2013 Virginia Polytechnic Inst. & State University and Virginia State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

Virginia Cooperative Extension (VCE), a partnership between Virginia Polytechnic Institute and State University (VT) and Virginia State University (VSU), and the Virginia Agricultural Experiment Station (VAES) and the Virginia State University Agricultural Research Station (VSUARS), enables people to improve their lives through research and education using scientific knowledge focused on the issues and needs of the citizens of Virginia. Audiences are involved in designing, implementing, and evaluating needs-driven programs. VCE is a dynamic organization which stimulates positive personal and societal change leading to more productive lives, families, farms, and forests, as well as a better environment in urban and rural communities.

The overall education goal is to bring about change in people's knowledge, understanding, abilities, or behavior related to an issue and/or broader changes in economic, environmental, or social conditions. Progress towards these goals is recorded by planned program at the individual and team levels. The primary, overall research goal for Virginia is to develop relevant basic and applied research data to help solve the problems of the agricultural sector and to support the economic, environmental and social health of the commonwealth of Virginia.

VAES, VSUARS, and VCE PROGRAMMATIC GOALS: VCE's goals are to: 1) develop and transfer new knowledge in applied and basic life sciences, 2) perform relevant, objective, and timely research, 3) improve the quality of life for communities and citizens in the Commonwealth, 4) use a systems approach to programming, with task-oriented work teams that respond to the needs of individuals, groups, and organizations, 5) work with at-risk, underserved, and underrepresented audiences who need specialized attention, 6) fully integrate a culturally diverse paid and volunteer staff in planning, implementing, and evaluating programs, and 7) recruit and collaborate with public and private partners to better utilize resources, heighten impact, and reach a more diverse audience.

In particular, VSU's Extension program goals are to: 1) improve local and state economies by helping small and limited resource farmers and citizens garner resources to own, operate, and sustain small businesses, 2) educate and empower socially disadvantaged farmers to produce, distribute, and market organic, locally grown, and ethnic foods to feed Virginia's citizens, 3) ensure safe food supplies by teaching small-scale growers and farm families effective food safety practices, 4) address health issues and nutrition practices that confront limited-resource urban and rural citizens, 5) help youth, families, and seniors manage money to survive during challenging economic times, and 6) enable parents and families to leave their children in high quality and safe child-care environments.

Virginia Agricultural Experiment Station is committed to developing and implementing research that addresses society's needs and expectations. The College is focused on improving human and animal health and nutrition, enhancing the quality of the environment, reducing the effects of major infectious diseases, developing value-added products, building viable communities, and preventing chronic diseases such as obesity, heart disease, and diabetes. Research programs are conducted on the main campus as well as at the Agricultural Research and Extension Centers located across the commonwealth. The research focus of VSU's Agricultural Research Station includes the following: developing production systems that conserve natural resources; crop diversity and alternative crops; economically competitive and sustainable small-scale agricultural systems; bio-based energy production; improving food safety and quality; and value-added plant and animal products.

PLANNING: VAES, VSUARS, and VCE address a broad range of problems and issues facing

citizens of Virginia through focused research and educational programming. The foundation for Research and Extension programs are built on the identification and prioritization of strategic issues through situation analyses, which are accomplished through the examination of trends and emerging issues identified by local advisory groups in Unit offices (Extension Leadership Councils), Agricultural Research and Extension Center (AREC) Advisory groups, and individual Extension specialists. In 2013, every Unit office was asked to complete a local situation analysis. Unit profiles were created based on data gathered from a variety of sources such as US and Agriculture census data. Methods to collect community input included issue forums, focus groups, key informant interviews, and community surveys. Unit situation analyses become the background and rationale for deciding which problems and issues will be addressed and reported on by VAES, VSUARS, and VCE.

VCE also initiated the development of a new program planning process that is based on the objectives identified in the 2011-2016 VCE Strategic Plan. Program Teams that are aligned with Strategic Plan objectives made up of agents, specialists, and others have been established. Beginning in 2014, each Program Team will coordinate state level programming, including situation analysis, program planning, program development, evaluation, and reporting for the Strategic Plan objectives aligned with it.

VCE grew in 2013 as a result of additional appropriations from the Virginia General Assembly. VCE grew from a low of 179 agents three years ago to close to 250 by the end of 2013. As a result of the extensive hiring, a District Program Leadership Team approach has been implemented statewide. The District Program Leadership Teams are experienced agents representing all program areas who will provide training and mentoring to new agents on development, delivery and evaluation of programs. This effort should significantly enhance the capacity of Virginia Cooperative Extension to deliver quality programs and be able to document the impacts of those programs.

REPORTING: All VT and VSU Extension and research faculty annually report through the VT College of Agricultural and Life Sciences' electronic Faculty Annual Reporting System (eFARS). This system includes annual program reports focused on faculty goals, outputs, outcomes, and other data for each planned program for teaching, research, and Extension at an individual, unit, college, and organizational level. Updates to eFARS and contact reporting in 2013 continue to better align planning and reporting with the 7 planned programs presented in this report. All research faculty are required to propose peer-reviewed Experiment Station projects submitted to USDA/NIFA, and entered into REEport. Researchers prepare annual progress and termination reports reviewed by the VAES director before being submitted to REEport.

PLANNED PROGRAMS: 1) Agriculture Profitability and Sustainability; 2) Biotechnology, Biomaterials and Energy; 3) Climate Change, Natural Resources and Environment; 4) Community Viability; 5) Food, Nutrition, and Health; 6) Strengthening Virginia Families; 7) Youth Development.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	321.4	18.0	226.8	15.5
Actual	323.6	20.0	233.8	13.5

II. Merit Review Process

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

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

2. Brief Explanation

Virginia Agricultural Experiment Station

Rationale and Review Committee Structure - Research under the Hatch, McIntire-Stennis, and Animal Health and Disease Acts is primarily conducted in three colleges that constitute the Virginia Agricultural Experiment Station (VAES): 1. College of Agriculture and Life Sciences, 2. College of Natural Resources and Environment, and 3. Virginia-Maryland Regional College of Veterinary Medicine.

For each VAES project proposal submitted, the associate VAES director or the Associate Dean for Research in the project leader's college, chairs the review (hereafter referred to as the chair). The chair selects the project review committee consisting of three or more members proficient in the subject of the proposed project. They may be chosen from outside the university if recommended by the department/unit head or deemed appropriate by the chair. Faculty from other units within the university may be eligible for VAES support.

The research proposal is reviewed by the project review committee for technical merit and for fit within the mission of VAES, and is approved by the Director or Associate Director of VAES. More detail is provided below.

Proposal Development - The project leader prepares the proposal as specified in Essentials of a Project Proposal in the Administrative Manual for the Hatch (Experiment Station) Act as Amended, the Administrative Manual for the McIntire- Stennis Cooperative Forestry Program, and the Administrative Manual for the Continuing Animal Health and Disease Research Program (1992), Appendix F. Early in the new project development process, the project leader is strongly encouraged to initiate a subject search to identify previous and complimentary research.

The proposed research project is reviewed by a statistician, if appropriate, to assure the design and statistical analyses are adequate. The project leader may meet with a member of the Statistics Consulting Center or alternately, the department/unit head may designate someone with statistical expertise to serve as a departmental reviewer. The project leader then submits the proposal to his/her/unit head for peer review in accordance with departmental procedures. If the research involves animals, human subjects, or recombinant DNA, the project leader is responsible for submitting the required protocol forms to the appropriate university review committee(s). Proposals are not forwarded to USDA/CSREES without required approvals.

Proposal Submission and Review Procedures - The department/unit head transmits the approved project proposal to the chair of the project review committee for that college with following items transmitted to the chair electronically or uploaded onto a secure website: 1) the proposal, 2) the project leader's vita, 3) The Project Certification Form, 4) A Research Project Review Form, 5) Verification of statistical review, and 6) List of three or more suggested peer reviewers. The chair selects reviewers and distributes copies of the proposal to the reviewers , who return the Project Review Forms and comments to the chair by a specified date.

Proposal selection criteria include: 1.) proposed research relevance to the goals of the USDA, the department and college, the needs of the people the research would serve, and relevance to the priorities established by task forces, work groups, or commodity research committees, 2.) objectives and procedures are clearly stated, 3.)the proposed duration is realistic for the proposed research, 4.) the appropriate or desirable individuals are cooperating on this project, 5.) the project lists impacts to Virginia (and elsewhere) and/or anticipated economic importance, and 6.) the project leader's vita indicates the level of competence required for the proposed research.

Each reviewer recommends the proposal be: 1.) approved with no changes, 2.) approved with minor

changes, 3.) revised and resubmitted, or 4.) rejected. The chair forwards reviewers' comments to the project leader and department head prior to the review. The chair directs the review committee, the project leader, and the department head to review the proposal and comments. The oral review may be omitted for revised/replacement projects, at the discretion of the chair, if a majority of the review forms are checked by the reviewers as "approved with no changes" or "approved with minor changes." If an oral review is not conducted, the chair provides the review committee comments along with any comments or concerns on the part of the chair to the project leader with a copy to the department/unit head and the review committee. An oral review is required for a project leader's initial VAES Project.

Faculty located at off-campus Agricultural Research and Extension Centers (ARECs) submit proposals to the center director who contacts the appropriate department head on campus regarding departmental policy for securing a peer review before the proposal is sent to VAES for review. The center director forwards the proposal and departmental review, if applicable, and to the VAES director or associate director, who serves as chair. The chair forwards the proposal to the review committee and the subject matter department head, who is invited to participate in the review process.

Final Submission - The project leader complies with the recommendations of the Project Review Committee and submits the revised proposal to the department/unit head, accompanied by a letter delineating the changes made in response to the recommendations of the reviewers and/or a rebuttal for any recommendations, which the Project Leader does not accept. The Associate VAES Director reads and approves all final proposals, and reviews faculty responses to the reviewers' comments before proposals are submitted to the USDA. The project leader is responsible for filling out the needed USDA compliance forms.

For McIntire-Stennis proposals, the Administrative- Technical Representative (A-TR) must certifying the proposal complies with the purposes of the McIntire-Stennis Act.

When the project leader, the department/unit head, the chair of the project review committee, and the director agree the proposed project should be accepted, the director approves it, assigns a project number and transmits the proposal and all necessary forms to the USDA. The USDA project reviewer may contact the director, assistant/associate director, or project leader with questions or for additional information. If a proposed project is deferred, the project reviewer notifies the director, who confers with the project leader, department/unit head, and chair of the project review. After approval by the USDA, the director sends copies of all relevant forms to the chair of the project review committee, department/unit head, and project leader. These documents, the proposal, and all pertinent correspondence are retained in the official project file in the VAES director's office for three years after termination of the project.

Program Review of VSU Agricultural Research

In March 2007, all programs at the School of Agriculture including those in Agricultural Research were reviewed by external experts. A six-member team selected by USDA-CSREES visited Virginia State University to conduct the review over a four-day period. The team reviewed programs, listened to faculty presentations, visited facilities, and talked to administrators. At the end of their visit, they made an oral presentation of their findings to faculty, staff and administrators. They also submitted a written report on the state of the School of Agriculture programs and made recommendations on the future direction of agricultural research at VSU. Implementation of these recommendations has already started.

Development of Proposals - Any applicant at ARS who desires to submit a proposal for consideration must first complete and submit a Request for Approval to Submit Proposals Form to the Director of Research. The Director of Research reviews the pre-proposal and notifies the applicant about a decision whether the proposal can be developed fully or not. All appropriate University and funding agencies' policies, procedures and guidelines should be adhered to when developing a proposal. Proposal development and submission deadlines are governed by the following: 1) Review and approval of Request for Approval to Submit Proposal Form takes one working day, and 2) University review and approval takes

up to five working days.

Review of Full Evans-Allen Proposal - A full proposal is submitted by applicant(s) to the Director of Research for review by external anonymous experts in the respective fields. The Director of Research's Office facilitates this process. The reviewers could be from Virginia Tech, other Land Grant Universities, or State and Federal agencies. The proposal is reviewed for addressing the needs of the state and people of Virginia and the United States, the degree of relevance of the proposed research to the land-grant mission and priorities of the University, the need for initiation of research in new areas, and other matters related to grantsmanship. The reviewers are asked to pay particular attention to scientific and technical merit, opportunities for cooperation in the proposed research with other individuals and units within the University and the Virginia clientele.

Functions of the reviewers are: 1) to review all proposals for scientific and technical merit, 2) to ensure that all proposals fulfill the land-grant mission and priorities of the University, 3) to ascertain that what is being proposed lies within the full range of expertise and capability of the investigators and the University, notwithstanding their official duties, responsibilities, and assignments, and 4) to assist applicants with acceptable proposals in locating outside peers to further review the proposals, if necessary for substance and overall quality. Based on the external reviewers' comments, the Director advises the applicant to address the concerns about the proposal or develop another one that incorporates the relevant suggestions.

Extension Review Process

VCE addresses a broad range of problems and issues facing citizens of the Commonwealth through focused educational programming. The review process for Extension covers all programs conducted by VCE. A new process for merit review was developed in 2013 and will begin implementation in 2014. Eleven VCE Program Teams (PTs) are responsible for the Extension programming and reporting process. The PTs will review programming on an annual basis and make decisions to maintain, modify, or create new programs to meet the needs identified through external and internal stakeholder input.

A Plan of Work is to be developed by each Program Team. Faculty will buy-in to the Plans of Work that match their local situation and issues, and provide personal programming plans in a Personal Action Plan (PAP), which includes the amount of time they plan to devote to the program, the key audiences, the planned delivery and evaluation methods, how they plan to reach underserved audiences. At the end of the year, through the web-based planning and reporting system (eFARS) each local unit and campus faculty member completes an annual accomplishment report documenting program impacts and other metrics.

Plans are built on strategic issues through situation analysis. This process collaboratively determines social, economic, and environmental problems at local, regional, and state levels. This becomes the background and rationale for deciding which problems and issues will be addressed with VCE time, energy, and human and fiscal resources. An extension situation analysis review was conducted in 2013 by local Extension units with the assistance of volunteer Extension Leadership Councils. These analyses along with specialist input will inform the merit review process.

III. Stakeholder Input

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

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

- Survey of selected individuals from the general public
- Other (focus groups, listening sessions, issue forums, key informant interviews)

Brief explanation.

Virginia Cooperative Extension and Virginia Agricultural Experiment Station work with stakeholders to receive input though local Extension Leadership Councils and many other citizen groups at local and regional levels. The citizen groups reflect the agricultural producers and the socio-economic composition of their communities and focus on conducting programs which produce outcomes based on priority needs.

A systematic analysis of educational needs is integral for VCE program planning. Through situation analysis, needs of stakeholders are assessed, analyzed, and then shape program direction and plans. Traditional methodologies of seeking input include surveys, key informant interviews, issue forums, listening sessions and focus group interviews. To encourage participation, surveys are conducted with paper and web-based response options. Issue forums, listening sessions, and focus group interviews are held in multiple locations throughout service areas in convenient and comfortable environments for non-traditional and traditional stakeholders. Specific efforts are made to assess needs where underrepresented populations reside, and to market input sessions through communication channels used by targeted sectors of the population. During the fall of 2013, all unit offices of VCE conducted a situation analysis.

