2013 University of the District of Columbia Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

The University of the District of Columbia (UDC) is an historically relevant and uniquely progressive, urban land-grant institution located in the heart of our nation's capital. UDC is committed to a broad mission of education, research and community service. With a rich tradition of education and research, stemming from the mid 1800's from predecessor institutions, the University has evolved into an institution of higher learning that focuses on the integration of research, academics, and outreach service. The College of Agriculture, Urban Sustainability and Environmental Sciences (CAUSES) embodies the land-grant tradition, offering cutting edge academic programs in environmental science, urban sustainability, water resources management, nutrition and dietetics, urban architecture and community planning. Also, we offer a wide range of programs that serve individuals and organizations in our community and beyond.

We are keenly focused on our land-grant mandate to serve the citizenry of the District of Columbia. Our college mantra, "Healthy Cities - Healthy People," keeps us reminded of our goal to improve social, economic and environmental conditions for the residents of the District of Columbia, our nation, and beyond. Under the leadership of Dean Sabine O'Hara, the research and extension activities for the Agricultural Experiment Station and Cooperative Extension Service have been thoughtfully integrated throughout all five land-grant centers: (1) Center for Urban Agriculture & Gardening Education, (2) Center for Sustainable Development, (3) Center for Nutrition, Diet & Health, (4) Center for 4H & Youth Development., and (5) Architectural Research Institute.

In its Vision 2020 Strategic Plan, UDC positions it academic programs for distinction through a commitment to active experiential learning, interdisciplinarity, and practice. CAUSES has implemented a comprehensive restructuring of its land-grant programs to create top quality, relevant research and community education programs that facilitate this distinction while also being well-aligned with USDA priorities and with the District's Sustainable DC, Economics Development, and One-City plans. We are working to expand research across our planned programs. Currently, there are several research proposals pending approval by USDA National Institute of Food and Agriculture.

The land-grant centers strengthen UDC's academic programs by offering hands-on, practical service learning experience, internships and research opportuntities that a) foster relevant learning experiences and b) facilitate employability and skills development. The land-grant centers can, thus, become exemplary living learning laboratories for UDC students.

As we continue to evolve through continuous improvement initiatives and program development, we remain deeply committed to being relevant to the residents of the District of Columbia. Given our three-pronged approach of teaching, research and community outreach, we seek to make a measurable, positive difference in the lives of people right where they live and work.

This report documents our accomplishments and results for research and extension efforts in support of our land-grant mission. The joint research and extension report includes six program areas: Climate Change; Global Food Security and Hunger; Health, Nutrition and Childhood Obesity Prevention; Urban

Families, Youth and Communities; and Food Safety.

1. **Climate Change**

Research

In FY 2013, Dr. Sabine O'Hara, Dean & Director of Land-Grant Programs of the College of Agriculture, Urban Sustainability and Environmental Sciences of UDC, appointed Dr. Elgloria Harrison to the newly created position of Special Assistant to the Dean for Academic Programs and Climate Initiatives. Dr. Harrison is a respiratory scientist with experience in the analysis of health disparities. The appointment recognizes that effective climate change research in the urban context of Washington DC must be broad based and does not fit into any one of the five land-grant centers of CAUSES. Instead, it raises research issues that are interdisciplinary in nature and require an overarching perspective that is best expressed in a college wide appointment. Since the position and its responsibilities are new, no research results have been obtained in FY 2013. However, we anticipate developing new research initiatives in FY 2014.

In addition, during the period, research and extension staff, along with engineering faculty, developed a research proposal to further build upon previous research conducted by the University on precipitation and to develop analytical tools to be made available for researchers, students, and District of Columbia residents. Further, a proposal was developed by the director of the Center for Urban Agriculture and Gardening Education to analyze watering devices for the planting and survival of young urban canopy trees. Both proposals have been submitted to USDA and are pending approval.

Extension

The Forestry Outreach program at the UDC Cooperative Extension Service utilizes the Renewable Resources Extension Act fund to address the impact of climate change through its invasive plant program. The invasive plant program provides outreach and education about invasive plants and their impacts on the ecosystem. DC metropolitan area residents are educated about: 1) the overall concept of invasive species; 2) the phenology, ecology and identification of invasive plants that are well established in the District; 3) invasive plant management techniques; 4) Early Detection Rapid Response plant species; and 5) native plant alternatives that can be used in lieu of invasive plants in landscape installations. Activities for fiscal year 2013 included workshops; demonstrations; site visits; invasive plant management events; development of curriculum, outreach, and educational materials; and providing technical assistance to District residents through phone, email, and in-person consultations. Our community partners for FY 13 included: The Washington Senior Wellness Center; District Parks and Recreation; District Department of the Environment; Rock Creek National Park; The DC Cooperative Weed Management Area; Rock Creek Conservancy; Dumbarton Oaks Park Conservancy; Casey Trees; Neighborhood Farm Initiative; DC Public Libraries; Washington Parks and People; DC Community Gardens; Matthew Memorial Baptist Church; Beveridge and Diamond; and City Blossoms.

2. **Global Food Security and Hunger**

Research

CAUSES recognizes Global Food Security and Hunger as one of the most important themes in urban sustainability and urban agriculture. Without securing a steady and dependable supply of highly nutritious food, urban communities cannot claim to attain sustainability. With more than half of the world's population, and over 80 percent of the U.S. population now living in urban communities, food travels ever-longer distances resulting in declining nutrient density, high energy demand associated with a transport intensive food system, increasing vulnerability of urban food supplies, and growing health disparities due to unequal access to fresh food.

Using the pioneering work of Dean Sabine O'Hara, CAUSES has begun to implement the concept of Urban Food Systems Hubs that operationalize her work on Sustaining Production (O'Hara 1996, 1998, 2004, 2012, 2013). Sustaining Production expands the traditional success measures of production such as profit maximization and productivity, and gives simultaneous consideration to increasing productivity, reducing emissions (negative externalities) and improving sink capacities. The Urban Food Systems Hubs consist of the following components:

1. Food production through highly efficient small scale aquaponics systems
2. Food processing through commercial kitchens that serve as business incubators
3. Energy efficiency and resilience through small scale high efficiency wind power
4. Continuous data stream monitoring to maximize operational efficiency
5. Food marketing through networked farmers markets, grocery stores and restaurants
6. Food production amendments through food waste processing and composting

All six components of the Urban Food Systems Hubs offer business opportunities. To capitalize on these opportunities, the Hubs serve not only as sustainable production facilities, but also as training sites especially in the food desert areas of Ward 7 and 8 where unemployment is high and food related public health problems including diabetes, hypertension and obesity are prevalent.

In FY 2013 CAUSES established a small hoop house in Ward 8, the lowest income area in DC, to begin data collection on the barriers toward food production in urban neighborhoods where the term 'cooperative extension' is unknown and cultural barriers toward agriculture are high. Ward 8 is located in the southeastern quadrant of Washington, D.C., south of the Anacostia River. The average household income in Ward 8 is $48,000 and unemployment is 24 percent. This compares to an average household income of $99,500 across all eight of the DC Wards and to and average $162,000 per household in Ward 3, which is home to the highest household incomes in the District of Columbia. 20 percent of the population in Ward 8 are under the age of 18; and 91 percent are African American, 1.5 percent are Hispanic, slightly more than 4 percent are Caucasian, and less than 1 percent are Asian. The percentage of college graduates in Ward 8 is 7.6 percent compared to an average 22.5 percent across all eight Wards. Preliminary results of the social science research are expected during FY 2014.

The new program director for the Center of Urban Agriculture and Gardening Education developed a proposal during the period that pertains to the growth of nutrient dense rice using drip fertigation and biodegradable mulch. The proposal has been submitted to USDA and is pending approval. Also, a proposal was developed in FY 13 by engineering faculty to assess the application of a solar system to access groundwater for food production uses, including irrigation, aquaponics, and hydropoinic systems at our Agricultural Research Farm. The proposal is pending USDA approval.

Important to mention, during the reporting period, we worked diligently to build our capacity for expanded research in aquaponics, sustainable agriculture, urban forestry, ethnic crops and speciality crops at our research farm in Beltsville, MD. Specifically, farm expansion efforts included the construction of four greenhouses; an aquaponics, hydroponics, solar well and micro greens establishment; a new organic compost production site clearing; an organic compost processing site; and the purchase of farm machines and equipment. At Muirkirk Research Farm, our goal is to research and test techniques in sustainable and organic agriculture and apply them to an urban agricultural setting.

The Agricultural Experiment Station's Sustainable Agriculture Program teaches gardeners how to use sustainable agricultural techniques to increase productivity in their gardens despite the smaller land areas available to them. Another goal of such sustainable agriculture techniques is to limit the use of commerical chemical fertilizers and toxic chemicals for pest control which can have harmful effects on the environment and human health. Two of the primary projects carried out through the Station this year were the Specialty Crops and Ethnic Crops projects. The Specialty Crop project experiments with the

production of certain non-native crops and their various varieties. The Ethnic Crop project focuses on producing crops native to West Africa.

