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. | $33,407 |
| 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. | $1,010 |
| **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. | | $15,768 |