Representation on local Extension Leadership Councils (ELCs) includes all VCE programming areas: 4H/Youth Development (4H), Family and Consumer Sciences (FCS), Agriculture and Natural Resources (ANR), and Community Viability. Currently, all 106 Extension units in Virginia have an organized local ELC and all Agriculture Research and Extension Centers (ARECs) have active advisory councils. At the state level, VCE works with stakeholders through the state Leadership Council (VCELC). The group includes volunteers representing 22 planning districts in Virginia, at-large members appointed by the director of VCE, leaders representing Virginia's diverse population, businesses, agencies, organizations, VCE District Directors, chairs of VCE FCS, and 4H leadership councils, VCE Director from VT, VCE Administrator from Virginia State University, and deans of VSU and VT Colleges of Agriculture including the associate dean for research. State and local ELC meetings are held at times and locations convenient for the membership.

Virginia is a large, diverse state and as such, meeting locations are geographically distributed to ease travel burdens for members. Travel expenses are covered by VCE administration for meeting attendance. A faculty member works directly with the VCELC to assist with organizational development and logistics. The VSU Extension program works with stakeholders through the VCELC for the systematic analysis of educational needs to plan Extension programs. To ensure that adequate stakeholder input is received from limited-resource and underserved audiences, VSU Extension is also informed by a VSU Agricultural Advisory Committee. Formed in 2008, the 15-member committee consists of members from agricultural commodity groups, the agri-business community, and public education. Other members include Extension professionals and volunteers, farmers, and a local legislator who advocates for the VSU School of Agriculture. All members work closely with or are aware of the needs of VSU's clients.

Advisory Committees inform teaching, research, and Extension programs within VSU's College of Agriculture and research programs within VAES and the college. VCE advisory committee member guidelines were used as a basis for selecting VSU Agriculture Advisory members. Committee members represent the Extension program areas of 4-H, agriculture and natural resources, and family and consumer sciences and are invited to serve by the Extension

administrators and Dean of the School of Agriculture. VCE and the ARECs have long facilitated grassroots involvement, buy-in, and ownership in local programs. VCE formally connects with the grassroots of the state through partnerships with local volunteer ELCs. For the Virginia Agriculture Experiment Station (VAES), volunteer advisory councils provide stakeholder input. These partnerships represent the diversity of local clientele, communities, and industries across the Commonwealth of Virginia.

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 External Focus Groups
- Open Listening Sessions
- Use Surveys
- Other (Extension Leadership Councils)

Brief explanation.

The Virginia Agricultural Experiment Station (VAES) conducts research relevant to the needs and priorities of the citizens of the Commonwealth. Research projects are established based on the input of advisory committees at each of the thirteen Agricultural Research and Extension Centers (ARECs) distributed across the state. The twelve academic departments within the College of Agriculture and Life Sciences each maintain stakeholder groups and the College has its own advisory committee of producers, commodity groups, and agribusiness leaders that provide important feedback to VAES. VAES provides research-based input to the VCE programming process through faculty research and Extension specialists and administratively through AREC directors and statewide Extension program leaders. VCE formally establishes connectivity with the grass roots of the state through partnerships known as Extension Leadership Councils (ELCs). At the local level, this partnership represents the diversity of each county and city in which VCE exists as a resource.Representation includes VCE programming areas (4-H/Youth Development, Family and Consumer Sciences, Agriculture and Natural Resources and Community Viability), community leaders, and other organized community, agricultural, and youth associations and entities who partner with VCE. Extension staff and Leadership Council members work as equal partners to determine needs, establish program priorities, plan and implement solutions, identify and secure resources, market VCE and its programs, and evaluate and report program results/impacts to program stakeholders. Currently, all 107 Extension units in Virginia report having an organized local ELC. At the state level, local connectivity is achieved through the Virginia Cooperative Extension Leadership Council (VCELC). The partnership includes volunteer leaders representing the 22 planning districts of Virginia, at-large members appointed by the director and administrator,

all VCE District Directors, all chairpersons of VCE state program leadership councils for FCS and 4-H, the VCE Director (VT), the VCE Administrator (VSU), the director of governmental relations at VT, and the deans of the 1862 and 1890 land grant colleges. Extension provides a formal mechanism for VSU and VT to receive stakeholder input for Extension and research programs. The situation analysis process in communities examines and determines what issues, problems, and opportunities exist that VCE resources should address (http://www.ext.vt.edu/vce/support/process/situation.html). An essential component of the process includes development of a unit profile (http://www.ext.vt.edu/vce/support/unitprofiledata.html). The unit profile developed by local agents is shared with ELCs to determine which key informants should be involved in situation analysis (http://www.ext.vt.edu/vce/support/keyinterviews.doc).

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 the general public (open meeting advertised to all)
- Survey of the general public
- Other (focus groups, key informant interviews, public issues forums, listening sessions)

Brief explanation.

A systematic analysis of educational needs is integral for VCE program planning. Through situation analysis, needs of stakeholders are assessed, analyzed, and then shape program direction and plans. Traditional methodologies include surveys, key informant interviews, issue forums, listening sessions and focus group interviews. To encourage participation, surveys are conducted with paper and web-based response options. Issue forums, listening sessions, and focus group interviews are held in multiple locations throughout service areas in convenient and comfortable environments for non-traditional and traditional stakeholders. Specific efforts are made to assess needs where underrepresented populations reside, and to market input sessions through communication channels used by targeted sectors of the population.

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
- Other (staff professional development)

Brief explanation.

Input from stakeholders involved in situation analysis and strategic planning is utilized to shape Extension programming from a state and local perspective. Issues that are identified are researched in a collaborative process involving campus and field based faculty, with curriculum developed toshape educational programming delivered throughout Virginia by agents and volunteers. Identified needs and resulting educational programming frame Extension's budget, action plans, priorities as well as volunteer and staff development needs. Input also shapes the plan of work for VCE, VAES and VARS.

Brief Explanation of what you learned from your Stakeholders

Stakeholder input helped shape the future direction of Virginia Cooperative Extension and resulted in strategic goals through 2016.
2011 - 2016 Focus Areas and Goals, all established with stakeholder input follow:

2011-2016 Focus Areas and Goals

Focus Area I: Enhancing the Value of Virginia's Agriculture
• Increase the profitability and sustainability of Virginia's commercial food, fiber, animal recreation, and green industries.
• Prepare the agriculture industry for future opportunities and challenges in urban and rural environments.
• Research and disseminate methods and recommendations to ensure that consumers have access to safe, high-quality agricultural products.
• Develop and deliver programs to enhance agricultural literacy.
• Interpret policy and legislation, identify opportunities, and provide training to comply with regulations that ensure farm profitability and environmental quality.

Focus Area II: Sustaining Virginia's Natural Resources and the Environment
• Support the management, use, and sustainability of Virginia's natural resource capital for the benefit of future generations.
• Provide natural resource and environmental education.
• Provide educational resources to address urban/rural interface issues.
• Provide education to conserve and protect Virginia's surface and groundwater resources, including the Chesapeake Bay.
• Develop and deliver programs in green energy/bioenergy.

Focus Area III: Creating a Positive Future Through 4-H Youth Development
• Improve competencies of Virginia youth in the following life skills: knowledge, reasoning, creativity, personal, social, vocational, citizenship, health, and physical.
• Develop supporting environments for 4-H youth development.
• Design volunteer development systems that attract, retain, train, and energize youth and adult volunteers who are progressive and have an enduring commitment to youth.

Focus Area IV: Strengthening Virginia Families and Communities
• Improve the health of Virginians through access to adequate, safe, and nutritious food.
• Develop and deliver educational programs to increase the understanding and development of the social, cognitive, and physical capacities of Virginians.
• Increase economic stability and decrease reliance on public services by improving youth and family financial literacy and security.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
6664841	2183808	4754688	2579752

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	9626117	2364266	3811395	2269087
Actual Matching	10080749	2384210	10037378	2591652
Actual All Other	24486583	3021523	51812521	823706
Total Actual Expended	44193449	7769999	65661294	5684445

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

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Agriculture Profitability and Sustainability

☑ 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
101	Appraisal of Soil Resources	0%	15%	0%	0%
102	Soil, Plant, Water, Nutrient Relationships	10%	20%	10%	0%
104	Protect Soil from Harmful Effects of Natural Elements	0%	15%	0%	0%
111	Conservation and Efficient Use of Water	8%	15%	0%	0%
133	Pollution Prevention and Mitigation	0%	8%	0%	0%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	10%	0%
202	Plant Genetic Resources	2%	0%	10%	15%
204	Plant Product Quality and Utility (Preharvest)	10%	0%	0%	20%
205	Plant Management Systems	18%	27%	10%	0%
206	Basic Plant Biology	0%	0%	5%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	0%	5%	10%
212	Pathogens and Nematodes Affecting Plants	0%	0%	5%	0%
215	Biological Control of Pests Affecting Plants	1%	0%	0%	10%
216	Integrated Pest Management Systems	13%	0%	15%	0%
301	Reproductive Performance of Animals	4%	0%	5%	15%
302	Nutrient Utilization in Animals	0%	0%	5%	15%
307	Animal Management Systems	15%	0%	5%	15%
315	Animal Welfare/Well-Being and Protection	8%	0%	0%	0%
601	Economics of Agricultural Production and Farm Management	5%	0%	5%	0%
606	International Trade and Development	1%	0%	10%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	110.7	12.8	157.7	8.5
Actual Volunteer	3380.0	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
3433519	837058	2571544	1380232
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
3595681	1073452	6772207	1576441
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
8734068	1865551	34957845	648872

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments that educate and solve applied problems, establish partnerships to identify needs and develop solutions, conduct workshops, both traditional procedures and hands-on, and meetings to provide training for farmers and educators, organize and conduct state and regional conferences, establish on-farm demonstrations, develop enterprise budgets, develop products, curriculum, and resources for use by educators and directly by producers, and conduct assessments as needed to evaluate progress. Research-based information will be disseminated via media and informational meetings. Decision aids, workshops, detailed curriculum, and distance educational methods will be used to support change in the overall behavior of learners.

2. Brief description of the target audience

Commercial producers, 4-H youth, Master Gardeners, state and federal agency personnel, Extension educators, consumers, supermarket chain store buyers, animal owners, youth, allied industry personnel, consumers, policy-makers, academic colleagues, research scientists, government officials, high school teachers, general public, individuals, families, owners and managers of farms, and small businesses; local, state, and federal personnel, private sector service suppliers, advocacy and consumer protection groups and association, health/medical personnel.

3. How was eXtension used?

Specialists and agents participated in multiple communities of practice, including Corn and Soybean.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4884210	843906	144226	17274

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	660	258	324

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Extension educational presentations in the form of workshops, field days, demonstrations, etc.

Year	Actual
2013	5114

Output #2

Output Measure

- The number of peer-reviewed research publications published

Year	Actual
2013	258

Output #3

Output Measure

- The number of Extension publications published

Year	Actual
2013	2339

Output #4

Output Measure

- The amount of competitive grant funding received.

Year	Actual
2013	18013548

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

Beef Quality Assurance Program

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
At the beginning of 2012, Virginia is home to 1.49M head of cattle, with a $1.42B value of inventory. More have 25,000 Virginia Farms have cattle. U.S. consumers are very concerned about the safety and wholesomeness of the food they eat. This safety and wholesomeness is tied to production and management decisions made on the farm, and consequently for beef to be competitive with other food choices producers must make choices at the farm level based on scientific knowledge and a commitment to produce a quality product.

What has been done
Virginia Beef Quality Assurance Program (BQA) educates and certifies beef producers in best management practices that improve the safety and quality of beef. Extramural funding of $16,800 was secured to carry out the training efforts from the Virginia Beef Industry Council. The total number of certified producers in Virginia stands at over 5,000 which makes Virginia one of the national leaders in BQA activities. After assurance with the BQA programs the value of produce has a premium. Consequently, this expands marketing opportunities such as Virginia Tel-O-Auction sales in which cattle must be from BQA producers. BQA certified producers are able to consign their feeder cattle to make larger loads of around 50 head for sales which is more attractive to buyers and offers a price incentive.

Results
During 2013 there were 891 producers either certified or re-certified. These producers came from 50 counties and two surrounding states. We estimate that the certified producers represent over half of the cattle produced in Virginia. Added value of cattle produced on BQA certified farms is estimated to be $1.5-2.0 million annually. Since the VQA Feeder Cattle Marketing Program was organized in 2005, producers have consistently added money. With 15,257 animals sold, producers have added over $897,900 to the gross sales of their livestock (+$58.86 per calf).

Reaching beyond the original four counties, participants are now drawn from 12 Virginia counties, Tennessee, and North Carolina. The VQA Program has become the premier method of marketing quality feeder cattle in Southwest Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection

Outcome #2

1. Outcome Measures

Extension Master Gardeners Strengthen Environmental Stewardship

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
For 34 years, Extension Master Gardeners have assisted state and county faculty in providing current, relevant, research-based, and timely responses to Virginia's homeowners who need assistance with their home landscapes. As personnel resources diminish, we rely more heavily on our volunteers to help deliver quality programming and services to our constituents. The work of Extension Master Gardeners is important in multiplying the efforts of our paid faculty as they impart best practices to homeowners wishing to manage their landscapes in sustainable and environmentally friendly ways.

What has been done
In 2013, more than 800 additional Extension Master Gardeners were trained and certified. Extension agents, specialists and veteran Master Gardeners all worked to provide quality training to this new cohort of volunteers. Once training was completed, opportunities to volunteer and employ their new training were provided to the new MG interns.

Results
More than 800 new Master Gardeners joined forces with more than 4,000 currently active Master Gardeners. In 2013, there were more than 5,000 volunteers total working on behalf of local extension offices providing service and educational programming to more than 430,000* constituents. In the course of working with Virginia's citizens, Extension Master Gardeners reported in excess of 365,000* volunteer hours. The volunteer time was equivalent to 182.5 full-time equivalents. This means that collectively, Virginia Cooperative Extension had an additional 182 full-time staff disseminating best practices. The economic value of the reported volunteer time is more than $8.36 million (based on an hourly rate for Virginia of $22.90 from the independent sector: http://www.independentsector.org/programs/research/volunteer_time.html). This is a tremendous in-kind contribution and return on investment to the Commonwealth of Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Double-Cropped Soybean Production: Increasing Early-Season Growth and Yield

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Full-season soybean and double-cropped small grain-soybean are common cropping systems in the Mid-Atlantic USA. Full-season soybean is usually planted in May and is the only crop grown during that calendar year. The small grain-soybean double-cropping system includes planting

winter wheat in October through November, harvesting that crop in late-June, and planting soybean immediately following small grain harvest. Full-season soybean yields more than soybean double-cropped after wheat, but double-cropped small grain-soybean systems are generally more profitable. Yearly increases in soybean yield must be maintained if double-cropping systems are to remain productive and profitable. Lack of early-season growth is the main reason that double-cropped soybean yield less than full-season soybean. New ideas to increase crop growth rate in the vegetative stages and extend the seed filling period are needed to ensure adequate leaf area development and light capture. In addition, pest management practices for double-cropped soybean need re-evaluation since this crop will mature later in the year when incidence of insect pests and disease is greater.

What has been done

Research was conducted in 2012 and 2013 at three locations per year to address the following objectives: 1) Evaluate seeding rate, seed-applied inoculant, starter N applied at planting, cultivar growth habit, and foliar fungicide application on soybean vegetative response and seed yield in a wheat-soybean double-crop system in the Mid-Atlantic region; 2) Evaluate soybean vegetative growth response and seed yield with starter N at planting with or without seed-applied Bradyrhizobia japonicum inoculant in a wheat-soybean double-crop system; and 3) Evaluate the response and specific interaction between soybean cultivars and foliar fungicide application in a wheat-soybean double-crop system.