Preliminary activities for the reporting period included fall planting of specialty crop seeds and comparison of planting seedlings at different fields, raised beds, boxes, solar pods, greenhouses and fenced areas of the farm and with different methods to determine which crops do best in which locations. This information is essential to planning and productivity for the upcoming year. Plots compare the estimated yields in pounds per acre of different crops grown in different production sites. Nearly 1200 pounds of vegetables were donated to shelters and serving organizations across the District of Columbia. The results of our extended research will be reported in FY 14.

Extension

From consuming produce that is tastier and higher in nutritional value to decreasing CO_2 emissions by harvesting as locally as your backyard, District residents are all "a buzz" about the many benefits of local food production. Urban agriculture has caught on, and unlike large-scale intensive agriculture operations, urban agriculture utilizes comparatively smaller spaces while focusing on diversified, edible crops. Many residents already subsidize what they buy at the grocery store through community garden plots and by growing in their backyards, yet are in need of technical assistance with issues ranging from cultivar selection and planting dates to fertilizing, soil contamination, and integrated pest management. Alternately, other District residents don't have access to grocery stores, let alone yard space or a nearby community garden in which they can grow their own food. The Cooperative Extension Service works with District residents on both ends of the spectrum. We provide technical assistance to the established gardeners, and also help the up and coming gardeners start their own gardens by providing free consultation, connecting them with available resources, providing technical assistance, and--when called for-- by helping them "dig in." Some of the activities for fiscal year 2013 include offering workshops; demonstrations; site visits; presentations and providing technical assistance to District residents through phone, email, and in-person consultations.

The DC Master Gardener Program is designed to train volunteer horticultural educators for the University of the District of Columbia Extension, the principal outreach education unit of the University of the District of Columbia. Participants receive 50 hours of basic horticulture training and then agree to work in their communities to teach District of Columbia Residents how to cultivate garden spaces and manage landscapes sustainably using research-based information. This environmental horticulture approach reduces fertilizer and pesticide use resulting in improved soil and water quality. There are several program benefits for communities to include:

- Creating a healthier environment by reducing fertilizer runoff into our watersheds and the Bay
- Saving money and reducing health risks by minimizing use of toxic pesticides
- Improving soils and saving landfill space by composting yard waste
- Reducing water use through horticultural practices
- Creating beautiful and ecologically sound landscapes for local conditions
- Learning ways to provide habitat for native wildlife and beneficial insects
- Teaching the benefits of home food production and developing skills and knowledge in growing food, managing community gardens, or contributing to food banks or kitchens

In FY 13, 286 (which includes 60 trainees) Master Gardeners and Trainees provided 11,000 hours of horticultural expertise to the District of Columbia. The value of volunteer time is $34.04 per hour according to www.independentsector.org with a total value of $374,440 in savings to the District of Columbia. In addition, 51,260 direct contacts were served by the Master Gardeners/Trainees and their

Coordinator/Extension Agent. Activities for the fiscal year included horticulture training and demonstrations, establishment of organic and traditional vegetable gardens, and several community service projects, including 1,000 pounds in food donations to shelters.

Through a grant of $104,000 with the U.S Department of Veterans Affairs, a program was established to instruct veterans in basic horticulture and provide technical assistance to a veteran-led organic farm. Some highlights include:

- 7 veterans completed the DC Master Gardener Program
- 12 veterans completed the Introduction to Horticulture 20 hour certificate course
- 5 veterans enrolled and completed in courses offered at the University of the District of Columbia
- 24 Master Gardener trainees and veterans built 15 raised beds at the Armed Forces Retirement Home which was the start of the veterans' organic garden.
- 50 pounds of produce was donated to a culinary program for homeless veterans.

As a more efficient and effective means of reporting, we have combined two of our outcomes. Specifically, the outcomes related to compost use and soil samples, will be reported under other outcomes for the program. An outcome was added as an approach to better capture the results of our Master Gardening Program.

3. **Health, Nutrition and Childhood Obesity Prevention**

Research

Changing the Health Trajectgory for Older Adults through Effective Diet and Activity

The goals of this project are (1) to design and implement intervention strategies that will increase fruit, vegetable, and whole grain consumption in multicultural elderly individuals in the District of Columbia who have been identified as low consumers of these foods; and (2) to publish a culturally based recipe book that contains traditional recipes provided by participants, with modified ingredients where necessary, to increase nutritional density. Specific accomplishments directly related to these goals are: (1) Comparisons of knowledge, priorities, and attitudes of high consumers of fruits, vegetable, and whole grain with low consumers; (2) Design and development of an educational curriculum to increase fruit, vegetable, and whole grain consumption in the elderly of the District of Columbia. This curriculum includes new and innovative fun filled games and activities through which nutrition education can be effectively rendered; and (3) Collection of original recipes that reflect the culture of individual participants; and the analysis and modification of these recipes to increase fruit, vegetable, and whole grain content and nutrient density.

During the reporting period, research assistants were trained in cognitive interview techniques; surveys were conducted with 109 program participants; focus groups were held; and subjects completed the written and photographic food diaries. Intervention strategies to increase the intake of fruits, vegetables, and whole grains for low consumers included nutrition fun-filled interactive games and activities; presentations from dietitians and nutritionists; cooking demonstrations; and field trips to farmers markets.

Developing Fuzzy-set-theory-based Data Mining Methodologies for Diabetes Data Analysis

The overall goal of this interdisciplinary research is to develop a cloud computing based pathway analysis approach, CPA, to identify pathways that are associated with diabetes. This research is an extension of our former project "Developing Fuzzy-set-theory-based Data Mining Methodologies for

Diabetes Data Analysis" (Oct. 2008~Sep.2011). Project objectives include: i) Design Cloud-computing-based Pathway Analysis (CPA) to identify gene pathways that are significant in diabetes; ii) Implement CPA and test it on both synthetic datasets and real-world diabetes gene expression data; and iii) Compare the performance of CPA with existing approaches. The research is innovative because to the best of our knowledge, a cloud computing platform has not yet been used for gene pathway analysis. Thus, the advantage of using the latest technology to meet the challenges of gene pathway analysis has not yet been examined. The research is collaborative and interdisciplinary.

The Principle Investigator, Dr. Liang, is a faculty member in the Department of Computer Science and Information Technology at UDC. She has been working in the field of biomedical data mining for the past few years and has also made many research contributions in the field of artificial intelligence, fuzzy logic and data mining. The PI has built a multi-disciplinary team, which includes a biologist, students in computer science and professionals in bioinformatics. During this period, the principle investigator was on sabbatical leave. However, the PI continued to meet with collaborators and work continued on the experiment section of a journal paper that the team has been preparing. The paper is expected to be completed in FY 14.

We will not be reporting on outputs and outcomes related to breast cancer. The project has concluded and results were provided in the last fiscal year report.

Extension

The Center for Nutrition, Diet and Heath (CNDH) continues to be instrumental in our delivery of services to the community. In the District of Columbia, the percentage of low-income and minority children are on the rise. It was estimated in 2008 that 13.3% of low-income children aged 2-4 years were obese. Access to cost-affordable, healthy foods and safe places to participate in physical activity are not sufficient in low-income neighborhoods. Therefore, daycare or school settings are efficient locations to reach these children and implement nutrition and physical activity into the curriculum for obesity prevention.

CAUSES recognizes the critical need to combat systemic urban nutrition and health issues and engage citizens in collaborative efforts to improve community health. The Center couples research and education to provide thought leadership and outreach in the areas of nutrition, diet, health, and food safety. The Center is dedicated to educating residents on the healthy lifestyle and ways to prevent obesity, heart disease and other health threats. CNDH offers two major nutrtion programs: the Expanded Food and Nutrition Education Program (EFNEP) and the Supplemental Nutrtition Assistance Program-Education (SNAP-Ed). Through the work of these programs, residents receiving supplemental nutrition assistance are taught nutrition education and participate in activities that prepare them to make better food choices and to elect a more physically active lifestyle. During Fiscal Year 2012 many changes took place in the Center for Nutrition, Diet and Health (CNDH). The Supplemental Nutrition Assistance Program-Education (SNAP-Ed) annual budget was reduced from $480,200.00 to $308, 429.00 which lead to a reduction in staff and programming to the most vulnerable population groups in the District of Columbia, young children and the elderly. In FY 13, CNDH conducted 11,986 workshops/ demonstrations at 280 sites in all eight (8) Wards in the District of Columbia representing 38% decrease in contacts when compared to the 266,175 contacts in FY' 2012. The workshops/demonstrations included 79,870 males and 84,201 females. A SNAP-Ed program success story follows:

- Juanita E. Thornton, Early Child Development Center #8 writes,... "since Ms. Swanson, nutrition educator, has been visiting my classroom for the last year and half, I have noticed how the children are at least willing to try the different foods she has been bringing in. As I share with the parents on our nutritional Wednesdays the importance of eating healthy and exercising, the feedback from the parents is great.

Some parents have shared that by eating the rights foods (fruits, vegetables, and protein), their child's behavior has calmed down, waking up from bedtime has improved, and they are retaining information effectively. I, too, think the newsletters that she sends home, helps the parents with planning meals and healthy snacks to eat at home. Of course here at school, the menus are appropriate for the different age levels that we serve. I have noticed a change in the behavior of the children and how they are staying more focused on directions from the teachers. Both the parents and I are extremely pleased to learn different ways to prepare veggie pizza with a whole wheat English muffin and fat-free cream cheese, fruit "ice cream" cones from fat-free yogurt, and tasting different textures of fruits and vegetables. Cutting out the sugar and incorporating a different fruit in place of it is AWESOME!"