Results

Research was conducted in 2012 and 2013 at three locations per year to address the following objectives: 1) Evaluate seeding rate, seed-applied inoculant, starter N applied at planting, cultivar growth habit, and foliar fungicide application on soybean vegetative response and seed yield in a wheat-soybean double-crop system in the Mid-Atlantic region; 2) Evaluate soybean vegetative growth response and seed yield with starter nitrogen at planting with or without seed-applied Bradyrhizobia japonicum inoculant in a wheat-soybean double-crop system; and 3) Evaluate the response and specific interaction between soybean cultivars and foliar fungicide application in a wheat-soybean double-crop system. Yield responses to the five inputs varied depending on location and year. The early maturing, indeterminate variety generally yielded more than the later maturing determinate cultivar. Greater seeding rates resulted in greater yields in some instances when the early-maturing cultivar was used. Inoculant and starter nitrogen occasionally increased yields and interacted with cultivar. Foliar fungicides increased yield in half of the experiments. Although fungicides increased soybean yield, cultivar did not affect the results. These practices and results are disseminated in VCE workshops, publications, and webinars. If this research results in a 5% yield increase on only half of the Mid-Atlantic double-crop soybean acres, the value of these yield increases would exceed $12 million.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
215	Biological Control of Pests Affecting Plants
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

Pesticide Safety Education

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
USDA and EPA mandate the safe use of pesticides by commercial, private, and public applicators. USDA and EPA ask Cooperative Extension nationwide to address this mandate. The Virginia Tech College of Agriculture and Life Sciences has a key initiative in agricultural and environmental sustainability, and Virginia Cooperative Extension (VCE) has a planned program in pest management. In Virginia, most people who use pesticides "on the job" must be certified. Virginia Cooperative Extension provides most of the initial certification and continuing education (recertification) programs for growers who use restricted-use pesticides and, as a result, must have a Private Applicator certificate. VCE also offers a significant portion of such programs for Commercial Applicators and Registered Technicians -- people who use pesticides other than in agricultural production on private property. Last but not least, VCE ANR agents provide information about pesticides and pesticide management to a wide variety of clients who are not certified applicators, including farmworkers and home gardeners.

What has been done
Virginia Tech Pesticide Programs develops and/or acquires resources for ANR agents to use in pesticide safety programs--those for certified / professional applicators as well as for non-certified audiences. New materials and methods--along with updated information regarding laws, programs, and regulations that may impact them and their clients--are delivered to them at an annual Pesticide Safety Educators' Workshop. In addition, updates and additions are available throughout the year, via in-person communication, mail and e-mail, and postings on a resource website for VCE agents. Program evaluation data and Private Applicator Course credit requests document that agents use what they acquire from VTPP in their programs. In addition, most of the agents who complete a course evaluation at PSEW's cite a specific practice change they plan to implement as a result of attending this in-service program.

Results

Pesticide Safety Education program, commercial and private pesticide applicators were trained and certified according to state and federal requirements. The program enables over 20,000 agricultural producers and pest managers to maintain certification in 27 different categories of private and commercial pesticide application. This enabled these pesticide managers to legally use pesticides on their farms, in pest management businesses, and through public pest management programs throughout the commonwealth. Trainers are an important part of this effort. In 2013, 2 train-the-trainer workshops were conducted. The 21st annual Virginia Pesticide Safety Educators Workshop enrolled 115 Extension agents, specialists, and pesticide investigators. We also sponsored the 5th annual Vo-Ag Pesticide Safety Educators Institute for 22 Vo-Ag teachers. Four online courses helped commercial and private applicators, and registered technicians prepare for certification. Over 101 different companies, 45 government entities, 9 farms, and 5 schools resulted in 395 individuals enrolled in three courses. In addition, pesticide safety education information was provided to 542,012 unique visitors through the VTPP websites. Because of the program, the risks to public health and the environment were minimized while maintaining crop protection and effective pest control efforts. Providing high-quality pest and pesticide management programs to pesticide handlers safeguards both human and environmental health. In calendar year 2013, more than 2,000 VA-certified Private Applicators attended at least one of over 115 re-certification programs (168 sessions) organized by VCE-ANR agents. Participation in a re-certification (continuing education) session allows growers to keep their pesticide applicator certificates in force, which in turn enables producers to purchase and use restricted-use pesticides on their farms. Similarly, certification and re-certification programs enable commercial applicators to comply with state laws and work safely while they earn a living.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #5

1. Outcome Measures

Soybean Insect Pest Surveillance Program: Brown Marmorated Stink Bug and Kudzu Bug

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Virginia soybean crop is being attacked by two new invasive insect pests, the brown marmorated stink bug (BMSB) and the kudzu bug. Both species were introduced into the US from Asian sources and are rapidly spreading. Both species readily feed on soybean plants and have the potential to cause significant injury and crop loss. These new pests are now well established in Virginia. Growers are in need of information about these pests, when and where they occur in the state and the recommended management options. The Statewide Soybean Insect Pest Surveillance Program was initiated to accomplish these goals.

What has been done

In 2013 the surveillance program was conducted from mid-July through mid-October. Two field scouts (located in Goochland and Southampton Counties) were hired to cover most soybean growing counties; scouting was also done by the Entomology crew based at the Virginia Tech Tidewater AREC in Suffolk. VCE ANR Agents provided additional assistance with scouting and reporting these pests. Full season soybean was scouted from R-3 to R-7 or R-8 and double crop soybean was checked from R-3 until the end of scouting in October. Scouts traveled over 21,000 miles and made a total of 684 field visits to 54 Virginia counties. Additionally, scouts monitored 8 fields comprising over 600 soybean acres in 4 counties that received a VCE recommended field-edge-only insecticide treatment by local growers for controlling BMSB. Survey updates were issued via the Virginia Ag Pest Advisory, grower field days (including the Virginia Ag Expo), and in-field training sessions for agents and crop advisors.

Results

BMSB were recorded in soybean fields in 35 Virginia counties. In general, northern and central counties had the highest peak populations of BMSB, with lower numbers in southern and southeastern counties. Growers were alerted weekly to local infestation levels and were able to react according to the level of risk to their fields. Post treatment scouting showed that field-edge-only treatments by growers were successful in controlling BMSB populations on 2,500 soybean acres and preventing crop loss. They represented an estimated 30-40% reduction in insecticide use compared with if entire fields had been treated. The pest status of the kudzu bug in Virginia increased tremendously in just one year. In 2012 our surveillance program detected kudzu bug in 19 counties, mostly in low numbers in the southern part of the Virginia, and mostly all adults. In 2013, kudzu bugs were found in soybean fields in 47 counties and in non-crops (i.e., kudzu, figs) in 18 additional counties. Kudzu bugs were able to overwinter in Virginia in 2012/2013, and went through two generations in 2013. This was the first season in Virginia where kudzu bug populations reached economic threshold levels in soybean fields. Our surveillance program was successful in identifying infested fields, notifying growers and allowing them to make timely protective treatments and estimated 4,000 acres to prevent crop loss.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

211 Insects, Mites, and Other Arthropods Affecting Plants

215 Biological Control of Pests Affecting Plants

216 Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

Addressing Strawberry Production Issues

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In the Southeast region of the US, majority of our commercial strawberry production is done under the annual plasticulture system. All strawberry plants in this southeastern region can be trace back to two sources Prince Edward Isle (PEI) Canada, and Nova Scotia (NS) Canada. During the fall of 2012, it became apparent to some strawberry growers and Extension agents that the strawberry plants planted in Sept and Oct were not growing normally. At the point, symptoms were exhibited, and farmers were ready to apply every chemical under the sun to control aphids, over fertilize to make up for the lack of growth, and even talks of destroying this year?s crop to replant with another crop to salvage some of their potential lost income.

What has been done

The NS plants showed symptoms that the PEI plants did not. Samples for disease, nutrient analysis, plant specific and field level soil samples were evaluated. Virus issues were detected and samples processed. Of 34 samples, 28 of them were from the NS sourced plants and were all positive with Strawberry Mild Yellow Edge Virus (SMYEV) and 25 positive with the Strawberry Mottled Virus (SMoV). Both viruses are aphid vectored. Recommendation were sent to growers about the symptoms and recommendations on how to manage the infested crops. During the Strawberry School, the 80 attendees focused on the situation and gathered samples. Seventy-four samples were analyzed and the results showed 35 samples were positive with virus complex (SMYEV and SMoV), 21 positive with one virus, and 12 samples were not viable. A Plant Health meeting discussed establishing testing protocols for the nurseries and methods to stop the host cycle at the farm level. Information was disseminated to all strawberry growers about the protocol

and how to prepare for the 2014 season.

Results

Through analysis of samples and identification of the virus, the major source came from NS plants. Growers without that specific source of plants did not enact control measures. Farms with infected plants used BMPs to bring their current crop to the full market potential, control methods to prevent the spread of the virus complex, and protocols were established to prevent this from being an issue in the future. The 2013 season ended with a majority of growers with infected plants having a yield of around 13,000 lbs per acre (average production is in the 14,000 to 18,000 pounds per acre range). In some areas of the state, 66% of the acres were infected and produced less than 66% of the potential crop if no BMPs were implemented. At a production rate of 13,000 lbs per acre and price of $1.49/lb, the impact of this program would be over $338,975. If complete crop destruction had occurred, an impact of over $680,000 to the local economy would be seen. Through the Plant Health Meeting, nurseries implemented protocols to test for viruses before they are shipped, NS had a no-ship period to end the host cycle for the virus, and enacted a strong aphid IPM program. Through the VCE recommendations, growers determined the best way to manage the virus, and to ensure berry plants were free of virus. Currently, from field observation there has been no evidence of the virus.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #7

1. Outcome Measures

Extension Master Gardeners Help Homeowners Improve Water Quality by Teaching Turf Best Management Practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013 0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Home lawns in Virginia comprise nearly 62% of the 1.7 million acres of managed turfgrass in the state and account for $1.7 billion in annual expenditures. Many homeowners apply chemical fertilizers and pesticides to keep their lawns healthy and green. Without proper training, it is easy to over apply or inappropriately apply chemical inputs leading to run-off into local streams and waterways. Excessive use and misapplication of chemical fertilizer can lead to excess nitrogen and phosphorous which can potentially reach storm drains or sewers and ultimately compromise ground or surface waters. This trend paired with high levels of residential development dramatically increases the potential overall impact on water quality. Ultimately the water quality of the Chesapeake Bay is compromised.

What has been done

Since 1990, VCE-Prince William has used VCE Master Gardener volunteers to provide educational and technical services to homeowners with regard to home lawn management. VCE-Prince William created the BEST (Building Environmentally Sustainable Turf) Lawn Education program (formerly Great 'Scapes) to bring awareness to local water quality as it is impacted by residential lawn care practices. Local Master Gardener volunteers, under the guidance of the local Extension agent provided three best management information sessions for homeowners.

Results

Homeowners had their lawns soil tested and measured by Master Gardener Volunteers. 281 urban nutrient management plans were written. In 2013 a total of 60.4 acres (or 2,631,024 square feet) of turf in Prince William County, the cities of Manassas and Manassas Park were brought under a nutrient management plan which promotes best practices. Master Gardeners volunteered over 942 hours of their time to assist with this project. To date since 1990 when the program was initially started, MG's/staff have assisted in writing over 3,615 nutrient management plans for over 32 million square feet of turf or 689.5 acres within local watersheds.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
205	Plant Management Systems
302	Nutrient Utilization in Animals
601	Economics of Agricultural Production and Farm Management

Outcome #8

1. Outcome Measures

Agronomic Studies of Stinging Nettle (Urtica dioica L) in Southside Virginia

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The main objective of the project is to explore the potential for developing a closed-loop nutrient cycling (animal-plant-animal) system that would help cut back on out-of-state nutrient importation and reduce the levels of nitrogen (N) and phosphorus (P) reaching the Chesapeake bay and its tributaries. Such remedial action is urgently required to address agriculture-mediated pollution of the Bay.

What has been done
A study was commissioned to quantify nutrient (mainly N and P) recovery by stinging nettle from soils amended with poultry litter, and to determine biomass yield, forage quality, and palatability/digestibility of nettle forage in a goat diet. Alongside stinging nettle plots, switch grass (Panicum virgatum, L.), Bermuda grass [Cynodon dactylon (L.) Pers.] and fallow controld were established.

Results
Preliminary results show that relative to the controls, stinging nettle recovers significantly higher N and P, and K, CA and Fe from soils amended with poultry litter. In feeding trials, nettle forage was found to be acceptable to goats with digestibility and nutrient retention levels comparable to alfalfa. The species is a promising nutrient dense forage crop that can be marketed as an organic alternative to alfalfa.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
302	Nutrient Utilization in Animals

Outcome #9

1. Outcome Measures

Development of high value specialty wheat varieties

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Most flour mills in this region utilize both SRW and HRW wheat and about one third of wheat milled in the eastern U.S. is HRW. Because a significant market exists for HRW and durum wheat in the eastern U.S., production of these specialty wheat crops in the eastern U.S. will provide producers and end-users with a significant economic advantage as grain of these crops is usually of higher value than soft wheat ($0.40 per bushel or more) and currently must be imported over long distances to the region.

What has been done
Sustainable and economically viable production of specialty wheat, including HRW and winter durum wheat, in eastern regions of the U.S. and Canada is dependent on development of varieties adapted to diverse and local environments and having resistance to diseases prevalent in these unique areas. Diverse HRW and durum wheat germplasm from several regions in the U.S. and many different countries has and is currently being evaluated and used as parental material in our breeding program. The overall objective is to combine desirable traits from diverse germplasm and to develop superior specialty wheat varieties adapted to eastern regions of the U.S. and Canada.

Results
During the past 5 years, the program has released two winter durum wheat and six HRW wheat cultivars. Release of specialty wheat varieties is targeted at meeting the needs of current and new markets in the eastern U.S. as demands for ethnic and artisan foods and grain transportation costs increase. Over 55 million people live in the Mid-Atlantic region of the U.S. Most of the hard red winter and durum wheat milled and processed by eastern mills and food manufacturers must be imported at considerable cost from the Great Plains and western regions of the U.S. The mills in our region can utilize 2,900,000 tons of wheat per year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #10

1. Outcome Measures

Development of a vaccine against orcine reproductive and respiratory syndrome virus

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Small Farm Customer Outreach through Social Media Awareness and Education

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Social media is a low investment form of marketing to new and existing customers. Small farm enterprises and value added food and cottage businesses can increase marketing impact by strategic use of social media applications such as Facebook, Instagram, and Pinterest.

What has been done
Easy to understand educational materials (presentation and handouts) were developed by the Virginia State University Cooperative Extension Marketing Program. Direct technical assistance to interested small businesses through hands-on classes on the Virginia State University Mobile Computer Lab or in collaboration with regional computer labs in public libraries and community colleges program took place.