Consistent with its goal to assist residents with making healthy meal choices, the Center offers a Farmers' Market Nutrition Education Program. The program provides nutrition education at point-of-purchase for market goers. The program also provides on-site food demonstrations using fresh produce from the market, nutrition education, recipes, and information on nutritional quality of foods sold at markets. Food demonstrations and cooking activities provide interactive instruction on healthy cooking techniques, modifying favorite recipes to include healthier ingredients by reducing the sugar, sodium, and fat. Classes are open to the general public. This is a seasonal program/activity. In addition to providing nutrition assistance to markets throughout various wards of the city, CNDH also participates in the Farmers' Market operated by the Center for Sustainable Development at the university's Van Ness campus. The market operates from May through early November and provides fresh fruits and vegetables to consumers, along with nutrition information and food demonstrations conducted by the Center for Nutrition, Diet and Health. A Farmers' Market Nutrition Program success story follows:

• Mrs. Cathy Ward, a regular shopper at the Ward 8 Farmers' Market, reported that she changed food preparation and eating habits for herself and her family as a result of direct contact with CNDH nutrition educators who work at the Ward 8 farmers' market. After learning alternative ways to prepare and season food, she implemented these changes at home. Her children and grandchildren enjoyed the food and are impressed with the dietary changes. Mrs. Ward returned to the market to obtain further information, and expressed interest in enrolling in the Expanded Food and Nutrition Education Program (EFNEP).

In addition to valuable work through the SNAP-Ed and EFNEP Programs, alongalalongalonanthe Center offers programs for senior citizens relating to exercise, diet and healthy living through the Institute for Gerontology. Through a newly structured organization of CAUSES, the Institute of Gerontology will have four positions in support of graduate studies and community education programs, i.e. Director of Graduate Studies and Senior Specialist for Nutrition and Health; Project Specialist for Nutrition; Project Specialist for Nutrition and Health; and Project Specialist for the Institute of Gerontolgy . The Nutrition and Dietetics Graduate Program now integrates an internship with CNDH. Nutrition and Dietetics students are required to complete an internship at the end of their 4-year course of study in order to obtain certification. MS students are required to engage in research and be exposed to practice, including work with clients. The internship program facilitates active learning and provides real-world experiences to all students within the program.

CNDH is actively engaged with other academic units and centers within the college to include the Center for Urban Agriculture and Gardening Education and the Center for 4H and Youth Development. CNDH provides food demonstrations, literature distribution, and participates in stakeholder events with these centers.

4. **Urban Families, Youth and Communities**

Research

During the reporting period, a proposal was developed to generate information about neighborhood based resources and capabilities and about current and future demand so that specific development initiatives can be launched to meet identified needs, create employment, improve residents' quality of life and advance long-term sustainability. The proposal has been approved by USDA for work to begin in FY 14.

Extension

The Center for 4-H and Youth Development develops innovative programs that emphasize experiential learning opportunities for young people and their families. Through "hands-on" interactive programming, participants develop life skills, leadership abilities, and an ethic of civic stewardship. The center offers several programs to support and engage District of Columbia youth. Specialized programs during the reporting period included the 4-H Living Interactive Family Education Program (4-H LIFE), Operation Military Kids Program (OMK), and 4-H Growing Science Program (4-H STEM). Health Rocks is a drug prevention program for youth. Our LifeSmarts Program is a consumer game show competition for high school students that involves learning about the Environment, Technology, Legal Rights and Responsibilities, and Health and Safety. The 4-H Summer camp program is offered to children ages 8-12 that are already in the 4-H program during the school year. The 4-H Summer Bridge Program is for High School students and is done in cooperation with the Water Quality Research Program at UDC. University faculty prepare programming in the areas of Science, Technology, Engineering, and Math and the 4-H staff assists in implementing the program modules. We held four volunteer leaders training programs growing our volunteer reach to 73.

Other land-grant centers that have assisted with program activities for the Center for 4H and Youth Development include the Center for Nutrition, Diet, and Health (food safety and demonstrations; nutrition information for 4Hers); Center for Urban Agriculture (Urban Gardening information and demonstrations); and the Center for Urban Sustainability (environmental sustainability information and program activities).

The Center for 4-H and Youth Development were able to reach 8,465 youth and adults with direct contacts through 4-H clubs and 4-H activities. We maintained 45 active 4-H clubs in schools and community programs and had an overall reach of 7,833 youth for the program year.

Under this program, we are not reporting on outcomes related to the Financial Literacy and Home Repair programs. Neither of these programs produced significant impacts due to reduction of extension staff and the restructuring of programs under the Center for Sustainable Development. The Center's new director came on board in the last quarter of the fiscal year, July 2013. Since that time, he has been working steadfastly to build programs and services that prepare individuals and organizations for the changing, complex conditions within the social, cultural, environmental, and economic systems that shape our local communities. The focus of the Center is green jobs and green infrastructure.

In an effort to report meaningful impacts in the most efficient way, we have added additional impact statements under this program and as a result will not need to report on others.

5. **Sustainable Energy**

The CAUSES Architectural Research Institute has been realigned to house energy efficiency initiatives focused on the urban context and urban residents. The new initiatives will add to the 'safe homes' and 'building rehabilitation' focus of the ARI. In FY 2013, the previously established lead abatement program received EPA certification. Additional research and design activities are expected in FY 2014.

We will not be reporting on outputs and outcomes for FY 13 under the Sustainable Energy program. The associated project has concluded. Accomplishments and results for the project were reported in the FY 12 annual report.

6. **Food Safety**

Research

During the period, a research proposal was developed by environmental science faculty to address food safety via soil analysis for trace elements and urban gardening in the Disrict of Columbia. The proposal is pending USDA approval.

Extension

Offered through the Center for Nutrition, Diet and Health, the District of Columbia Food Handler Certification Program is designed to conduct research and training to determine the appropriate educational level and methodologies needed to develop a food sanitation certification program. The program provides training for low literacy and hard-to-reach food handlers in the District of Columbia to gain national certification as food protection handlers/managers. This certification program will enable the local Department of Health to comply with the Federal Food Code, which recommends standards for regulations of the District's food service operations. The project is also designed to develop a model program for the District of Columbia and national-wide replication. Improvement of food handlers' behaviors and food handling practices that directly relate to food-borne illnesses will serve to deter the incidence of this critical health threat. It will also improve the confidence of stakeholders and consumers, and ensure the health of an international audience of customers coming and going in the Nation's Capital as well as residents in the metropolitan Washington area. We conducted a very successful program for FY 13. Our results reveal a 100% pass rate on the national examination for our program participants.

Food safety is one of our basic concepts taught in our preschool/prekindergarten nutrition education classes. An example of an activity used to teach food safety/hand washing: a stuffed Elmo comes with the nutrition educator to the lesson to enforce the idea that "germs are bad." A story is told about Elmo going to school and forgetting to wash his hands before he eats, after using the restroom, and how his friends coughed and sneezed on him. Glitters, or "germs," are sprinkled on Elmo after each incident to show how the germs are spread. We then lay Elmo down to sleep, because he is sick. We then review how to cough, sneeze, and wash our hands correctly. Each student goes through the steps of washing their hands, using soap and warm water, to get rid of the germs.

We will not be reporting on all three outcomes for this program. To avoid repetitive reporting, it was determined that we could best capture these outcomes under a single outcome - Percentage of participants that passed both the post test and national examination.

More About CAUSES Research:

Founded in 2011 by action of the UDC Board of Trustees, CAUSES was in its second year of operation in FY 2013. The new college integrates the university's land-grant programs with some of its academic programs. Previously, the land-grant programs had been either an independent entity within the university, or they had been under the office of continuing education. As a result, a substantial number of faculty members within UDC have limited familiarity with the research priorities of the land-grant programs. We anticipate that this will change over time as CAUSES faculty become more aware of the opportunities available. Especially promising are research activities of CAUSES faculty in environmental

science, water resources, nutrition and dietetics, and community nursing.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	40.0	0.0	10.0	0.0
Actual	54.5	0.0	0.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel
- Combined External and Internal University Panel

2. Brief Explanation

We have established a Merit Review Process for research/extension in Land Grant Programs that continues to work well at ensuring that research proposals are judged fairly and on their merit. For Hatch and Mini-grants offered through the Station, the process includes: the Development of a RFP; Solicitation of RFP; Receipt of Proposals; Review of Proposal Packets for Completion of Requirements; Peer Review; Director's Review; Completion of Required Forms for submission to USDA; Electronic Submission to USDA for expert panel review; USDA Approval; and Issuance of Award. The Peer Review panel includes representatives from various departments/schools across the University.

The Peer Review Committee assesses our program's proposed research/extension projects and activities based on the following criteria:
• Knowledge base of the research
• Adequacy of procedures and experiment to meet the objectives
• Feasibility of accomplishing the objectives
• Scientific merit of the proposed research
• Familiarity with work of others related to the proposal
• Outcomes and Impacts
• Appropriate budget for proposed research
• Budget Justification

All research/extension projects are monitored by the Director and Associate Director to ensure that objectives and timelines are being met. An annual progress report is required and is reviewed by the Station Director prior to electronic submission to USDA. All projects must include student learning experiences. Findings are published in refereed journals, posters are developed and presented at conferences, and fact sheets or Information Documents are prepared and distributed to stakeholders.
Students participate in conference presentations as well as research seminars.

III. Stakeholder Input

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

- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals

Brief explanation.

Stakeholder input was sought from program and group participants, individuals, community partners, and faith-based organizations. Particular focus continues on the underrepresented wards of the city, Wards 7 and 8. These are largely low income communities, characterized by extensive food desserts, high unemployment, high school drop out rates and other significant challenges. We have reached out to seniors, youth, single mothers,ministers, community advocates, working class and middle class residents. Additionally, stakeholder input is sought at both research and extension activities such as the Farmers' Market, workshops, seminars, and demonstrations throughout the eight wards of the District. We let our stakeholders know that their input is essential to the research conducted and outreach services provided to benefit them, their families, and communities within the District of Columbia. We encourage their input via stakeholder surveys, follow up interviews, and one on one dialogue.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use Surveys
- Other (workshops, seminars)

Brief explanation.

Our objective is to meet with residents and organizations across the eight wards of the District. Currently, our focus is on the underserved population of the city, residents residing in Wards 7 and 8. A large segment of this population are low income residents with many households lead by a single parent or, in some cases, a grandparent(s). Research and Extension, separately as well as jointly, host a number of activities during the year to include workshops, seminars, demonstrations, training sessions, and an annual Farmer's Market on the University's main campus. At these events, stakeholder surveys are administered to willing participants and collected for assessment.

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

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with invited selected individuals from the general public
- Other (Advisory Board)

Brief explanation.

- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals and groups
- Survey of traditional Stakeholder individuals
- Meeting with invited selected individuals from the general public

Stakeholder input was collected via general diagloue with residents, stakeholder surveys, and interviews.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- In the Action Plans
- To Set Priorities

Brief explanation.

The input that we received from our stakeholders was reviewed and assessed by research and extension administrators. We determined that we are addressing many of the issues/concerns identified by stakeholders. However, there are areas that we have not yet tapped. Program modifications will be considered and are contingent upon budget and personnel allocations. We are keenly aware of our responsibility to address critical issues relating to social, economic and enviromental conditions of our stakeholders. Administrators are carefully reviewing and thoughtfully updating our Plan of Work. Our objective is to serve our residents to the best of our ability based on resources available to support our programs.

Brief Explanation of what you learned from your Stakeholders

Stakeholders concerns remain pretty consistent. Concerns follow:
• Safety of Foods: Growth, storage, and preparation of foods
• Economic Development: Jobs, training, sustainable neighborhoods
• Obesity: Healthy children and adults; Prevention of Chronic Illnesses; Healthy Eating; Activities for Children

• Urban Gardening: Growing their own food; exposure to different types of food, including ethnic crops and organic foods
• Healthy Food Choices: Eating better for better health and longevity
• Healthy Lifestyles: youth activities related to physical fitness and proper nutrition
• Sustainable energy: continued availability of resources for themselves, their children and generations to come

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1173160	0	810322	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	743369	0	982602	0
Actual Matching	743369	0	887858	0
Actual All Other	898978	0	90635	0
Total Actual Expended	2385716	0	1961095	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	77848	0	240417	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Climate Change

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	0%		100%	
124	Urban Forestry	100%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.0	0.0
Actual Paid Professional	2.5	0.0	2.0	0.0
Actual Volunteer	33.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
83293	0	56346	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
83293	0	96485	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
64490	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Maintained soil, air, and water quality monitoring programs and testing lab;
- Developed and distributed informational materials such as fact sheets and brochures regarding changes in natural resources and environmental issues in the District; and
- Provided workshops, demonstrations and technical assistance on the effect of environmental degradation as it relates to the quality of life for District residents
- Development of Proposal

2. Brief description of the target audience

1) District of Columbia residents
2) DC Public School Teachers
3) Youth, Grades K-12
4) Urban gardeners
5) Landscapers
7) Nursery Owners

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	376	2005	250	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of articles published
  Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of fact sheets published

Year	Actual
2013	5

Output #3

Output Measure

- Number of newsletter published
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of workshops, demonstrations and technical assistance implemented.

Year	Actual
2013	19

Output #5

Output Measure

- Number of research projects completed
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Number of soil, air and water samples test results

Year	Actual
2013	8

Output #7

Output Measure

- Number of informational materials distributed

Year	Actual

2013	787

Output #8

Output Measure

- Number of conference presentations
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percent of program participants that will become more environmentally aware due to new knowledge from informational materials provided and workshop presentations
2	Percent of program participants that will implement new environmental skills to improve natural resources and the environment
3	Percent of soil, air, and water samples meeting EPA standards after implementation of research project.

Outcome #1

1. Outcome Measures

Percent of program participants that will become more environmentally aware due to new knowledge from informational materials provided and workshop presentations

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	98

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Invasive plants are recognized as one of the greatest threats to wildlife and natural ecosystems. They compete with native plants for limited natural resources such as water, sunlight, nutrients and habitat, crowding out and displacing the desirable native vegetation, thereby reducing overall biodiversity. This upset to the ecological balance is felt throughout the ecosystem as those species who are dependent on those native plants for their diet and habitat are no longer able to survive in the locale without them. This scenario has been occurring all over the country, and the District is not an exception. Some of the long-term implications of altering the ecosystem on such a large scale are forests that are not able to regenerate (one such example is the forest of Rock Creek Park), pollution of waterways, and the listing of species as endangered or threatened.

What has been done
Four invasive plant classes were conducted during the period. Literature was distributed thoughout the District of Columbia to individuals and organizations. An assessment was conducted.

Results
Sixty-three invasive species surveys were assessed and the findings were as follows: Ninety-eight percent (62) felt the class was successful in explaining what makes a species invasive and reported having a better understanding of invasive species as a result of the class. Eighty percent (50) of class participants learned that one or more species they were already familiar with was in fact an invasive species. Ninety-eight percent (62) of those surveyed reported that they were going to share the information they learned about invasive species with others. Ninety-five percent (57) of participants said they would not purposefully install an invasive plant into their landscape, and ninety-eight percent (62) said if given the opportunity that they would spend time removing invasive plant species.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
124	Urban Forestry

Outcome #2

1. Outcome Measures

Percent of program participants that will implement new environmental skills to improve natural resources and the environment

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	131

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The restoration of natural areas and ecosystems and the protection of biodiversity is essential to a healthy, productive, and sustainable urban environment in the Disrict of Columbia.

What has been done
Seven invasive plant management events were held in the city to remove invasive species from public areas, including parklands in the District of Columbia.

Results
As a result of continued outreach efforts to facilitate successful invasive species removal, 131 people contributed volunteer hours totaling over 393 hours valued at $13,377(www.independentsector.org). Invasive species were removed from nearly nine acres of public land. This effort not only saved the Disrict of Columbia money in labor costs that can now be spent on other sustainable priorities/initiaves, the effort also reduced upset to the ecological balance of the ecosystem, thereby contributing valuable sustainment support to the urban environment in our city.

4. Associated Knowledge Areas

KA Code	Knowledge Area

111	Conservation and Efficient Use of Water
124	Urban Forestry

Outcome #3

1. **Outcome Measures**

Percent of soil, air, and water samples meeting EPA standards after implementation of research project.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (none)

Brief Explanation

There were no external factors affecting outcomes for our work in FY 2013.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

A survey designed to evaluate the effectiveness of the classes was completed by 63 of the class participants. Questions were designed to assess change in knowledge and determine if there will be a change in behavior as a result of the class. Of the sixty-three people surveyed, eighty-eight percent reported that they already knew what an invasive species was prior to attending the class, while twelve percent reported that they learned about invasive species for the first time during the class. Ninety-eight percent felt the class was successful in explaining what makes a species invasive and reported having a better understanding of invasive species as a result of the class. Eighty percent of class participants learned that one or more species they were already familiar with was in fact an invasive species. Ninety-eight percent of those surveyed reported that they were going to share the information they learned about invasive species with others. Ninety-five percent of participants said they would not purposefully install an invasive plant into their landscape, and ninety-eight percent said if given the opportunity that they would spend time removing invasive plant species. The last question was open-ended and asked class participants to list the invasive species that they learned about for the first time as a result of attending the class. In total, people reported learning about thirty-three different invasive species, ten of which were EDRR species that are still widely sold and purposefully introduced into landscape installations. There were ten species that each had ten to thirteen people learn about them for the first time as a result of the class, three of which were EDRR species: Ailanthus altissima, Ampelopsis brevipedunculata, Aucuba japonica, Buddleja davidii, Celastrus orbiculatus, Ficaria verna, Lonicera japonica, Lonicera maackii, Mahonia bealei and Persicaria perfoliata. On average, each participant learned about four NNI plants for the first time.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Global Food Security and Hunger

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	50%		50%	
205	Plant Management Systems	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.0	0.0
Actual Paid Professional	5.0	0.0	4.2	0.0
Actual Volunteer	2164.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
159742	0	533098	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
159742	0	520564	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
42712	0	90635	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

1) Conduct field experiments in the use of composted waste as a soil amendment for growing vegetables in urban gardens; their impact on the environment will be conducted at Muirkirk Research Farm

in Beltsville, MD;

2) Facilitate workshops, training sessions, demonstrations, field activities, and farm tours for program participants to teach and update knowledge of sustainable agricultural techniques to establish, maintain, and protect both vegetable and flower gardens;

3) Develop and distribute informational fact sheets, brochures, and newsletters related to production and protection of urban gardens;

4) Participate in local, National, and international conferences and meetings on sustainable agriculture and urban gardening;

5) Provide pesticide safety education and certification for monitoring insect and disease infestations and recommendations for control while preventing environmental degradation;

6) Maintain Junior and Master Gardening certification; trained gardeners will participate in beautifying the city through volunteer hours; and

7) Strengthen Ethnic and Specialty Crop Program.