Results

In 2013, 355 individuals learned about the basics of social media strategic marketing and how to set up a Facebook, Instagram, and Pinterest page. Returned evaluations indicated 173 individuals would set up a social media page on either Facebook, Instagram, or Pinterest to increase marketing outreach and customer service. Direct technical assistance in setting up a social media page was provided to 25 individuals who reported an increase of 50+ new customers (1,250 total new customer base) and a minimum sales increase of $500 ($12,500 total sales increase)after setting up a social media page.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The gross income derived from farming could be affected by natural disasters, changes in the economy, government regulations and public policy changes. Disasters damage infrastructure and facilities while economic and governance changes influence profitability of production systems. The number of acres of land subject to nutrient management plans/best management practices/conservation plans affected by government regulations and changes in the economy. If greater emphasis is placed on water and environmental quality then even more widespread implementation of these practices will be encouraged. These factors may have immediate impact as they significantly influence items such as production economics, industry infrastructure, marketing systems, and consumer demand. Good economic conditions encourage consumption of value added products. In Virginia, increasing land values in traditional animal production areas around cities and growing towns are a significant challenge. The recent increase in ethanol production and anticipated future growth of this alternative fuel source will likely have major impacts on livestock production practices in Virginia. Scope of such impacts is unknown, but anticipated direction has influenced this planned program.

A recent challenge has been the change in demographics in Virginia. There is an increased demand to offer education resources in Spanish. Employers have a desire to employ non-English speaking workers. The prohibitive, besides the lack of resources to change the training materials and examinations, is that most materials use in Virginia (and most states) are written in English only. Changes in global food production capacity, energy costs, and epidemic diseases could have unpredictable effects. All external factors affecting personal discretionary spending will affect the implementation of environmentally sound

BMP's. Natural disasters may affect producers directly but also will affect ag producers, homeowner and commercial landscaping. The general economy, public policy and governmental regulations impact production and sales of horticultural products. Appropriations and competing programmatic challenges affect the dedication of personnel and programs to the described programs. Population changes affect supply and demand for horticultural products.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The long-term goal of the Virginia Beginning Farmer & Rancher Coalition Program (VBFRCP) is to improve opportunities for beginning farmers and ranchers (BFRs) to establish and sustain viable agricultural operations and communities in Virginia by providing BFRs with whole farm planning (WFP) education using experiential and classroom training methods while also enhancing collaboration and organizational capacity across the agriculture service provider sector for long-term training success. To reach our goal, the VBFRCP operates at the local and state-wide level to develop and launch WFP curriculum, regional training programs, supportive online resources and social networking, farmer mentoring, and an effective communication and referral system for service providers within and outside of the Extension system. Unique to this Virginia Cooperative Extension (VCE) program is its community-based participatory approach to program design and implementation whereby a state-wide coalition of 27 agricultural organizations and agencies work together to develop and implement programming with VCE providing programmatic and administrative leadership. The VBFRCP has several outcomes and impacts to report from program evaluations administered that measured 1) changes in beginning farmer knowledge, attitudes and behavior; 2) changes in knowledge, attitudes, and behavior of the service provider community that works with beginning farmers in Virginia:

1) Over 300 Coalition program partners participated in capacity building trainings whereby increasing knowledge of whole farm planning program application for beginning farmers/ranchers(BFRs); 2) significantly enhanced organizational capacity and communication of Virginia service providers to realize a state-wide referral system and coordination effort of whole farm planning programs and technical assistance for BFRs; 3) implemented first-ever state-wide assessment of program and delivery needs and preferences in Virginia that informed program and curricular design; 4) developed comprehensive WFP curriculum and resource tools for BFRs and service providers (8 modules, 25 resource tools & 1 training manual); 5) launched a resource intensive website, social media forums, and a WFP webinar series to complement face-to-face trainings and address distance learning and social networking preferences; 6) designed and implemented 7 regional WFP programs that trained 528 BFRs using WFP curriculum; 7) reached 445 additional participants through WFP webinar series (n=200), conference workshops (n=210, and self-study (n=35) of WFP curriculum; 8) facilitated farmer-farmer mentoring with over 30 farmers serving as mentors in their communities; 9) increased knowledge of Extension, USDA, and other Coalition member resources, services, and networking communities of at least 95% of reporting BFRs in WFP programs; 10) increased WFP skills, knowledge, and abilities of at least 90% of reporting BFRs to start and/or enhance new farm enterprises upon completion of WFP programs; and 11) assisted at least 60 reporting BFRs to become or improve market readiness upon completion of WFP programs.

Key Items of Evaluation

Key Items of the Evaluation(s) for NIFA Attention

· Virginia Cooperative Extension trainings of service providers increased networking and organizational capacity to realize a state-wide referral system and coordination effort of whole farm planning programs for beginning farmers. This resulted in more cross-sector collaboration to fill resource gaps using efficient resources.

· Using state-wide Extension system and coalition model for program development designed and implemented 7 Whole farm planning (WFP) programs that trained 528 BFRs in Virginia using WFP curriculum.

· Reached 445 additional participants through state-wide webinar series, conference workshops, and self-study by beginning farmers with WFP curriculum

· In a summative evaluation of providers and farmers, 90% of respondents reported that they were very satisfied or satisfied with online communication and networking options. Social marketing and learning opportunities include Facebook (n=558 Likes), YouTube (57 subscribers and 1350 views), & Blog. YouTube Channel was launched with 6 BFR cases (n=20 videos) designed for self-study application and WFP programming.

· A total of 310 participants were reached through webinar presentations. Webinar presenters were experts in marketing, land tenure and transition, financial planning, soil conservation, and GAP certification (e.g., Virginia Cooperative Extension specialists and agents; USDA FSA professionals; USDA NRCS professionals; Farm Credit professionals; Virginia Department of Agriculture and Consumer Services service providers). VCE agent application of VBFRCP webinars has been illustrated in other program areas.

· Ages of whole farm planning program & mentee participants ranged from 18-70 years old.

· Beginning farmer/rancher (BFR) enterprise interests of program participants mostly included: vegetables, fruit, cut flowers, row crops, beef, dairy, hay, and vineyards.

· The majority (60%) of reporting BFR participants classified themselves as male and at least 40% reported female.

· 65% of reporting participants labeled themselves as an explorer/beginning with 35% reported as a start-up, diversifying or transitioning farmer.

· 90% of reporting WFP program participants illustrated a positive change in WFP knowledge, skills, and abilities to start or sustain new enterprises.

· 95% of respondents reported new knowledge of Extension, USDA, and other Coalition organization resources, services, and networking communities.

· Nearly 90% participants who completed WFP program evaluations reported plans to start/stay farming, 10% were undecided or declined to begin farming.

- 32 mentors/16 mentees were recruited and trained, and 10 mentor/mentee parings have been made and continue to succeed.

- Assisted at least 60 reporting BFRs to become or improve market readiness.

An advisory group (n=3 farmers & 5 service providers) was elected in 2013 to reflect the ongoing work of the Coalition program. The VBFRCP is currently operating as a state-wide and coalition-based Extension program that has a sustainability plan to maintain the Coalition and subsequent WFP programs locally. This program enabled the first ever beginning farmer coalition in Virginia and the southern region.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Biotechnology, Biomaterials, and 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
112	Watershed Protection and Management	20%	0%	15%	0%
124	Urban Forestry	5%	0%	0%	0%
132	Weather and Climate	5%	0%	0%	0%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	20%	50%
202	Plant Genetic Resources	2%	0%	10%	0%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%	0%	5%	50%
206	Basic Plant Biology	5%	0%	5%	0%
402	Engineering Systems and Equipment	10%	0%	20%	0%
403	Waste Disposal, Recycling, and Reuse	11%	0%	0%	0%
511	New and Improved Non-Food Products and Processes	15%	0%	20%	0%
601	Economics of Agricultural Production and Farm Management	10%	0%	5%	0%
605	Natural Resource and Environmental Economics	7%	0%	0%	0%
	Total	100%	0%	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	3.7	0.5	3.9	1.0
Actual Paid Professional	3.0	0.0	4.2	1.0
Actual Volunteer	26.0	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**
91969	0	68881	93447
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
96313	0	181398	106731
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
233948	0	936371	93807

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Sustainable Energy program includes laboratory research, development of pilot scale projects in the field, educating clientele on the merits of particular energy practices and conversion technologies, and engaging the private sector to spur the commercialization and economic development of innovative and efficient energy systems. Specific examples of activity areas of this program are listed below:

* Develop biomass use for biofuels
* Designing optimum forestry and crops for bioenergy production.
* Produce value-added bio-based industrial products.
* Logistics/material handling
* Processing and management of end use waste products and byproducts
* Analysis of the global impacts of new generation biofuels
* Demonstration and commercialization of technologies that increase US energy independence
* Development of programs to train students and current county educators (in-service) to meet the new sustainable energy challenges.
* Energy conservation
* Alternative energy
* Understanding agricultural energy use and opportunities for conservation
* Smart and sustainable energy systems for communities
* Understanding the cost differences of energy usage
* Public outreach and engagement around energy public policy development
* Youth development programs to teach energy conservation, alternative energy sources, electricity and recycling.

2. Brief description of the target audience

- Farmers
- Citizens
- Agency personnel
- Economic developers
- Regional planners
- Commercial Producers
- Land Owners
- 4-H Youth
- K-12 Youth
- State and Federal Agency Personnel

- Extension Educators
- Policy Makers
- Consumers
- Ag Related Businesses
- Energy Service Companies (ESCOs)

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	1387	2009	5	0

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

Patent Applications Submitted

Year: 2013

Actual: 1

Patents listed

Insecticidal Carbamates Exhibiting Species-Selective Inhibition of Acetyl Cholinesterase (AChE). Patent number 8,618,162

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	64	64

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Train the Trainer and In-service Energy Workshops

Year	Actual
2013	60

Output #2

Output Measure

- Number of On-farm Demonstrations

Year	Actual
2013	1

Output #3

Output Measure

- Bioenergy Featured Case Studies
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of educational meetings, workshops, conferences, training sessions, and field days

Year	Actual
2013	120

Output #5

Output Measure

- Number of fact sheets, publications, newsletters, and other print resources

Year	Actual
2013	64

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase farm profitability due to more energy efficient practices
2	Increase the number of individuals using energy more sustainably
3	Increase knowledge of sustainable energy conversion technologies
4	Characterization of Genes that Regulate Wood Formation and Biomass Accumulation
5	Bio-product utilization efforts spur economic development

Outcome #1

1. Outcome Measures

Increase farm profitability due to more energy efficient practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Dairy and poultry operations, greenhouse facilities, and flue-cured tobacco farms in Virginia are significant consumers of energy. Farmers are challenged with rising fuel and electricity expenses that increase the cost of production and reduce already tight operating margins. Fluctuations in energy costs make budgeting more difficult.

What has been done
: Virginia Cooperative Extension, with financial support from the Virginia Tobacco Indemnification and Revitalization Commission, implemented a pilot farm energy efficiency program. The educational program focused the attention of agricultural producers on the cost of energy that they use, energy conservation options, and opportunities to cost-share projects to reduce farm energy consumption.

Results
As part of the program, 71 farms performed on-farm energy audits and 58 completed the audit. Qualified energy auditors and trained data collectors from several firms used for the project conducted the audits.
As a result, more than $1 million in energy savings was identified, including:
* 1,258,776 kWh electrical usage
* 603,315 gallons propane fuel
* 19,336 gallons fuel oil
* 63,298 million BTUs
* 4,315 MTCO2e greenhouse gas emissions
Approximately 76 percent of the recommended energy conservation measures have a payback period shorter than five years.
Farmers completed an on-farm energy audit were offered a 25 percent cost share, up to $2,500 per farm, as an incentive to upgrade to energy-efficient equipment. Twenty-four farms

implemented the cost-saving projects identified in the audits, and 14 farms applied for USDA REAP [Rural Energy for America Program] energy conservation grants, of which 11 were successful and will receive $220,225 in funding.
The project engaged multiple Virginia partners, including the Virginia Department of Mines, Minerals and Energy; USDA Natural Resources Conservation Services; USDA Rural Development; and Virginia Foundation for Agriculture, Innovation and Rural Sustainability. Because the value of energy audits in identifying cost savings for agricultural producers was validated, Extension and its partners are applying for a second grant to launch an expanded project.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Increase the number of individuals using energy more sustainably

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Increase knowledge of sustainable energy conversion technologies

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Characterization of Genes that Regulate Wood Formation and Biomass Accumulation

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The U.S. forest products industry employs over 1 million people and produces thousands of paper, fiberboard, lumber and engineered wood products with an estimated value, in 2004, of $243 billion in U.S. sales (DOE, Industrial Technologies Program, Fiscal Year 2004 Report). Xylem is the wood-forming tissue in plants and hence is the raw material for the forest products industry. It is the structure, arrangement and relative proportions of the xylem cell types, that determines the physical properties of woods and hence their suitability for specific applications. Remarkably little is known about the genetic mechanisms that regulate wood formation.

What has been done
Researchers use Arabidopsis and poplar to study wood formation. Arabidopsis is a good choice for such studies because its genome has been fully sequenced and several unique resources have been developed for facilitating rapid characterization of genetic mechanisms. Poplar is a model for forest products research and was the subject of a recently completed genome sequencing effort. For the poplar work, we are supported by two feedstock genomics grants from the DOE to study poplar protein-protein interactions and their integration into woody biomass signaling networks. Additionally, we are supported by USDA-NIFA to study the roles of sugar signaling genes in woody biomass production.

Results
We are characterizing Arabidopsis and poplar genes controlling a variety of activities that contribute to wood formation and overall biomass accumulation, including a gene that negatively regulates lignocellulose production and programmed cell death in xylem, genes that are putative components of a signaling pathway that regulates cell fate in the xylem, and genes involved in novel protein-protein interaction networks relevant to wood formation. We have cloned over 400 genes associated with wood formation in poplar. These are being used to identify protein-protein interactions important to wood formation http://xylome.vbi.vt.edu/. Results from these investigations can be incorporated into bioengineering and breeding strategies for manipulating economically important aspects of the structure of wood.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
206	Basic Plant Biology

Outcome #5

1. Outcome Measures

Bio-product utilization efforts spur economic development

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Virginia ranks as a top state for business due to an efficient infrastructure, talented workforce, lower costs of doing business, among other factors. To remain competitive Virginia businesses must explore methods to minimize production costs and to increase the marketability and value of their products and services.

What has been done
Extension serve as a resource to private businesses based in, or considering relocating to, the Commonwealth of Virginia which are exploring opportunities related to byproduct utilization, energy efficiency and deployment of appropriate renewable energy technologies. VCE's Agricultural Byproduct Utilization program assisted private businesses with information to better explore opportunities to reduce their operating costs, utilize undervalued biomass feedstocks, develop new business models, among other areas.

Results
Examples and case studies of these efforts include: 1) developed an anaerobic digestion facility co-located with Shenandoah Valley facility with large thermal energy requirements, 2) agricultural feed supplement firm explored opportunities to transform annual waste disposal of 174 tons and expenses of $12,876, into potential revenue stream which achieved the firm's corporate management goal of zero waste, 3) assisted a small business to expand their suite of services to include conducting farm energy audits as a registered Technical Service Provider (This firm has now conducted 40+ farm energy audits), and 4) assist Shenandoah Valley composter in identifying practices to improve the quality and marketability of dairy manure-based compost.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
511	New and Improved Non-Food Products and Processes
605	Natural Resource and Environmental Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Availability and competitive access to federal grants)

Brief Explanation

The business income derived, acceptance of biotechnology, and energy usage could be affected by natural disasters, changes in the economy, government regulations and public policy changes. The availability of federal and state grants and initiatives can be affected by government priorities and changes in the economy. If greater emphasis is placed on energy conservation and alternative energy sources are implemented, these practices and alternatives will be encouraged. These factors may have immediate impact as they significantly influence items such as production economics, industry infrastructure, marketing systems, and consumer demand. Good economic conditions encourage use of alternative energy sources and viable biotechnologies. In Virginia, increasing petroleum values in traditional businesses and logistics are a significant challenge. The recent increase in bioenergy and biotechnology production and anticipated future growth of this alternative fuel sources will likely have major impacts. Scope of such impacts is unknown, but anticipated direction has influenced this planned program.