2. Brief description of the target audience

1) District of Columbia residents
2) DC Public School Teachers and students
3) Urban comunity gardeners
5) Small rural farmers
6) Landscapers
7) Nursery owners

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	45381	16937	823	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total

Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of articles published

Year	Actual
2013	2

Output #2

Output Measure

- Number of fact sheets published

Year	Actual
2013	1

Output #3

Output Measure

- Number of Newsletters published

Year	Actual
2013	2

Output #4

Output Measure

- Number of workshops, demonstrations and technical assistance implemented.

Year	Actual
2013	86

Output #5

Output Measure

- Number of research projects completed
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Number of soil, plant and water samples test results

Year	Actual
2013	20

Output #7

Output Measure

- Number of informational materials distributed

Year	Actual
2013	8028

Output #8

Output Measure

- Number of conference presentations

Year	Actual
2013	9

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percent of program participants that will adopt urban gardening techniques learned from informational materials provided and workshop presentations
2	Percent increase in urban gardens using some compost material as a soil amendment
3	Percent of soil, plant and water sample results within acceptable crop production range
4	Percent increase in the growth of a variety of ethnic crops in home, school, and community gardens in the District of Columia.
5	Percentage of Master Gardeners successfully completing training, final exam, and community projects through 50 volunteer hours of community service

Outcome #1

1. Outcome Measures

Percent of program participants that will adopt urban gardening techniques learned from informational materials provided and workshop presentations

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	76

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Healthy diets consisting of fresh fruits and vegetables are essential to maintaining good health. There are food desserts throughout the District of Columbia, resulting in no access to fruits and vegetables. Many residents live in areas where only small growing spaces are available and some even lack the expertise to successfully grow their own fresh fruits and vegetables. The Cooperative Extension Service works with District residents to provide technical assistance to the established gardeners, and also helps up and coming gardeners start their own gardens by providing free consultation, connecting them with available resources, and providing technical assistance.

What has been done
Outputs include 5 gardening workshops; soil sampling; site visits; demonstrations; and providing technical assistance to District residents through phone, email, and in-person consultations.

Results
76 participants were trained via workshops and demonstrations on proper and effective urban gardening techniques. Through several planned and random site visits and observations, extension agents witnessed impressive productivity in urban gardens and community gardens throughout all eight wards of the city. Participants successfully put their new found knowledge to good use to start and maintain healthy gardens for fruit and vegetable production. Some community gardeners even ventured out to grow ethnic crops. As a result of the soil sampling services offered, two District residents discovered their soil was contaminated with lead. With this knowledge they can take the necessary precautions and preventative measures to minimize the chance of lead exposure in their families.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #2

1. Outcome Measures

Percent increase in urban gardens using some compost material as a soil amendment

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Percent of soil, plant and water sample results within acceptable crop production range

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Percent increase in the growth of a variety of ethnic crops in home, school, and community gardens in the District of Columia.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Percentage of Master Gardeners successfully completing training, final exam, and community projects through 50 volunteer hours of community service

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a public demand for unbiased horticultural and IPM education for sustainable landscapes and gardens and conservation of natural resources.

What has been done
The Master Gardener Program trained 60 participants in basic horticulture. Participants receive 50 hours of basic horticulture training and then agree to work in their communities to teach District of Columbia residents how to cultivate garden spaces and manage landscapes sustainably using research-based information. This environmental horticulture approach reduces fertilizer and pesticide use resulting in improved soil and water quality.

Results
100% of all participants (60) trained for the Master Gardeners Program successfully completed training, passed the required final exam, and volunteered 50 hours in the community. Various Master Gardener projects through all eight wards were established to include a new veterans horticulture training/organic vegetable garden, schools, parks, beautification projects, landscape design, youth gardens, local and national botanical gardens, and partnerships with non-profit organizations. Highlights for the reporting period include:
1) 24 Master Gardener trainees and veterans built 15 raised beds at the Armed Forces Retirement Home which was the start of the veterans organic garden;
2) 50 pounds of produce was donated to a culinary program for homeless veterans;
3) 1/3 of Master Gardeners continue their education in horticulture related field and obtain employment;
4) 1,000 pounds of produce was donated to soup kitchens;
5) 175 hours of volunteer hours educated low income residents on the rooftop vegetable garden of Bread for the City; and
6) Seven teachers were trained as Master Gardeners and incorporated sustainable landscaping practices in their school gardens which included composting.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Other (none)

Brief Explanation

There were no external factors which affected outcomes for FY 2013.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Observation - Site Visits

Throughout the year, 94 site visits were conducted for gardening projects at demonstration sites throughout the District of Columbia to include:

1. Chevy Chase Community Center (Ward 3)
2. Newark Street Community Garden (Ward 3)
3. Kalorama Community Recreation Center (Ward 1)
4. Lederer Youth Garden (Ward 7)
5. Regeneration Church (Ward 8)
6. Matthew Memorial Church (Ward 8)

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Health, Nutrition and Childhood Obesity Prevention

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	50%		40%	
704	Nutrition and Hunger in the Population	50%		0%	
724	Healthy Lifestyle	0%		30%	
903	Communication, Education, and Information Delivery	0%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	0.0	3.0	0.0
Actual Paid Professional	11.6	0.0	4.1	0.0
Actual Volunteer	924.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
71634	0	211588	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
71634	0	125872	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
243158	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Changing the Health Trajectory for Older Adults through Effective Diet and Activity Modifications:

1) Investigate and compare priorities of high fruit and vegetable consumers with the low fruit and vegetable consumers;
2) Design new and innovative activities through which nutrition education can be effectively rendered; and
3) Collect and modify traditional recipes to improve the nutrition density and to increase the vegetable content and publish the recipe book.

Cloud-based Fuzzy Data Mining for Diabetes Gene Pathway Analysis

1) Design and implementation of experiments that compare our approach with its non-cloud computing counterpart to demonstrate the added benefit of cloud computing.

2) Research experiences and trainings in bioinformatics and cloud computing for students.

2. Brief description of the target audience

1) Adult men and women over the age of 65 who live in Metropolitan Washington, DC
2) Low income residents living in multi-family housing
3) Researchers/Biologists

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	64344	0	10769	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Curriculum developed for various workshops, fact sheets for nutrition education for teachers.

Year	Actual
2013	59

Output #2

Output Measure

- Train the Trainer Food Stamp Educational Workshops: 2 hours a week by teacher volunteers; FFNews; Creative Curriculum; Color Me Healthy; Tickle Your Appetite; 5 A Day; DCPS Nutrition Curriculums; and Development of Food Safety and Dietary Quality Lessons

Year	Actual
2013	12608

Output #3

Output Measure

- Assess four day food diary data for the number of portions of fruits and vegetables for registered participants

Year	Actual
2013	109

Output #4

Output Measure

- Establish intervention/focus groups for registered participants consuming less than 5 servings of fruits and vegetables per day and identify the determinants of low consumption of fruits and vegetables.

Year	Actual

2013	2

Output #5

Output Measure

- Design and implement educational classes to assist registered participants with improving consumption of fruits and vegetables

Year	Actual
2013	4

Output #6

Output Measure

- Youth and adults will receive direct basic nutrition and food safety education

Year	Actual
2013	164071

Output #7

Output Measure

- Youth and adults will receive direct education on health issues and direct education and demonstration on physical activity

Year	Actual
2013	164071

Output #8

Output Measure

- Development of a manuscript for the publication of data on the mechanisms of action of g-T3 on MCF-7 breast cancer cells.
  Not reporting on this Output for this Annual Report

Output #9

Output Measure

- Employ microarray experiments and a range of cellular and molecular biological techniques to determine the molecular basis of the action of y-T3.
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percentage of parent participants who make better food choices (fruits/vegetables).
2	Percentage of participants who improved eating habits.
3	Development of broad applications for the inhibition of breast cancer cell proliferation and possibly cell transformation
4	Number of participants who increased physical activity and experienced weightloss
5	Number of participants who improved their dietary intake, including an increase in fruits and vegetables
6	Number of participants who improved food resource management practices such as menu planning and food shopping
7	Percentage of participants, who through information and interactive approaches, have adopted better eating habits thereby increasing their daily intake of fresh fruit and vegetables.