Changes in energy production capacity, energy costs, and federal resources (grants & contracts) could have unpredictable effects. The general economy, public policy and governmental regulations impact production and sales of bioenergy and acceptance of biotechnology. Appropriations and competing programmatic challenges affect the dedication of personnel and programs to the described programs. Population changes affect supply and demand for alternative energy products.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Soaring energy costs affect every area of a community and have caused community leaders to seek guidance from researchers and Extension. Based on 2007 data, farms in

Southside and Southwest Virginia spent over $58 million in fuel and $16 million in electricity and other utilities, spending nearly $75 million in total. Energy management is key to reducing soaring energy costs and increasing agricultural profits.

Virginia Cooperative Extension submitted and received a $248,842 grant from the Virginia Tobacco Indemnification & Community Revitalization Commission in January 2010 to begin a new pilot program for Southside and Southwest Virginia farmers interested in energy efficiency improvements. This program a) raises awareness of opportunities to improve energy efficiency resulting in reduced production costs; b) assists farmers in conducting an on-farm energy assessment to identify energy savings opportunities specific to their operation; c) provides financial incentives to upgrade to energy efficient equipment and systems identified by the energy assessment; and d) provides energy efficiency resources required to pursue renewable energy and energy efficiency grants and subsidized loans through the USDA Rural Energy for America Program.

Energy audit reports conducted in 2013 for the 2010-2012 project of 58 farms which identified farm-specific efficiency improvement opportunities with the potential to generate energy-cost savings of approximately: 1,258,776 (kWh) in electrical usage; 603,315 (gallons) propane fuel; 19,336 (gallons) fuel oil; 63,298 Million BTUs; 4,315 (MTCO2e) greenhouse gas emission reductions; $20,326 average per farm energy savings; and $1,178,917 aggregate energy savings. Approximately 76% of the recommended energy conservation measures had a payback period less than five years.

Key Items of Evaluation

- Identified **$1.2 million in farm energy savings** with 76% of the savings having a payback period of less than 5 years.
- Conducted **58 energy audits**.
- Provided **24 farms cost share funding**.
- Enabled **11 farms to receive a USDA REAP grant**.
- Engaged **3 energy audit firms with 1 in Virginia**.
- Secured **technical assistance for USDA REAP grants**.
- Trained **12 Virginia data collectors**.
- Provided over **200 agricultural entrepreneurs the tools to improve farm energy efficiency**

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Community Viability

☑ 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
602	Business Management, Finance, and Taxation	20%	0%	10%	0%
605	Natural Resource and Environmental Economics	15%	0%	30%	0%
608	Community Resource Planning and Development	50%	100%	50%	0%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%	0%	10%	0%
805	Community Institutions, Health, and Social Services	5%	0%	0%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	15.4	1.0	0.0	0.0
Actual Paid Professional	32.6	0.5	0.0	0.0
Actual Volunteer	1365.0	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**
1011662	129430	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1059442	71841	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2573431	29126	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

To address the Community Viability planned program, we:

1. Conducted workshops in leadership development, facilitation, conflict management, community planning, community resource development, enterpreneurial and alternative economic development.
2. Delivered services in facilitation strategic planning, public listening sessions, land use discussions for community viability/community resource development issues
3. Developed print and electronic resources in community viability/community resource development
4. Provided and distributed available resources, including eXtension, in land use, community planning, leadership, facilitation, small business development and alternative economic development
5. Provided professional development training in facilitation, land use and leadership
6. Partnered with local, regional and state agencies, organizations, faith-based groups, etc.
7. Facilitated meetings of task forces, coalitions, committees, addressing community viability/community resource development issues
8. Conducted research on leadership development

2. Brief description of the target audience

1. Individuals
2. Families
3. Owners and managers of farms and small businesses
4. Local, state, and federal personnel and policy makers
5. Community leaders and organizations
6. Private sector service suppliers

3. How was eXtension used?

The Community Viability program holds a seat on the Land Use and Community Planning Community of Practice national leadership team, as the Southern Regional Representative. eXtension is referenced as a source for information in our classes and publications (where applicable) and Ask-the-Expert functionality is supported on our web pages. There is also an Ask-the-Expect link on our publications page.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	8184	13145	2127	251

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	15	16	31

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of education programs planned in public policy education

Year	Actual
2013	9

Output #2

Output Measure

- Number of individuals and families completing basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program, and implementing practices to reduce the chance for identity theft after receiving instruction.
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of communities and local governments partnering with Virginia Cooperative Extension faculty to seek and develop alternative economic development opportunities or address public policy and community planning goals.

Year	Actual
2013	11

Output #4

Output Measure

- Number of youth attending educational programs conducted on basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing.
  Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Number of program participants improving their housing environment through new ownership, avoiding foreclosure or purchasing and maintaining a home.
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- The number of people completeing in Master Financial Education Volunteer programs.
  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Number of trainings, educational workshops, and on-line education sessions for VCE's targeted audiences.

Year	Actual
2013	885

Output #8

Output Measure

- Number of adults engaged in facilitation skills training.

Year	Actual
2013	53

Output #9

Output Measure

- Number of adults engaged in community-based leadership development education.

Year	Actual
2013	90

Output #10

Output Measure

- Number of fact sheets, publications, newspaper articles, and curricula on community viability issues.

Year	Actual
2013	183

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase the number of individuals completing basic financial management strategies including budgeting, setting financial goals, establishing a saving/investing program.
2	Increase the number of trained volunteers and citizens participating in Extension entrepreneurship workshops indicating increased entrepreneurial knowledge and skills applied to evaluation and planning of new enterprises (such as small businesses, micro-businesses, home-based businesses and agri-tourism).
3	Increase the number of communities and local governments partnering with Virginia Cooperative Extension faculty that seek and develop alternative economic development opportunities, and community planning goals.
4	Increase the number of individuals improving their housing environment by adopting techniques allowing them to purchase a home or to avoid foreclosure.
5	Increase the number of youth learning the basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.
6	Increase the number of local food entrepreneurs who make direct connections with local food distribution outlets such as grocery stores, colleges, universities, hospitals, schools, nursing homes etc.
7	The number of programs and one-on-one counseling sessions offered by Master Financial Education Volunteers.
8	Facilitation Skills Training - Increase the percentage of trained volunteers and citizens participating in facilitation skills training that indicate improved knowledge and skills as a result of participation.

Outcome #1

1. Outcome Measures

Increase the number of individuals completing basic financial management strategies including budgeting, setting financial goals, establishing a saving/investing program.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increase the number of trained volunteers and citizens participating in Extension entrepreneurship workshops indicating increased entrepreneurial knowledge and skills applied to evaluation and planning of new enterprises (such as small businesses, micro-businesses, home-based businesses and agri-tourism).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	44

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Specialty foods continue to be a growth area in the food industry, providing opportunities to people interested in developing their own businesses and to farmers looking for alternative ways to utilize and market their crops. Start-up companies need direct assistance in complying with increased federal and state food safety regulations, and to transfer knowledge in food manufacturing. Business and marketing training is also necessary to increase the chances of success by small companies in a highly competitive niche marketplace.

What has been done
In response, 44 businesses received assistance from the SW VA Food Safety Extension Agent in cooperation with the Food Innovations Program. Assistance included 10 people seeking general information before business start-up, 11 businesses needing assistance in locating processing facilities and 23 companies needing more in depth personalized assistance that included guidance on nutritional analysis, shelf-life extension, process validation, regulatory compliance

and product development.

Results

Regulatory assistance helped 3 businesses within SW VA to remain open and producing. All 3 businesses were cited by regulatory officials and told that without compliance warehoused product would be in jeopardy and further manufacturing would need to cease. Two of these companies were family businesses where either all or part of their income was subsidized by their profit. The other mid-sized company was cited by FDA and told to cease production of 3 products important to the portfolio of the company. The company reports 10 employees with revenue between $1-5 million.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Increase the number of communities and local governments partnering with Virginia Cooperative Extension faculty that seek and develop alternative economic development opportunities, and community planning goals.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rural counties and communities are undergoing significant economic transition and uncertainty. Regional-based,collaborative approaches with multiple stakeholders have been demonstrated as both beneficial and necessary to address these challenges. Many rural localities, however, lack existing regional networks or groups. Where groups do exist, these often consist of a limited range of stakeholders and lack the data and analytical tools necessary to effectively navigate economic transition.

What has been done
Led by VCE, Virginia implemented the USDA-sponsored Strengthening Economies Together (SET) program. Through a competitive RFP process, two regional economic development groups were selected, namely the Northern Neck Chesapeake Bay Region Partnership and the Virginia Growth Alliance. VCE led a state-wide team to deliver the year-long training program. Regional teams consisting of diverse stakeholders were established. VCE has also worked with the state team and partners to help regions create a regional SET economic plan for each of the 11 localities represented.

Results
SET plans were created for each region, and data from the process were also used to update the Comprehensive Economic Development Strategies plan in Northern Neck region. The SET plan was further used to secure a VDHCD Building Collaborative Communities Grant in both the Northern Neck region and in the Virginia's Growth Alliance region and helped secure CCDBG funding in South Hill. Moreover, the SET process identified a need for, and spurred the development of a business incubator in Northern Neck and helped identify a need for rebranding of the economic development organization in south-central region from "transtech" to "Virgnia's Growth Alliance". The SET process uncovered a need for and led to the development of a microloan fund in VGA region, along with a regional entrepreneurship plan and microenterprise training initiatives.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

Increase the number of individuals improving their housing environment by adopting techniques allowing them to purchase a home or to avoid foreclosure.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Increase the number of youth learning the basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Increase the number of local food entrepreneurs who make direct connections with local food distribution outlets such as grocery stores, colleges, universities, hospitals, schools, nursing homes etc.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

The number of programs and one-on-one counseling sessions offered by Master Financial Education Volunteers.

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Facilitation Skills Training - Increase the percentage of trained volunteers and citizens participating in facilitation skills training that indicate improved knowledge and skills as a result of participation.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	88

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In 2009, James City County addressed decreasing revenues by reducing county operating expenses and eliminating the Neighbor Connections division that coordinated outreach services and served as a liaison between neighborhood organizations and local county government. One key area affected was the leadership and facilitation development training of neighborhood association officers.

What has been done

The VCE - James City Unit partnered with James City County Department of Human Resources to offer county employees a three-part training series that equipped staff with the skills needed to lead effective meetings. Using an experiential approach, staff learned facilitation techniques to generate and narrow ideas and steps to develop action plans. A total of 16 staff from diverse departments participated, including Development Management, Fire, James City Service Authority, Parks and Recreation, Purchasing, General Services, and Housing.

Results

At the conclusion of the training, participant surveys indicated that the training series was successful (5.33/6) in assisting participants to reach their needs to lead effective meetings. Pre and posttest survey results indicate growth in the following areas:
78 percent increase in participant?s ability to apply a variety of processes to engage members of a group to participate;
55 percent increase in the ability to manage disruptive group behavior;
55 percent increase in the ability to recognize tangents and redirect group members to the task.

Similar results were found in the two training held in Danville and Grayson counties with 37 additional participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Lost of county educators)

Brief Explanation

In 2013, the Community Viability program continued to operate without county level educators. Moreover, with increased demands placed on the local educators in their assigned program areas of 4-H, ANR, and FCS, some educators were unable to offer programs in facilitation, leadership and entrepreneurship as they had in previous years. There were also increased demands to address natural disasters this past year.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Led by VCE, Virginia implemented the USDA-sponsored Strengthening Economies

Together (SET) program. Through a competitive RFP process, two regional economic development groups were selected, namely the Northern Neck Chesapeake Bay Region Partnership and the Virginia Growth Alliance. VCE led a state-wide team to deliver the year-long training program. Regional teams consisting of diverse stakeholders were established. VCE has also worked with the state team and partners to help regions create a regional SET economic plan for each of the 11 localities represented.

SET plans were created for each region, and data from the process were also used to update the Comprehensive Economic Development Strategies plan in Northern Neck region. The SET plan was further used to secure a VDHCD Building Collaborative Communities Grant in both the Northern Neck region and in the Virginia's Growth Alliance region and helped secure CCDBG funding in South Hill. Moreover, the SET process identified a need for, and spurred the development of a business incubator in Northern Neck and helped identify a need for rebranding of the economic development organization in south-central region from "transtech" to "Virgnia's Growth Alliance". The SET process uncovered a need for and led to the development of a microloan fund in VGA region, along with a regional entrepreneurship plan and microenterprise training initiatives.

To address the need for small business support with food-based businesses, 44 businesses received education and assistance from the SW VA Food Safety Extension Agent in cooperation with the Food Innovations Program. Assistance included 10 people seeking general information before business start-up, 11 businesses needing assistance in locating processing facilities and 23 companies needing more in depth personalized assistance that included guidance on nutritional analysis, shelf-life extension, process validation, regulatory compliance and product development.

Regulatory assistance helped 3 businesses within SW VA to remain open and producing. All 3 businesses were cited by regulatory officials and told that without compliance warehoused product would be in jeopardy and further manufacturing would need to cease. Two of these companies were family businesses where either all or part of their income was subsidized by their profit. The other mid-sized company was cited by FDA and told to cease production of 3 products important to the portfolio of the company. The company reports 10 employees with revenue between $1-5 million.

The VCE - James City Unit partnered with James City County Department of Human Resources to offer county employees a three-part training series that equipped staff with the skills needed to lead effective meetings. Using an experiential approach, staff learned facilitation techniques to generate and narrow ideas and steps to develop action plans. A total of 16 staff from diverse departments participated, including Development Management, Fire, James City Service Authority, Parks and Recreation, Purchasing, General Services, and Housing.

At the conclusion of the training, participant surveys indicated that the training series was successful (5.33/6) in assisting participants to reach their needs to lead effective meetings. Pre and posttest survey results indicate growth in the following areas:

78 percent increase in participants ability to apply a variety of processes to engage members of a group to participate;

55 percent increase in the ability to manage disruptive group behavior;

55 percent increase in the ability to recognize tangents and redirect group members to the task.

Similar results were found in the two training held in Danville and Grayson counties with 37 additional participants.

Key Items of Evaluation

Stronger Economies Together regional economic development plans were created for two economic development partnership regions in Virginia, which represents 11 localities. Data from the process were also used to update the Comprehensive Economic Development Strategies plan in Northern Neck region. The plans was further used to secure a VDHCD Building Collaborative Communities Grant in both the Northern Neck region and in the Virginia's Growth Alliance region and helped secure CCDBG funding in South Hill. Moreover, the SET process identified a need for, and spurred the development of a business incubator in Northern Neck and helped identify a need for rebranding of the economic development organization in south-central region from "transtech" to "Virgnia's Growth Alliance". The SET process uncovered a need for and led to the development of a microloan fund in VGA region, along with a regional entrepreneurship plan and microenterprise training initiatives.