Outcome #1

1. **Outcome Measures**

   Percentage of parent participants who make better food choices (fruits/vegetables).

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Percentage of participants who improved eating habits.

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   Development of broad applications for the inhibition of breast cancer cell proliferation and possibly cell transformation

   Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

   Number of participants who increased physical activity and experienced weightloss

   Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

   Number of participants who improved their dietary intake, including an increase in fruits and vegetables

2. **Associated Institution Types**

   - 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	144927

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Over the past 30 years, obesity rates among children and adolescents have almost tripled throughout the United States. An estimated 17% of children and adolescents aged 2-19 years are obese. The Healthy People 2010 goal of 5% obesity among children was not met. Obesity in children is defined as a BMI greater than or equal to the age-and sex-specific 95th percentiles of the 2000 CDC Growth charts. Childhood obesity is associated with an increased risk for developing type 2 diabetes, high blood pressure, sleep apnea, and high blood cholesterol www.cdc.gov/nchs/data. Children who are obese are also more likely to become obese adults, further increasing their risk for obesity related diseases, including heart disease and certain cancers. Obesity rates have affected low-income children at a disproportionate rate. Data published from the 2009 Pediatric Nutrition Surveillance System study showed that almost one third of the 3.7 million low-income children aged two to four years old were obese or overweight. Obesity in low-income children ages two to four years old has increased in the District of Columbia, from 10.9% in 1998 to 13.3% in 2008 (Center for Disease Control, Morbidity and Mortality weekly report, http://www.cdc.gov/mmwr with more boys being obese as compared to

What has been done

144, 927 Contacts (which included 132,262 less than 5 years of age; 2709 were 5-17 years of age; 5112 were 18-59 years of age; and 4,844 were 60 years of age and older including 73,282 females and 71,645 females).

Nutrition education interventions were conducted with children 2-5 years of age in child daycare, preschool, and head start programs. The nutrition educator conducted hands-on nutrition education, cooking, and tasting activities with the children which included 8959 nutrition workshops/demonstrations and other food activities, train-the trainer (teachers) and parent workshops to enforce key messages taught in the classroom so that they will duplicate the same messages at home. The school year to measure the amount of knowledge and behavior change seen in children throughout the school year and participation in the program. Teacher observation retrospective surveys were collected in June 2013 at the end of the 2012-2013 school year. The data were collected from 188 teachers of which 47.9% were African American; 10.1% White; 10.6 Hispanic, and 31.4 % were a combination of other race/ethnicity. program used a pre and posttest retrospective survey at the end of each school year to measure the amount of knowledge and behavior change seen in children throughout the school year and participation in the program. Teacher observation retrospective surveys were collected in June 2013 at the end of the 2012-2013 school year. The data were collected from 188 teachers of which 47.9% were African American; 10.1% White; 10.6 Hispanic, and 31.4 % were a combination of other race/ethnicity.

Results

All data were analyzed using the Predictive Analytical Software (PASW). The SNAP-Ed results were as compared to the beginning of the school year, the following findings are reported: 95.2% responded positive to eating at least 1.5 cups of fruit daily; 90.9% responded positive to eating at least 1.5 cups of vegetables each day; 89.8% responded positive to drinking 2 cups of low fat or fat free milk products every day; 87.1% responded positive to eating at least 5 ounces of whole grains daily; and 94.6% responded positive to children being physically active daily; 91.4% were able to identify healthy food choices; 73.8% choose fruits or vegetables as a healthy snack during classroom parties; 64.3% now bring fruits and vegetables as a snack; 94.1% are willing to try new foods offered at school; 76.9 % have a balanced caloric intake from food and beverages with calories expended; and 97.9% wash hand more often before handling food. The data overwhelmingly indicate that students did change their behavior as it related to eating fruits and vegetables, whole grains and fat-free or low fat products every day; and, became more physically active daily as part of a healthy lifestyle.

The second part of the survey had teachers to compare their behaviors at the end of the school year with the beginning of the school year. As compared to the beginning of the school year, teachers 89.1% of the time now offer healthy food choices to the students at parties and snacks; 89.2% now encourage students to eat breakfast; 85.5% now remind families to bring healthy snacks for school parties; 91.9% now encourage students to be physically active; and 87.5% of the teachers now make healthier personal food choices. Data for the teachers indicated the residual effects of the intervention also positively affected their behavior. Based on the analysis of teacher data, they also changed their behavior as a result of the nutritional interventions and nutrition educated implemented in their classrooms.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #6

1. Outcome Measures

Number of participants who improved food resource management practices such as menu planning and food shopping

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013 3474

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The total number of households in the District of Columbia is 248,590 with a median household income of $40,127.00. However, 80,336 or 32.3% of the households have income less than $15,000.00. The percentage of families below the poverty level is 16.7% of which 47.7% are female households with children under 5 years of age. The District of Columbia obesity rate is 22.2%. The rate of obesity is highest among non-Hispanic African Americans children followed by Hispanic under 18 years of age. 50% of the children less than 18 years of age live in single-female-headed households and 54.2% of these children live below the federal poverty level.

What has been done
The EFNEP is impacting the lives of women with young children, pregnant women, caregivers of young children and youth with planned nutrition designed to improve the quality of life and reduce the levels of obesity. Planned direct nutrition education conducted by paraprofessionals in the areas of dietary quality, food safety, food security, food resource management and physical activity including hands-on cooking to small groups of adults and youth in 8-10 sessions of 2 hours each Assessment instruments included a 24-hour recall prior to the start of the interventions and upon completion of the interventions, behavior checklist and an exit interview. Upon completion of the planned sessions, participant graduated and received a certificate.

Results
The EFNEP results for adults revealed that: 100% of the adult participants who completed the program had positive knowledge, behavior and change in condition changes; Increased Grains: 54.5%; Increased Whole grains: 31.8%; Increased Fruits 43.9%; Increased Vegetables: 51.5%; Increased Dairy: 42.4%; Increased Protein: 60.6%; Decreased Solid Fats and Added Sugars 72.7%; Increased physical Activity:53%; Total costs savings for 66 families were $2,364; 67% (44 of 66) showed improvement in one or more food resource management practices (i.e. plan meals, compare prices, etc.); 76% (50 of 66) showed improvement in one or more nutrition practices (i.e. makes healthy food choices, prepares food without adding salt, reads nutrition labels, etc.); 48% (32 of 66) showed improvement in one or more food safety practice (i.e. thawing food and storing food correctly).

Of the youth, Diet Quality - 90% (517 of 573) youth improve their abilities to choose foods according to Federal Recommendation or gain knowledge; Food Safety - 57% (333 of 573) youth use safe food handling practices more often or gain knowledge; Physical Activity - 49% (309 of 573) youth improve their physical practices or gain knowledge (6th - 8th Grade) ; Food Resource Management - 63% (114 of 181) youth improve their ability to prepare simple, nutritious, affordable food or gain knowledge (9th -12th Grade); Food Security - 20% (14 of 70) youth acquire skill to be food secure of gain knowledge.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #7

1. Outcome Measures

Percentage of participants, who through information and interactive approaches, have adopted better eating habits thereby increasing their daily intake of fresh fruit and vegetables.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Good nutrition is important for improved quality of life for the elderly in the twenty first century. In particular, fruits, vegetables, and whole grains have potential benefits for prevention and/or delaying cardiovascular diseases, digestive diseases, and diabetes. To this end, our research attempts to assess the level of consumption of these foods in the elderly, and to design effective interventions to increase their consumption where necessary.

What has been done
Subjects were partitioned into high consumers (group A), and low consumers (group B). Group A individuals consumed more than 5 combined fruits and vegetables and more than 3 whole grains. Group B individuals consumed less than 5 combined fruits and vegetables and less than 3 whole grains. Focus groups were conducted with each group attempting to 1) determine and compare knowledge, priorities, and attitudes of high fruit, vegetable, and whole grain consumers (Group A) with low fruit, vegetable, and whole grain consumers (Group B); and 2) determine and compare cognitive and affective characteristics of these two groups in order to assess their effect on food choices and consumption. Intensive interventions were designed (with subject input) to increase the consumption of fruits, vegetables, and whole grains in group B individuals. These interventions included, but were not limited to: nutrition fun filled interactive games and activities; presentations from dietitians and nutritionists; cooking demonstrations; and field trips to farmers markets. Group A were given information to sustain their eating habits.

Results
Sixty nine percent (75)of seniors participating in the program, changed their diets after an illness was diagnosed. Sixty eight percent (51) of those who made changes knew the value of the changes before their diagnosis. A survey revealed that approximately 1 in 3 (31%) elderly adults prepare more than 5 meals per week for children under 18. Our assumption is that the nutritional knowledge and behavior of these care givers will have direct impact on the nutritional behavior of

the children they care for. Because of this, we will give special attention to interventions for child caregivers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Appropriations changes
- Other (turnover)

Brief Explanation

1. There were two nutrition educators who retired/resigned from their positions in FY 13.
2. Due to appropriation changes, program funding was reduced.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Extension:

Adults

1. 100% of the adult participants who completed the program had positive knowledge, behavior change and change in conditions.

Youth

1. 57% youth us sae food handling practicesmore often
2. 49% youth imprved their physical activity practices
3. 63% of youth improved their ability to prepae simple, nutritiiouus, affordable food.

Research: Changing the Health Trajectory for Older Adults

Program participants were interviewed and survey. The survey indicated that individuals made dietary changes after illnesses were diagnosed, even when the knowledge of good diet is evident before the diagnosis. For example, subjects seemed generally aware of the benefits of fruits, vegetables, and whole grains, even when they were not consumed in adequate quantities. The importance of proper diet as part of preventive behavior was emphasized in both groups.

Preliminary quantitative analysis of 53 Group B participants' pretest/posttest data indicates that there was a significant increase in mean consumption of fruits, vegetables, and whole grains. Assessment of general nutritional knowledge, including portion size, also increased. In addition, participant attitudes about the importance of good nutrition improved as a result of the interventions. Sustainability of the observed changes is currently being assessed.

Surveys produced original recipes from subjects. Nutrient analyses were conducted on these original recipes and modified to increase nutritional density for a healthier diet. Those subjects, who supplied personal recipes that were modified, agreed that the modifications did not alter the quality of their dishes.

Key Items of Evaluation

1. Increases in fruits, vegetables and whole grains
2. increae in physical activity
3. Increase in fat free and low fat dairy

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Urban Families, Youth, and Communities

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	0%		100%	
806	Youth Development	100%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	0.0	2.0	0.0
Actual Paid Professional	21.2	0.0	1.9	0.0
Actual Volunteer	92.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
306465	0	68878	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
306465	0	91007	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
259720	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

1) Leadership Development Meetings
2) Woodworking Projects
3) Language Program - Spanish
4) Gardening Projects
5) Computer Labs
6) Nutrition Program
7) Water Quality and GIS Technology
8) Tutoring:Tutors assigned to after-school program
9) Curriculum Development
10) Fact Sheets
11) Newsletters
12) Financial Literacy Sessions/Workshops
13) High School Financial Planning Program
14) Videotape series with Co-op Information
15) Co-op Groups
16) Demonstrations for Home Repair
17) Community Business entry-level training

2. Brief description of the target audience

1) Youth
2) Adults
3) Seniors
4) Military Personnel
5) DC residents
6) College students
7) Ex-offenders
8) Low to moderate income residents
9) First-time buyers
10) Low income homeowners
11) Small, new start, home based businesses

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	21192	41705	7825	7833

2. Number of Patent Applications Submitted (Standard Research Output)
Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Curriculum developed for various parenting workshops, seminars, support groups, fact sheets, and newsletters.

Year	Actual
2013	6

Output #2

Output Measure

- Number of participants in parenting workshops.

Year	Actual
2013	350

Output #3

Output Measure

- Number of parenting support groups formed.

Year	Actual
2013	6

Output #4

Output Measure

- Conduct a minimum of 50 sessions in the area of financial literacy.
  Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Conduct 15 sessions per year for junior and senior high schools in the District of Columbia on financial planning.
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Develop newsletter and/or fact sheets for District residents so they can perform basic/advanced repairs in and around their home.
  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Conduct hands-on workshops for District residents in basic and advanced home repair.
  Not reporting on this Output for this Annual Report

Output #8

Output Measure

- Percent increase in the number of 4-H clubs throughout the city.

Year	Actual
2013	5

Output #9

Output Measure

- Youth will receive training in the areas of sewing, computer technology, and geospatial technology.

Year	Actual
2013	350

Output #10

Output Measure

- Youth will receive leadership development training through conferences and special programs.

Year	Actual
2013	160

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of children who have increased their knowledge of the essential elements of team work through participation in 4-H club actitivies.
2	Number of children who demonstrate responsibility as a result of participation in 4-H Program activities. participation.
3	Number of parenting workshop participants who have used their knowledge of support services available to apply for assistance in an effort to meet some of their parenting needs.
4	Number of DC residents who participated in a Financial Literacy workshop who have improved their financial situation via establishing a household budget, personal savings and/or a checking account; purchase of savings bonds; establishment of a money market account or Certificate of Deposit.
5	Number of participants able to make repairs as well as communicate with contractors in a professional manner.
6	Number of Youth demonstrating an immediate and long-term commitment to civic engagement.
7	Percentage of participants who increased their knowledge of tobacco use and resistance skills
8	Percentage of parents reporting better relationships with their families after participating in parenting classes.
9	Number of children showing greater interest in science and/or overall improvement with science activities after their participation in the 4H Stem Progam.

Outcome #1

1. Outcome Measures

Number of children who have increased their knowledge of the essential elements of team work through participation in 4-H club actitivies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	5314

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
All of our 4-H clubs have a team structure and officers. Many 4-H activities are done in school setting inside the class room but they still have officiers. While learning about teamwork, teenaged youth in the District of Columbia also need to learn about consumer issues, conflict resolution and general respect for their peers.
Our youth also need to become more aware of careers in the new green economy. Teens have the power to influence younger youth about many important topics.

What has been done
Through the LifeSmarts program, we increased the number of teens receiving information about consumer issues by 25%. This year we had 17 LifeSmarts teams enter the competition, with 11 teams qualifying for the State competition. Teens learned about consumer issues related to the Environment, Technology, Legal Rights and Responsibilities and Health and Safety. 102 participants attended a LifeSmarts training program at Google and one team of five youth will represent us at the National competition. Teams consist of five youth with one adult and one alternate. During the summer months, we worked with university faculty and staff and hosted hands-on research programs for 30 teens for a program that we refer to as the 4-H Summer Bridge program. Teens worked in teams to complete research projects, and, at summer's end, they presented their findings to a packed audience of admirers. They gained fundamental knowledge of the environmental computing, sustainability, water quality, climate change, data analysis, advanced computer application and engineering design.

Results
The number of youth involved in the LifeSmarts program has increased from 4 clubs last year to 17 clubs this year. 82% of the youth surveyed involved in LifeSmarts report that with the exception of tennis shoes,learning the manufacturing process has made them more careful about

purchasing designers clothes with their money. 77% report having great technology skills; 100% have greater knowledge about legal rights and responsibilities and 61% have increased their knowledge about Health and Safety issues.

Seven youth from the 4-H Summer Bridge program have become volunteers in the 4-H Health Rocks program, and the 4-H teen counsel has two participants from the summer bridge program. Three students from the program are now UDC students; one in environmental science, one student in nursing at the community college and one student in computer science. More importantly, 73% of the youth surveyed report having a greater interest in Science than they had before becoming involved in the Summer Bridge Program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Number of children who demonstrate responsibility as a result of participation in 4-H Program activities. participation.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of parenting workshop participants who have used their knowledge of support services available to apply for assistance in an effort to meet some of their parenting needs.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number of DC residents who participated in a Financial Literacy workshop who have improved their financial situation via establishing a household budget, personal savings and/or a checking account; purchase of savings bonds; establishment of a money market account or Certificate of Deposit.

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Number of participants able to make repairs as well as communicate with contractors in a professional manner.

Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

Number of Youth demonstrating an immediate and long-term commitment to civic engagement.

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Percentage of participants who increased their knowledge of tobacco use and resistance skills

2. **Associated Institution Types**

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	475

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Substance abuse, in terms of tobacco, alcohol and drug use, continues to be an issue among school aged individuals throughout all eight wards of the District of Columbia (DC). Substance abuse is associated with a number of problems, including health related issues among abusers, increased crime in communities, addictions, and the inability to succeed in school, secure or maintain employment. In the latest survey done by the Centers for Disease Control, 23% of the students in DC stated that they drank alcohol before age 13; 10.2% of DC students had tried marijuana by the same age; 47% of the youth (9th-12th grades) have tried cigarettes and 18% smoke cigars on a regular basis. The survey also showed small percentages of DC youth trying

other drugs like cocaine, prescription drug and other inhalants. These numbers are higher than the national average

What has been done
To help District of Columbia youth make healthy life choices and reduce substance abuse and its myriad of serious problems, the National 4-H Council and the Center for 4-H and Youth Development designed a substance abuse prevention program called Health Rocks! for youth ages 8-14 in DC . Now partnering with several youth organizations to deliver the 10 hours of required programming to approximately 500 youth that enrolled in the program, Health Rocks teaches youth how to make healthy lifestyle choices, while raising self-confidence and learning valuable life skills. Lessons and activities in Health Rocks! are hands on and interactive. They teach decision making, problem solving, communication skills, teamwork, responsible citizenship, goal setting, critical thinking, and so much more.

Results
Health Rocks! has been making significant impact on youth development and the communities in which they live regarding knowledge and attitudes about substance abuse. Analysis of 2013 pre and post program implementation data shows that Health Rocks! was highly successful in educating youth. Results follow for the 500 youth participating in the program:
1. 96% (480) of youth participants gained increased knowledge of the risks and consequences associated with tobacco usage
2. 93% (465)of youth participants gained increased knowledge about other risky behaviors
3. 95% (475) of youth participants learned social personal, social and/or resistance skills
4. 96% (480) of youth participants said that they personally disapprove of tobacco products

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #8

1. Outcome Measures

Percentage of parents reporting better relationships with their families after participating in parenting classes.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	68

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Parenting classes were offered through our 4-H Living Interactive Family Education(4-H LIFE) program to 350 incarcerated parents. The 8 week classses are designed to help parents communicate in a more effective manner with their children and family members taking care of their children.