Technical support and regulatory assistance for food-based businesses helped three businesses within southwest Virginia to remain open and producing. All three businesses were cited by regulatory officials and told that without compliance warehoused product would be in jeopardy and further manufacturing would need to cease. Two of these companies were family businesses where either all or part of their income was subsidized by their profit. The other mid-sized company was cited by FDA and told to cease production of three products important to the portfolio of the company. The company reports 10 employees with revenue between $1-5 million.

Regarding the Strengthening Your Facilitation Skills training held in James City County with 16 county staff in leadership positions, participant surveys indicated that the training series was successful (5.33/6) in assisting participants to reach their needs to lead effective meetings. Pre and posttest survey results indicate growth in the following areas:

78 percent increase in participant's ability to apply a variety of processes to engage members of a group to participate;
55 percent increase in the ability to manage disruptive group behavior;
55 percent increase in the ability to recognize tangents and redirect group members to the task.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Food, Nutrition, and Health

☑ 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
305	Animal Physiological Processes	0%	0%	10%	0%
501	New and Improved Food Processing Technologies	3%	0%	10%	20%
502	New and Improved Food Products	5%	0%	10%	15%
604	Marketing and Distribution Practices	5%	0%	0%	0%
701	Nutrient Composition of Food	0%	15%	0%	10%
702	Requirements and Function of Nutrients and Other Food Components	5%	15%	10%	15%
703	Nutrition Education and Behavior	40%	50%	0%	0%
704	Nutrition and Hunger in the Population	0%	20%	0%	0%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	15%	40%
721	Insects and Other Pests Affecting Humans	2%	0%	20%	0%
723	Hazards to Human Health and Safety	10%	0%	20%	0%
724	Healthy Lifestyle	30%	0%	5%	0%
	Total	100%	100%	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	13.5	1.0	14.9	2.0
Actual Paid Professional	15.8	3.3	22.5	3.0
Actual Volunteer	2869.0	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**
1226257	354779	367363	530089
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1284172	258617	967458	605445
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
3119310	224862	4993978	81027

V(D). Planned Program (Activity)

1. Brief description of the Activity

Food, nutrition, and health - Conducted educational classes, workshops, meetings, and trainings, developed products, curriculum, resources, facilitated coalitions and/or task forces, conducted assessments and community surveys, partnered with community agencies and institutions to facilitate programs and community development, create/revise social systems and public policies, conducted research studies, disseminated programs and research results through papers, reports, and media, developed and implemented marketing strategies using various outlets to promote program participation, disseminated research-based information to consumers using a variety of media and technology resources, cooperated with media and other community agencies to seek effective means of reaching new and non-traditional audiences, and respond to consumer inquiries.

Vector-borne diseases and public health pests - Conducted research to further our understanding of vector-borne diseases caused by insects and pests, and disseminated science-based results to stakeholders through workshops, trainings, etc.

2. Brief description of the target audience

Food, nutrition, and health - Young adults (ages 18 to 59), older adults (age 60 and older), caregivers of older adults, adults with type 2 diabetes, parents and caregivers of individuals with type 2 diabetes, senior center and meal site staff and volunteers, and Extension educators.

Vector-borne diseases and public health pests - Researchers, public health agencies, schools, institutions, Extension educators

Retail and food service employees, retail and food service management, temporary food vendors, child care providers, young adults (ages 25-59), older adults (ages 60 and older), Extension educators, **other researchers, policy makers** and commercial food processors.

Childhood Obesity: young children (ages 2 - 5 years); school-age children; adolescents; parents, foster parents, and grandparents; caregivers (in-home and for-profit day care providers); teachers and other school faculty for young children, youth, and adolescents; school nutrition directors and staff; school wellness committees; school nurses and other health care providers; and Extension educators.

The Family Nutrition Program (FNP) provides educational programs on food security to limited resource families, primarily youth and mothers with young children.

3. How was eXtension used?

Content by specialists has been uploaded into eXtension. Additionally, agents and specialists are listed as experts for the "Ask an Expert" link. Therefore agents and specialists have answered questions that have come through eXtension from Virginia. eXtension was also used to help people network with others working in the area of local foods and food security.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	167303	60251	0	0

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

Patent Applications Submitted

Year: 2013

Actual: 1

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	163	17	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of adults participating in diabetes educational programs.

Year	Actual
2013	315

Output #2

Output Measure

- Number of adults participating in at least one session on adult nutrition, fitness, worksite wellness, or health.
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of research papers published on adult obesity and related chronic disease.

Year	Actual
2013	36

Output #4

Output Measure

- Number of Master Food volunteers trained to extend the work of an Extension educator.

Year	Actual
2013	127

Output #5

Output Measure

- Number of research papers published on vector-borne diseases and public health pests.
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Number of workshops/trainings conducted on preventing and treating vector-borne diseases and public health pests.
  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Number of youth participating in food, nutrition and health programming.

Year	Actual
2013	94408

Output #8

Output Measure

- Number of direct contacts with youth and adults through the Family Nutrition Program

Year	Actual
2013	129000

Output #9

Output Measure

- Number of small businesses or producers assisted through the Business Innovation Center

Year	Actual
2013	44

Output #10

Output Measure

- Number of consumers completing home food preservation training offered by extension educators in Virginia

Year	Actual
2013	1138

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase in the number of individuals with diabetes who have improved their Hemoglobin A1c level, meal planning behaviors or physical activity behaviors, three months after participating in a Diabetes Education programs offered in collaboration with a local health care provider.
2	Increase in number of adults that make lifestyle changes which improve their dietary quality and/or physical activity level after participation in VCE programs.
3	Number of discoveries from completed obesity related research projects which focus on examining adult obesity from its root causes to its association with chronic disease.
4	Number of discoveries from completed research projects which focus on vector-borne diseases and public health pests.
5	Identification of Bioactive components to prevent and treat Diabetes and Vascular disease
6	Gene editing in disease vector mosquitoes
7	Wildlife Matters in Food Safety
8	Childhood Obesity
9	Safe Home Food Preservation
10	Family Nutrition Program
11	Specialty Foods

Outcome #1

1. Outcome Measures

Increase in the number of individuals with diabetes who have improved their Hemoglobin A1c level, meal planning behaviors or physical activity behaviors, three months after participating in a Diabetes Education programs offered in collaboration with a local health care provider.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nearly 500,000 Virginians have been diagnosed with diabetes and another 250,000 have diabetes and don?t know it. Diabetes is the 6th leading cause of death in Virginia and adds to deaths from heart disease and stroke.

Diabetes complications exert a high cost in money, loss of productivity, and quality of life. In Virginia diabetes leads to 11,700 hospitalizations each year adding nearly $173 million to our health care bill. Kidney failure with required dialysis treatment, an outcome of uncontrolled blood glucose levels, carries an annual cost of at least $72,000 annually per patient. The burden of diabetes is disproportionate to African Americans, Hispanics, the elderly, those with limited income, and the medically underserved

What has been done
Extension agents have partnered with the VT Center for Public Health Practice and Research, the VT Dept of Psychology, and other health professionals to offer Balanced Living with Diabetes (BLD). BLD, funded by the National Institutes of Health, provides practical education to help people with type 2 diabetes and their families learn about self-care, food choices to control carbohydrate intake, and life style patterns that prevent or slow the complications of their disease. BLD includes 4 weekly classes and a reunion class 3 months following, with further reassessment at 6 and 12 months. Programs target African Americans and the underserved, and are offered in cooperation with black churches. Eleven class series were offered in 2013 in Danville, Bristol, Marion, Caroline, and Essex. Program outcomes are evaluated according to improvement in eating patterns, diabetes care, increase in physical activity (steps walked per week), and hemoglobin A1c levels, a measure of average blood glucose levels over the 2 to 3 months prior.

Results

In 2013 315 Virginians participated in BLD; 96% were African American and 76% female. By preliminary calculations nearly 1/3 of participants had incomes below $10,000 and over half were below $30,000. Following a meal planning method to control carbohydrate intake is a cornerstone of BLD and on reassessment, most participants reported using a meal planning method at least 4 to 5 days or more each week. For those whose health permitted increased walking, use of step-counters included with class handouts encouraged increases in physical activity and likely contributed to the modest yet consistent weight loss observed in various participants. Hemoglobin A1c, measuring diabetes management, fell on average 0.5% to 0.7% among those whose baseline A1c was 7.0% or above (the American Diabetes Association recommends an A1c below 7.0%). The Journal of the American Medical Association reported people who decreased their A1c by even 0.5% required fewer physician visits in the years following and could save at least $685 per year in health care costs. Changes within individuals demonstrated drops in A1c from 10.1% to 6.5% and 12.8% to 8.6%. A decrease in A1c of 1.0% lowers the risk of diabetes complications such as blindness or renal failure by 40%. BLD provides a practical meal pattern consistent with cultural and ethnic preferences that is suitable for the entire family and can contribute to a healthy weight and diabetes prevention among children and younger family members.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Increase in number of adults that make lifestyle changes which improve their dietary quality and/or physical activity level after participation in VCE programs.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of discoveries from completed obesity related research projects which focus on examining adult obesity from its root causes to its association with chronic disease.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number of discoveries from completed research projects which focus on vector-borne diseases and public health pests.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Identification of Bioactive components to prevent and treat Diabetes and Vascular disease

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cardiovascular disease (CVD) is No.1 killer of the American people. There are about 26 million or over 8% of people as of 2011 who suffer from diabetes in the US and this number is expected to double by 2025. Efforts are therefore required on many fronts to address these major public health problems. Among these, a search for novel agents that prevent and treat diabetes and vascular disease, is extremely important to decrease the burden of morbidity from these chronic diseases, and thus promote the health of the American people. The Virginia Tech College of Agriculture and Life Sciences has identified food, nutrition, and health as a key program initiative.

What has been done
Research in my lab is focused on identifying and characterizing phytochemicals from food sources or medicinal herbs that provide beneficial effects on diabetes and/or CVD. To that end, we have screened over 100 compounds using both in vivo and in vitro systems established in my lab. We have identified several compounds that may provide beneficial effects on diabetes and/or diabetic vascular complication. Further, we are investigating the underlying mechanism whereby these molecules exert a potential beneficial effect on these human chronic diseases. In the second area, we are investigating how flavonoids exert anti-diabetic and anti-inflammation effects. We found that several flavonoid compounds can improve the function of beta-cells where

insulin is synthesized. We then discovered the molecular targets for these compounds in the islets. We further found that these compounds can prevent diabetes in animal models for human diabetes. Additional, we are presently creating a biological system to screen over 4,000 natural compounds present in foods and various medicinal plants to identify potential anti-diabetic effects.

Results

These studies allow us to develop novel approach using natural and low-cost compounds to decrease the morbidity related to vascular diseases and diabetes. A conditional patent application for one of our discovery has been filed by Virginia Tech Intellectual Property Office. In addition, the demonstration of the health benefits of food components in these chronic diseases is also expected to have a significant effect on the U.S. agriculture. This would expect to further stimulate medical interest in functional foods, and increase the human consumption and the utilization of the dietary supplements derived from agricultural products.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components

Outcome #6

1. Outcome Measures

Gene editing in disease vector mosquitoes

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Vector-borne diseases such as dengue fever and malaria are increasing, with severe epidemics occurring worldwide. As of December, 2013, an outbreak of chikungunya virus in the Carribean continued to grow, marking the first such outbreak in the New World. Vaccinations, chemotherapeutics, insecticides, source reduction and education have not yet been sufficient to control these severe public health crises. While additional progress in all these areas must be made, it is vital to develop any technologies that can supplement the tools we already possess. Gene editing strategies aimed at manipulating the genome of the disease vector offer the

potential to support these efforts.

What has been done

In this project, we aimed to develop, streamline and standardize new technologies to edit the genome of the most important vector of arthropod-borne viruses, the yellow fever mosquito Aedes aegypti.

Results

Using novel gene editing tools, we have generating site-specific genomic deletions that phenocopy a known visible mutant in the yellow fever mosquito, Aedes aegypti. Our initial publication appeared in PLoS One in March 2013. In just 9 months, the paper has been viewed more than 4,300 times, with more than 800 PDF downloads and five citations, including Nature Methods. This work was also picked up by both the popular and scientific press, being featured by nbcnews.com (http://www.nbcnews.com/science/disease-fighters-disrupt-mosquitos-genes-molecular-scissors-1C9007366) and Biotechniques (http://www.biotechniques.com/news/TALENs-Show-a-Talent-for-Altering-Mosquito-Genome/biotechniques-341610.html). The methods we have developed have the potential to revolutionize both basic research aimed at understanding mosquito-virus interactions as well as applied work to generate mosquito populations unable to transmit arboviruses such as those

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans

Outcome #7

1. Outcome Measures

Wildlife Matters in Food Safety

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Contaminated fresh tomatoes have caused several multistate Salmonella outbreaks in recent years, yet the source of contamination is still unclear.

What has been done

To investigate this issue, VSU's Food Safety Research Program recently collaborated with Virginia Department of Health to evaluate wildlife as potential vehicles of outbreak causing Salmonella. VSU scientists tested hundreds of wildlife specimens from deer, geese, ducks, gulls and turtles and isolated a variety of Salmonella strains, some of which have been historically linked to outbreaks from tomato consumption. Birds were responsible for a large number of Salmonella-positive samples in this study.

Results

The results of this study suggest that wildlife such as gulls are potential vehicles for foodborne pathogen contamination at produce farms. Thus, effective control measures (e.g. fruit washing and cold storage) for post-harvest, processing, and food service operations should be utilized in conjunction with good agricultural practices to prevent future outbreaks. The research team has successfully published the conclusions in Applied & Environmental Microbiology and Zoonoses & Public Health.

To minimize the impact of environmental contamination observed in the tomato production, VSU scientists also teamed up with industry experts to evaluate fruit sanitization and cold-chain treatments. Findings from these pathogen intervention studies have been cited recently by industry magazines (FreshCuts, The Packers, etc.) and university extension articles (University of Florida, University of Maryland, etc.) to reach the food industry and consumers nationwide.

4. Associated Knowledge Areas

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

Outcome #8

1. Outcome Measures

Childhood Obesity

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	94408

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Childhood obesity is a major public health concern with numerous short- and long-term health and psychological consequences. It is estimated that 32% of US children and adolescents were overweight or obese in 2011-12. Although these levels seem to be leveling off, continued educational efforts are needed to support lifelong healthy eating patterns and physical activity.