What has been done
Children in 4-H LIFE program participated in weekly 4-H clubs in their communities. Their caregivers received six specialized program activities throughout the year designed to help them cope with school and social issues. Six Graduate level counselors from the University of the District of Columbia's Counseling Department provided family and group counseling to the ladies at the Fairview Halfway House to iron out early and repeated problems with their families as parents transition home. The children visited once monthly inside the correctional facility after the parents completed parenting classes.

Results
98% (343) of the 350 parents that participated in parenting classes reported learning something they did not know about parenting children that could help them be better parents. 68% report better relationships with their families overall. 100% of them report that they will refer others to the program. Prison officials have sent us a letter of appreciation and they are partnering with us on a grant proposal to expand the program deliveries to include GED education and completion.

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #9

1. Outcome Measures

Number of children showing greater interest in science and/or overall improvement with science activities after their participation in the 4H Stem Progam.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	17

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The population in the District of Columbia identifies mostly as the underserved population, in which, this population is underrepresented in STEM professions. Employment projections of the Bureau of Labor Statistics states that a student out of high school pursuing a career in STEM is more likely to make 59.6% more than non-STEM positions. The Labor Department projects that future occupations are requiring workers to have more knowledge and experience in STEM. 4-H Youth, Engagement, Attitudes and Knowledge (YEAK) Survey found that by providing engaging out-of-school programming, 4-H Science programs have the potential to strengthen participant's interest in pursuing education and careers in the STEM fields.

What has been done

With the initiatives from 4-H, the STEM Leaders Program launched STEM programming under National 4-H guidance, completing various projects to enrich the classrooms, and engaged in after school programs for urban middle school aged students. Implementation of the program is conducted by informing educators of the District of Columbia public schools and youth leaders on the importance of STEM; using resources from the UDC STEM Center; partnering with the Microsoft Store; collaborating with Operation Military Kids; and having UDC college students as mentors. The program worked successfully with schools in Wards 8, 7, 6, and 4. The Wards identified are listed in order of having the highest poverty rates, and indeed are the most underserved population with the least amount of resources. Students had a safe place to learn and be leaders, while having the opportunity to conduct hands on experiments and make observations.

Results

4-Hers expressed understanding science better and liking science projects more since being involved in the program. Out of 3500 participants, 17 youth created a science project for the science fair that had not previously participated in the required class assignment. All of the teachers and volunteer leaders report that 4-Hers in the STEM program created better science projects. They also used projects they learned about in the STEM program. In observation of students while making Lava Lamps, Snap Circuits, Quicksand, Dynamo Torches, etc., they expressed that the projects were "cool."

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (none)

Brief Explanation

There were no external factors affecting outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The program measures behavioral changes in youth based on knowledge gained in the program. A survey is administered to each youth participant before and after the program.

The program sets out to measure behavioral changes in youth based on gained knowledge in the program. A survey is administered to each youth participant at the end of the 10 hours. When comparing knowledge scores and attitude levels before the implementation of the curriculum to after the implementation, youth attitudes towards substance abuse and their knowledge about these substances showed statistically significant positive differences.

Analysis of 2013 pre and post program implementation data shows that Health Rocks! was highly successful in educating youth.

- 96% of youth participants gained increased knowledge of the risks and consequences associated with tobacco usage
- 93% of youth participants gained increased knowledge about other risky behaviors
- 95% of youth participants learned social personal, social and/or resistance skills
- 96% of youth participants said that they personally disapprove of tobacco products

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Sustainable Energy

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
402	Engineering Systems and Equipment	0%		100%	
403	Waste Disposal, Recycling, and Reuse	100%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	2.0	0.0
Actual Paid Professional	2.6	0.0	1.2	0.0
Actual Volunteer	33.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
50601	0	56346	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
50601	0	13656	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
45740	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Green Expo was held by the Center for Sustainable Development
- Seminars were conducted related to Sustainability issues for the city
- Conference presentations
- Literature Distribution
- Development of Community Partnerships

2. Brief description of the target audience

- DC residents
- DC agencies
- Businesses
- Sustainability Organizations
- Area colleges and universities
- students, graduate and undergraduate
- faculty
- adminisrators
- staff

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	163	2005	37	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Design of a fuzzy-logic based controller system to optimize the operation of the anaerobic digestion System in terms of operational cost, the produce energy, and the quality of the residual organic matter.
  Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Creation of a set of fuzzy rules to control the input flow rate and to control the concentration of VFA, the concentration of chemical oxygen demand (COD), and digester operating temperatures.
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Development of better designs for digestion reactor and its data acquisition sensors
2	Control of the concentration of VFA in the digester system through the manipulation of the input flow rate.

Outcome #1

1. **Outcome Measures**

Development of better designs for digestion reactor and its data acquisition sensors

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Control of the concentration of VFA in the digester system through the manipulation of the input flow rate.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (program realignment)

Brief Explanation

As indicated in the executive summary, the CAUSES Architectural Research Institute has been realigned to house energy efficiency initiatives focused on the urban context and urban residents. The new initiatives will add to the 'safe homes' and 'building rehabilitation' focus of the ARI. In FY 2013 the previously established lead abatement program received EPA certification. Additional research and design activities are expected in FY 2014.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Green Expo and seminars were very successful events. More than two hundred residents and sustainability advocates attended the Expo that focused on green initiatives, i.e. sustainable agriculture, water and energy conservation, recyling, composting, etc.

Undergraduate students presented their research at Sustainability Seminars sponsored by CAUSES. Land-grant center directors and specialists made valuable presentations related to sustainability. Guest speakers and panels were used to help deliver information to participants about the sustainability of the environment for future generations. Literature was distributed related to sustainability issues - energy conservation, green homes, green roofs, efficient water systems, etc.

Through the Center for Sustainable Development/Water Resources Research Institute, a water resources conference was held that attracted nearly 100 people from environmental and sustainability organizations, area universities, UDC (administrators,

faculty, staff, and students) and the general public.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Food Safety

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.0	0.0
Actual Paid Professional	11.6	0.0	1.4	0.0
Actual Volunteer	924.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
71634	0	56346	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
71634	0	40274	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
243158	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Food Handler Certification will include:

1) Pretest
2) Post Test
3) National Examination
4) DC Code Examination
5) Ability of agencies to pass DC inspections
6) Measure of knowledge acquired from food handler certification messages include in the national examination
7) Data Collection
8) Data Analysis
9) Reporting

2. Brief description of the target audience

- Non-commercial agency staff members
- Ongoing participating food handlers
- Non-profits

Individuas

3. How was eXtension used?

Extension was used in the delivery of the program.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	429	1073	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total

Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Classroom instruction/workshops on Food Handler Certification Regulations to include DC Code Examination or Serve Safe National Examination, and Practice Examinations

Year	Actual
2013	8

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percentage decrease in the risk of factors of foodborne illness.
2	Number of participants gaining awareness, knowledge and skills in Food Handling techniques.
3	Number of participants scoring a required minimum of 70% on post test and national examination.

Outcome #1

1. Outcome Measures

Percentage decrease in the risk of factors of foodborne illness.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of participants gaining awareness, knowledge and skills in Food Handling techniques.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of participants scoring a required minimum of 70% on post test and national examination.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	143

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Foodborne illness is responsible for approximately 76 million and 5,000 deaths per year in the United States. Approximately 325,000 Americans will require hospitalization yearly because of something they ate. While it is difficult to determine the total costs of foodborne illness due to many conditions such as reduced productivity, lost wages, human suffering, and medical costs that go unreported, most experts agree that the annual costs in the United States is between 10 and 83 billion dollars. The individuals most at risk of contracting a foodborne illness include the elderly, young children and pregnant women.

What has been done

A total of 143 different individuals enrolled in the food handler certification training classes conducted in eight (8) different sessions for a total of 20 clock hours for each session. Prior to the start of the session a pretest was administered and immediately following the session a posttest was administered. Additionally, the DC Code Examination and the National Certification exam were administered. The pretest posttest and DC Code Exam are scored by the Program Assistant using a scored key sheet and the National Certification Examination is scored by the National Program Office. Of the 143 enrolled in the course, 131 or 92% completed the course and 100% of the participants passed the national examination.

Results
The Food Handler Certification Program results revealed a 100 pass rate on the national examination. The mean score of 50.9% on the pretest; mean score of 73.8% on the posttest; mean score of 74.7% on the DC Code exam; and a mean score of 92.5% on the national exam; 100% of the participants scored the minimum of 70% on the posttest and the national exam.; 100% of the participants are now employed in the food service industry. Many of the participants were reentering residents of the District of Columbia. The total number of participants is reduced during this reporting period due to budget cuts.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (None)

Brief Explanation

Goals met.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

1. 92% of the paticipants enrolled in the classes completed the classes.
2. 100% of the participants taking the national exam passed.

Key Items of Evaluation

1. DC Code Exam
2. National Exam
3. National exam mean score
4. percentage passing exm