What has been done

In 2003, a small study was conducted with Virginia Cooperative Extension Educators to assess the attitudes, practices, and needs of Educators toward addressing childhood obesity. At the time of the study, there were no Extension curricula in place on childhood obesity in Virginia or nationally. Written questionnaires were administered to 40 educators. Nearly 80% considered childhood obesity a "growing problem;" however, only 12 indicated they had taught classes on childhood obesity and nearly one-third were considering it. The biggest perceived barrier was lack of resources and information. The findings demonstrated the need for curricula and a stage-based training on childhood obesity for Extension. As a result, the Healthy Weights for Healthy Kids program was developed for children between the ages of 7 and 14, utilizing the Experiential Learning Model and incorporating dimensions of the social-ecological model. Key behavioral factors within the curricula were chosen based on a comprehensive review of existing scientific literature and recommendations from several national organizations, such as USDA and CDC, including overall healthy eating, sensible portion sizes, choosing healthy snacks, limiting sugar-sweetened beverages, increasing physical activity, and decreasing sedentary behavior. (Over the years, the program has been updated to be consistent with new dietary recommendations and icons, such as MyPyramid and now MyPlate.) To address concerns that weight-centric messages might elicit disordered eating, a lesson was also created on body image and diversity, in order for children to recognize that each child has a unique and healthy weight. Each activity was aligned to the English, Math, and Science Virginia Standards of Learning since kids perform better when they have a healthy diet and are physically active. The program is designed to provide uniform messages to children, but the activities and experiences can be tailored to meet the specific needs of the youth being served. The program utilizes a train-the-trainer model. Each year, Agents and Educators from 4-H, Family and Consumer Science (FCS), and the Family Nutrition Program, consisting of EFNEP and SNAP-Ed, areas are trained on the program and on childhood obesity, so that they have the skills to deliver the program to youth in their communities. In many situations, 4-H and FCS Agents then train school staff to offer the program within schools.

Results

Last year marked the 10th year anniversary of Healthy Weights for Healthy Kids. Since its creation, over 200,000 youth have participated in Healthy Weights for Healthy Kids through Virginia Cooperative Extension efforts, with 95% of youth representing low-income populations served by the Family Nutrition Program alone. The program is offered at school, after school, at summer camps, as part of 4-H clubs, and at various other locations. Extension Agents and Educators like the program because it is ?easy to use, and has both structure and flexibility. Children like it because it is considered ?learner-centered? meaning that they learn by doing and experiencing the activity, like measuring the amount of sugar in soft drinks. And it works. Based on data from 300 fourth and fifth grade students, youth reported that they ate more nutritious foods, drank more water and milk, drank less soda, and moved more. Combined with a parent education component, children's weight status also improved as a result of participating in the Healthy Weights for Healthy Kids program. Healthy Weights for Healthy kids was listed as a ?best practice? within the Society for Nutrition Education?s Division of Nutrition Education for Children in 2006, won the National Extension Association for Family and Consumer Sciences Award for

Excellence in Research in 2007, and was recently identified as a program with ?preliminary evidence of replicability? by the National 4-H Council. The Healthy Weights for Healthy Kids program has proved to be a time-tested and effective program for Extension Agents and Educators and children.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #9

1. Outcome Measures

Safe Home Food Preservation

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1138

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The number of consumers preserving foods at home continues to increase, as more consumers emphasize greater control over what they eat and where their food comes from. Failure to adequately preserve foods in the home can result in foodborne illness. Foodborne botulism is a severe form of food poisoning. Most of these cases are associated with improperly processed home-canned food. Just one case of botulism can cost $1,343,592 related to medical services, deaths, lost work, and disability. In order to prevent illness, it is essential that consumers follow validated recipes when preserving foods at home. Historically Extension educators have been recognized as a credible resource for home food preservers.

What has been done

To help ensure safe home food preservation methods Virginia Cooperative Extension agent(s) provided food preservation trainings and support across the state in 2013. 25 extension agents provided home food preservation support in over 54 counties.
Education offered across the state included:

?30 General canning classes presenting beginner canning information including (but not limited to) differences between high and low acid foods and how to select the best preservation methods for each food.
?61 high acid (jams, jellies, pickles, fruits, etc..) canning classes demonstrating hands on canning using a boiling water bath canner
?36 low acid (vegetables, meats, fish, etc?) canning classes demonstrating hands on canning using a pressure canner
?255 dial gauge inspections for accuracy.
?520 one-on-one individualized home preservers support via phone/e-mail

Results

Home food preservers completing education through VCE programs were evaluated to determine their knowledge gain in safe home food preservation techniques and how the training impacted their future behaviors.
1138 participants increased their knowledge in the following areas
?477 learned how to can low acid foods using a pressure canner
?752 learned how to can high acid foods using a boiling water bath canner
?863 learned the importance of pH in determining the acidity of foods
?386 learned how to make jams/jellies and other fruit spreads
?310 learned how to make pickles, relishes and other fermented vegetables
?385 learned how to dehydrate foods
?406 learned how to freeze foods
757 participants intended to change the following behaviors as a result of the training:
?406 can low acid foods using a pressure canner
?569 use safe food preservation techniques
?33 freeze more foods
?436 dehydrate more foods
If a gauge is determined to be inaccurate after testing, the Extension Educator recommends replacement of the gauge and re-testing of the new gauge to ensure accuracy. Of those tested, 91 were inaccurate and recommended for replacement. It is assumed that if one case of botulism can be prevented through replacement of an inaccurate dial gauge, the potential annual savings to the State of Virginia (or County(ies)) can be $122 Million dollars.

4. Associated Knowledge Areas

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

Outcome #10

1. Outcome Measures

Family Nutrition Program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	129000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
American youth, ages two through nineteen, are overweight and obese. Childhood obesity is a disease which can lead to premature high blood pressure, cholesterol, and diabetes. Minority youth suffer disproportionately from health issues related to being overweight and obese. Obesity impacts the quality of life of our children and increases the likelihood in obesity into adulthood.

What has been done
In an effort to curtail the increase of health issues related to overweight and obesity within our limited-income youth, the Family Nutrition Program, Supplemental Nutrition Assistance Program-Education (SNAP-Ed), teaches nutrition education to the target population in a myriad of venues. A minimum of six comprehensive programs are taught to children from ages three to nineteen using age appropriate curricula. Classes are taught using an experiential design and address these topics: increase in fruits and vegetables; increase consumption of low-fat dairy products; using whole grains most of the time; eating low-fat protein foods and beans; incorporating exercise into their daily lives; and preparing nutrient-dense foods. These topics are the foundation of a healthy diet and are important for weight management.

Results
129,000 4-H youth enrolled in the six or more hour nutrition programs resulting in behavior change. Of this number, 48,214 completed evaluations showing the following results:
Grades 3-5
Pre: Never & Sometimes Post: Most Days & Everyday
Eating vegetables 36% 76%
Eating Fruits 23% 96%
Eating healthy snacks 50% 93%
Eating breakfast 20% 96%
Being physically active 34% 98%
Washing hands pre meals 20% 98%
Grades 6-8
Pre: None to 1time/day Post: 2-4 Times/Day
Eating vegetables 69% 94%
Eating fruits 41% 6%
Drinking milk 91% 43%
Eating whole grains 53% 75%

Pre: 2-4Times/Day Post: None - 1 Time/day

Drinking soda 69% 70%
Pre: 0-2 Days/week Post: 3-7 Days/week
Being Physically active 33% 86%
Pre:3-5 Hrs/Day Post: <1-2 Hrs/day
72% 59%

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #11

1. Outcome Measures

Specialty Foods

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	44

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The production of value-added agricultural products continues to be a growth area in the food industry, providing opportunities to people interested in developing businesses and to farmers looking for alternative ways to utilize and market their crops. Start-up companies need direct assistance in complying with increased federal and state food safety regulations, and to transfer knowledge in food manufacturing. Business and marketing training is also necessary to increase success.

What has been done
44 businesses received assistance from Food Safety Extension Agents in cooperation with the Food Innovations Program. Assistance included 10 people seeking general information before business start-up, 11 businesses seeking assistance in locating processing facilities, and 23 companies needing more in- depth personalized assistance including guidance on nutritional

analysis, shelf-life extension, process validation, regulatory compliance, and product development.

Results

Regulatory assistance helped three businesses remain open. All three businesses were cited by regulatory officials and told that without compliance, warehoused product would be in jeopardy and further manufacturing would need to cease. Two of these companies were family businesses where all or part of their income was generated by the company. The other mid-sized company was cited by FDA and told to cease production of three products important to the company portfolio. The company reports 10 employees with revenue between $1-5 million.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Family and Consumer Sciences agents continue to be lower in number than agents in 4-H Youth Development and ANR thereby reducing the number of participants they are able to reach. FCS programs have begun to engage volunteers therefore extending their outreach. 4-H Youth Development Agents as well as ANR agents have increased their delivery of programs related to food, nutrition of health, also extending the reach of VCE in these focus areas.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Virginia Cooperative Extension's EFNEP enrolled 22,864 low income youth and 958 low income adults whose incomes were equal to or less than 185% of Federal poverty guidelines. Through an eight nutrition lesson series, participants learned to select, buy, prepare, and store foods to meet the nutritional needs of their families, while operating within sound budget and gaining organizational skills. Pre and post program measures reported that participating adults in EFNEP changed: 93% showed improvement in food resource management practices; 95% showed improvement in one or more nutrition practices; 78% demonstrated acceptable food safety practices at completion of the program. Youth participating in EFNEP reported: 81% improved their ability to choose foods according to Federal Dietary Recommendations; 85% of Grades 3-5 improved in one or more core areas; 95% of Grades 6-8 improved in one or more core areas; and, 91% of

Grades 9-12 improved in one or more core areas. 1121 Volunteers contributed 5.08 FTEs to EFNEP.

Chronic diseases are the leading cause of morbidity and mortality in the United States. A sedentary lifestyle and a poor diet are linked to being overweight and obese and increases chances of developing chronic diseases like heart disease, stroke, cancer, and diabetes. Fortunately, these same diseases respond best to positive changes in health behaviors. The CDC reports, of deaths occurring in Virginia during 2005, 25% were linked to heart disease and 24% were associated with cancer. A reported 1,642 Virginians died from diabetes in 2005. Chronic diseases result from unhealthy lifestyles and have become a financial burden to the state and federal government. The estimated medical cost associated with obesity is $147 billion annually. Likewise, an obese person has annual medical costs that are $1,429 more than his or her normal weight counterpart. EFNEP and SNAP-Ed teaches families, youth, and seniors skills necessary to promote healthy lifestyles, eat more meals at home, prepare healthy and tasty meals for their families, increase fruit and vegetable consumption, control portion sizes, move more every day, move more and watch less television, and replace sugary beverages with healthy options. Participants completing the EFNEP and SNAP-Ed series of six lessons improved nutrition and food behavior.

Post-lesson data gathered through behavior change questionnaires in EFNEP have shown:

82% used food labels more often to make food choices

80% of participants improved in the variety of foods in their diet

73% increased their fruit consumption

52% increased consumption of low fat milk and milk products.

In SNAP-Ed, post-test data reported:

73% used food labels more often to make food choices

66% of participants improved in the variety of foods in their diet.

62% increased their fruit consumption.

44% increased consumption of low fat milk and milk products.

The Centers for Disease Control and Prevention report 62% of adult Virginians and 17% of youth are overweight or obese and at risk of chronic disease. There is a critical need for educating consumers to improve overall health and quality of life in Virginia. Virginia Cooperative Extension (VCE) Family and Consumer Sciences (FCS) agent educators provide

expertise and training with a food nutrition and health focus. As resources continue to diminish, trained Trained volunteers can help expand program delivery by educating more participants and freeing Extension the FCS Educator educator's time to develop new audiences and programs.

The Virginia Cooperative Extension Master Food Volunteer Program (adapted from Kansas State University) incorporates an extensive 30-hour peer reviewed curriculum training, with 32 lesson plans/presentations, and supplemental teaching resources. In 2009, this program was implemented in VCE's Northern District,Virginia and continues to expand. Participants gain knowledge of how to increase their consumption of fruits/vegetables, whole grains, increase physical activity, and learn how to purchase and prepare healthy, low-cost foods. Effective teaching techniques for working with diverse audiences are also emphasized. As a result of the training, volunteers reciprocate a minimum of 30 hours annually their first year by supporting Extension Educators through education and outreach efforts. In 2013, 154 volunteers reached 16,401 adults and youth statewide, contributing 4,656 volunteer hours through demonstrations at farmers' markets, home food preservation workshops, health/wellness programs, nutrition/healthy cooking programs and physical activity programs. The time volunteered equates to an approximate value of $103,083.84 (hours*22.14/hour; independent sector estimate). Additional trainings are planned for 2014, and it is estimated 50 new volunteers will join this program.

Volunteers report that they have increased daily consumption of fruits/vegetables and are increasing daily physical activity. A volunteer joined the local Extension Leadership Council and several improved public speaking skills. In addition, some supervised the canning section of their county fair.

External funding sources in the amount of $17,930 provided program support. Some of these sources include City of Alexandria, Roanoke County Libraries, VCE Family Nutrition Program, Grow Appalachia, Floyd Health Community Action Team grant, Girls on the Run, Portsmouth General Hospital Foundation, Prince William Schools.

Seven new audiences and 6 new partnerships were established. Some of these include 4-H summer enrichment classes, Project Learning Tree, ESL Hispanic middle school students; Childcare Center training with LEAP and Organ Wise with Nutrition Outreach Instructors. New partnerships include Roanoke City Schools, Roanoke Valley Libraries, and local worksites.

The Junior Master Food Volunteer Teen Mentor Program is currently being piloted to reach more youth through VCE's 4-H youth healthy living initiatives. The Virginia Cooperative Extension Master Food Volunteer Program (adapted from Kansas State University) incorporates an extensive 30-hour peer reviewed curriculum training, with 32 lesson plans/presentations, and supplemental teaching resource In 2013, this program was implemented in Floyd County and will continue to expanded statewide in 2014 Teen mentors gain knowledge of how to increase their consumption of fruits/vegetables, whole grains, increase physical activity, and learn how to purchase and prepare healthy, low-cost foods through completing the Teen Cuisine curriculum.

In addition, teens are further trained on youth leadership skills including history of Cooperative Extension and Virginia Cooperative Extension, risk management, youth development, presentations/demonstrations, and working with diverse audiences. As a result of the training, teen mentors reciprocate a minimum of 15 hours annually their first year by supporting youth/adult partnerships through education and outreach efforts.

Teen Mentor Volunteer Support: In 2013, 5 Teen Mentors reached 42 youth, contributing 23 volunteer hours through a 4-H day camp, What's Cooking, in Floyd County. Additional volunteer trainings are planned for 2013, and it is estimated a total of 10 - 20 new teen volunteers will join the Junior Master Food Volunteer Teen Mentor program.

Teen Leadership Development: The Teen Mentors have reported that they have increased their consumption of fruits, vegetables, and grains. They also indicate that they are drinking fewer sugary drinks and have increased their level of physical activity.

During summer 2014, the teen Mentors provided leadership during a What's Cookin' Day Camp in Floyd with the 4-H Youth Development Agent and Family and Consumer Sciences Agent. During this day camp, the Teen Cuisine curriculum was featured and each teen was responsible for teaching at least one lesson plan from this curriculum.

During 2014, a Teen Mentor will be creating small books for preschoolers with activities to encourage them to eat more vegetables. In addition, all of the Teen Mentors plan to assist with an after-school series at the local library for elementary schoolchildren to focus on preparing healthy food snacks.

External Funding: External funding in the amount of $2,000 from the Svoboda Foundation and New River Community Foundation was obtained to provide volunteer training and program support.

2013 Junior Master Food Volunteer Teen Mentor Program Reaches More Youth through Family and Consumer Sciences and 4-H Youth Development Programs.

The Centers for Disease Control and Prevention report 62% of adult Virginians and 17% of youth are overweight or obese and at risk of chronic disease. The CDC also cites studies that suggest obese youth are more likely to become obese adults. Adult obesity is associated with a number of serious health conditions including heart disease, diabetes, and some cancers. There is a critical need for educating consumers to improve overall health and quality of life in Virginia. Virginia Cooperative Extension (VCE) Family and Consumer Sciences (FCS) and 4-H Youth Development agent educators provide youth volunteer and mentor training with a food, nutrition, health focus and emphasis on leadership. As resources continue to diminish, trained teen mentors can help expand program delivery by educating more youth participants and freeing the FCS and 4-H Educator' time to develop new audiences and programs.

The Junior Master Food Volunteer Teen Mentor Program is currently being piloted to reach more youth through VCE's 4-H youth healthy living initiatives. The Virginia Cooperative Extension Master Food Volunteer Program (adapted from Kansas State University) incorporates an extensive 30-hour peer reviewed curriculum training, with 32 lesson plans/presentations, and supplemental teaching resource In 2013, this program was implemented in Floyd County and will continue to expanded statewide in 2014 Teen mentors gain knowledge of how to increase their consumption of fruits/vegetables, whole grains, increase physical activity, and learn how to purchase and prepare healthy, low-cost foods through completing the Teen Cuisine curriculum.

Teen Mentor Volunteer Support: In 2013, 5 Teen Mentors reached 42 youth, contributing 23 volunteer hours through a 4-H day camp, What's Cooking, in Floyd County. Additional volunteer trainings are planned for 2013, and it is estimated a total of 10 - 20

new teen volunteers will join the Junior Master Food Volunteer Teen Mentor program. Teen Leadership Development: The Teen Mentors have reported that they have increased their consumption of fruits, vegetables, and grains. They also indicate that they are drinking fewer sugary drinks and have increased their level of physical activity.

Key Items of Evaluation

Because of increased attention and community assement identified need, Virginia Cooperative Extension hired two agents whose job responsibilites focus entirely on food safety and food safety education. Additionally, VCE hired two regional FCS agents who focus entirely on local foods and local food systems.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Natural Resources, Environment, and 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
102	Soil, Plant, Water, Nutrient Relationships	10%	0%	30%	0%
111	Conservation and Efficient Use of Water	5%	0%	5%	0%
112	Watershed Protection and Management	15%	15%	20%	0%
123	Management and Sustainability of Forest Resources	20%	30%	15%	0%
124	Urban Forestry	5%	15%	5%	0%
125	Agroforestry	0%	15%	0%	0%
131	Alternative Uses of Land	15%	15%	0%	0%
133	Pollution Prevention and Mitigation	5%	0%	0%	100%
135	Aquatic and Terrestrial Wildlife	8%	0%	10%	0%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%	0%	5%	0%
403	Waste Disposal, Recycling, and Reuse	10%	0%	0%	0%
605	Natural Resource and Environmental Economics	7%	10%	10%	0%
	Total	100%	100%	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	20.5	1.0	22.6	0.0
Actual Paid Professional	34.6	1.3	49.3	1.0
Actual Volunteer	14390.0	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**
1072975	292381	803607	265319
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1123650	420536	2116315	303035
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2729396	901984	10924327	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Primary outputs from this program include the following: developing and delivering educational programs such as short courses, workshops, field days and tours, seminars, conducting applied research and link with extension, develop and maintain demonstration areas, developing collaborative partnerships with government officials, state agencies, non-governmental organizations, developing and disseminating educational materials such as extension bulletins, journal articles, conference proceedings, webinars, trade journal articles, DVD's, and developing and maintaining web based educational materials such as short courses, web sites, discussion boards.

2. Brief description of the target audience

Farmers, forest owners, loggers, Christmas tree growers, youth, homeowners, mill owners and workers, private consultants and companies, local **and national** governmental officials, **scientists and extension educators,** private landowners, waste water treatment operators, state and federal agencies, nongovernmental organizations, professional associations and societies, and community groups.

3. How was eXtension used?

The program has three Extension efforts.

1. Forest Farming eXtension Community of Practice - This project uses eXtension to create a national virtual community to synthesize and deliver synchronous and asynchronous forest farming educational programs, encourage and inform forest farming initiatives, compile comprehensive forest farming data, incorporate cutting-edge technology, and equitably address social and biophysical variability. eXtension's optimization metrics capture the community's characteristics, resources, behaviors, and activities.

2. Wood Products Community of Practice- Web site: http://www.extension.org/wood_products Description: The goal of the Wood Products CoP is to disseminate knowledge on the design, production, management, marketing, and environmental impact of wood products to small and large wood products manufacturers

3. Geospacial: Map@syst - Map@Systis a community of practice devoted to the outreach and education for geospatial technologies and their application to today's world. The Map@syst community provides information on using geospatial technologies and how geospatial technologies are making a difference in peoples' lives. may@syst is responsible for the Geospatial Technology resource area within eXtension.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	109382	116981	54214	2726

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	41	108	149

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational programs offered.

Year	Actual
2013	1712

Output #2

Output Measure

- Number of educational materials and curriculas developed

Year	Actual
2013	149

Output #3

Output Measure

- Number of applied research projects.

Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Acres of land exposed to educational programming efforts.

Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Identifiable impacts reported by agents/specialists

Year	Actual
2013	193

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increased number of people adopting at least one new or improved land management practices.
2	Improved natural resource industries that contribute to community viability.
3	Number of participants learning about the quality of their private water supply and about private water system maintenance by participating in a county-based Virginia Household Drinking Water Program water testing clinic.
4	Increase in the number of individuals who gain knowledge as certified nutrient management planners in turf and landscape systems.
5	Increase in the number of acres covered by nutrient management plans in turf and landscape systems due to participation in Extension educational programs.
6	Increase in the tons of compost produced from organic wastes typically land-applied (manure, biosolids) or land-filled (yardwaste, biosolids, industrial sludge) as a result of increased knowledge and skills.
7	Increase in the number of people directly impacted by new or improved land management practices
8	Increased public awareness of climate change, biodiversity, and ecosystem services.
9	Increased number of stakeholders involved in community natural resource management and decision-making.
10	Increase program participants understanding of raw material conversion and modern business management practices.
11	The general public, landowners, and loggers use the forest in alternative and traditional ways to increase value and profit.
12	Increase in the number of acres directly impacted by new or improved land management practices.
13	Increase basic and applied knowledge relating to ecological processes and global climate change
14	Coupled Biochemical/Biophysical Systems to Remove Contaminants from Shallow Groundwater
15	Sequencing the Poison Ivy Transcriptome. In search of the blue print to itchiness.
16	Property Value Effects of Residential Stormwater Infrastructure
17	Salt Tolerance of Mycorrhizal Sorghum

Outcome #1

1. Outcome Measures

Increased number of people adopting at least one new or improved land management practices.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Improved natural resource industries that contribute to community viability.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of participants learning about the quality of their private water supply and about private water system maintenance by participating in a county-based Virginia Household Drinking Water Program water testing clinic.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	8200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Contrary to the perception of universal access to safe drinking water supplies in the United States, notable struggles to provide access to healthy water remain, particularly among rural communities reliant on privately supplied drinking water systems (e.g. wells). Not surprisingly, as water quality in these systems is not regulated, a recent report by the Centers for Disease Control

noted that while the overall number of waterborne disease outbreaks is declining nationally, the proportion of outbreaks associated with privately supplied systems has increased recently and is of serious concern.

The average person uses as much as 100 gallons of water a day. Imagine having to regularly test water quality and maintain your own water system.

Nearly one quarter (22%) of Virginia's population (1.7 million people) rely on private water supply systems, such as wells, springs and cisterns, for their household water. The majority of households in 60 of Virginia's 95 counties rely on private water systems. In the US, public water supplies are regulated under the Safe Drinking Water Act by the Environmental Protection Agency, which mandates regular testing and water treatment. Homeowners who use private water supplies are completely responsible for routine testing, system maintenance and addressing any water quality problems, should they exist. Lack of knowledge about private water supply management and water quality issues may lead to system neglect and a lack of regular water testing, which can have serious implications for water quality, longevity of the water supply system, and, ultimately, the health and safety of the families who rely on these systems.

What has been done

The Virginia Household Water Quality Program conducted by Virginia Cooperative Extension works to improve the water quality and health of Virginians with private water supplies such as wells, springs, and cisterns. Drinking water clinics are held across the state to give people with private water systems access to affordable water testing, help interpret their test results, and provide the resources to address problems, if needed.

The goal is to provide Virginians reliant on wells and springs with objective information about their water quality and the care and maintenance of their water systems. The program empowers them to be better-informed consumers and better able to make good decisions when it comes to regular testing, water treatment, and system care, and ultimately, protect their health and property values.

Clinics begin with an introduction to household water system care. Key points are water quality risk factors and proper maintenance. Extension agents then train participants to collect their own water samples with provided testing kits. After participants collect their water samples, the samples are taken tested. An interpretation meeting is held to review each participant's results with them.

Results

Since 2008, Extension has conducted 63 drinking water clinics with participants from 81 Virginia counties and tested water samples for about 8,200 people. Twenty-one drinking water clinics serving 27 counties were held in 2013. Eleven counties received funding from a USDA-Rural Health and Safety Education grant. About 1,270 private water supply systems were tested, which provide water for 2800 Virginians. Over 80% of clinic participants reported they have never tested their water, or tested only once before. Statewide, almost half (44%) of all samples did not meet the EPA standard for public systems for total coliform bacteria, and 9% didn't meet the standards for E. coli. One-fifth of samples exceeded the recommended level for lead in first draw samples. An evaluation is conducted immediately after the clinic to find out what actions, if any, participants plan to take in the following year. In 2013, results of a follow-up phone survey comprised of 500 people who participated in clinics between 2009 and 2011 (RR=30%). These results showed that people were actually more likely to take action than they indicated in the post-clinic surveys. According to the phone survey data, 70% of respondents took some action and 64% took more

than one action. Specifically, 38% sought additional testing, 52% pumped out septic tank, 34% performed maintenance on well, 36% shock-chlorinated their well, and 34% purchased water treatment equipment or improved function of existing equipment. It is estimated that if 9% of the private wells were contaminated and these families needed to purchase bottle water to avoiding health and safety concerns it would over $200M/yr to replace their water. These are conservative estimates assuming the 153,000 people consumer 1.5 L/day and the cost of bottle water was $2.50/L. If these private sources of water had to connect to public sources or new systems developed, the cost would be much more. By using effective treatment and management strategies the program participant are developing safer, efficient and cost effective water systems.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #4

1. Outcome Measures

Increase in the number of individuals who gain knowledge as certified nutrient management planners in turf and landscape systems.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Increase in the number of acres covered by nutrient management plans in turf and landscape systems due to participation in Extension educational programs.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Increase in the tons of compost produced from organic wastes typically land-applied (manure, biosolids) or land-filled (yardwaste, biosolids, industrial sludge) as a result of increased knowledge and skills.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Increase in the number of people directly impacted by new or improved land management practices

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Forestland owners 65 years and older own 41% of Virginia's 10 million acres of private forestland. High land values and taxes cause many heirs to sell land to meet financial obligations; a major force behind an annual loss of 27,000 forested acres. Virginia is on the cusp of the largest inter-generational transfer of family forests ever and landowners need to know how to protect their land. A common barrier to estate planning is using planning tools and having confidence in knowing where to start.

What has been done
To generate awareness of this issue, previous landowner programs have included brief conservation planning sessions and mass media informed the general public. Focusing on Land Transfer to Generation 'NEXT', a 12-hour in-depth short course, was piloted. Program design draws from national curricula and local experts to initiate participant planning. Four short courses have been delivered throughout the Northern District. One hundred sixteen individuals representing 63 family units have completed the course which utilizes the expertise of private legal and financial professionals, conservation specialists and extension agents.

Results
Following short-course participation, landowners can better articulate their land transfer goals and have begun planning. Participants indicated the program would increase the likelihood of their property staying in the family (84 %) and staying in woodland (74 %). Follow-up surveys reveal that in the 6 months following the short-course, over 77% have begun estate planning. Participants estimate an average family savings of $625,000 as a result of this program. As these landowners continue executing their plans, nearly 47,000 acres of land is expected to remain open and family owned. The program has been recognized as one of the most successful land-transition programs by Virginia Department of Agriculture and Consumer Services and fellow

educators have adopted this model.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
124	Urban Forestry
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife
403	Waste Disposal, Recycling, and Reuse

Outcome #8

1. Outcome Measures

Increased public awareness of climate change, biodiversity, and ecosystem services.

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Increased number of stakeholders involved in community natural resource management and decision-making.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Threats to Virginia's forests, waterways, and wildlife have raised concerns about conservation and management of natural resources. Public involvement can expand natural resource agencies' ability to complete more projects that maintain, restore, and monitor natural resources and to educate adults and youth about the natural world. The Virginia Master Naturalist Program is a statewide corps of volunteers providing education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities. Every year, interested Virginians become Master Naturalists through training and volunteer service.

What has been done

The Virginia Master Naturalist (VMN) program, a corps of trained volunteers, provides education, outreach, and service to better manage natural resources and natural areas in Virginia. Volunteer training includes a minimum of 40 hours of classroom and field time in ecology, natural resource management, basic natural history of the animals and plants of Virginia, and skills for teaching and field research. There are currently 29 chapters located throughout the state. An additional 8 hours of advanced training and 40 hours of volunteer service are also required to become certified or re-certified. Volunteer service hours are recorded in four primary areas: education, stewardship, citizen science, and administration. In 2013, the Central Blue Ridge Chapter (MNP-CBR), expanded membership to 36 members by conducting a training series in 2013. Each year members provide volunteer time to better educate the public in wildlife and natural resource conservation.

Results

These volunteers have received 16,211 hours in advanced training. They have also contributed significant volunteer time in the areas of education (20,148 hours), citizen science (24,873 hours), stewardship (20,602 hours), and chapter administration (16,146 hours). These hours amount to $2,014,788 based on the monetary value of volunteer time from the Virginia Employment Commission. Since the program's inception in 2006, these volunteers have contributed 396,300 hours of service with a value of $8,977,388 to the Commonwealth of Virginia. As an example of a local chapter, the MNP-CBR provided instruction to 11 trainees. Eight projects were highlighted by the Chapter. The training alone was made possible by the volunteer efforts of 22 people who together gave 675 hours of community service. Project work by the current 36 MNP volunteers accounts for 1155 hours of community service. Statewide, the MNP has 2,029 members (i.e., individuals that have taken the basic training course and have paid annual dues) and 1,207 active members (i.e., individuals that have taken the basic training course, paid annual dues, and submitted volunteer hours). Our volunteers have received 16,211 hours in advanced training. They have also contributed significant volunteer time in the areas of education (20,148 hours), citizen science (24,873 hours), stewardship (20,602 hours), and chapter administration (16,146 hours). These hours amount to $2,014,788 based on the 2012 monetary value of volunteer time from the Virginia Employment Commission (2013 value not released until April 2014).

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
124	Urban Forestry

Outcome #10

1. Outcome Measures

Increase program participants understanding of raw material conversion and modern business management practices.

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

The general public, landowners, and loggers use the forest in alternative and traditional ways to increase value and profit.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Forests are Virginia's primary land cover. Because 68% of the Commonwealth's forests are privately owned, private forest landowners (PFLs) are an important link to meet the Commonwealth's goal that Virginia's natural resources will be enhanced. Regionally, private forestland stewardship is a priority issue in the Northern District Forestry and Natural Resources Situation Analysis. Extension's Northern District holds 3.5 million acres of these woodlands. Traditionally, PFLs have been difficult to reach because of their sheer numbers and short ownership tenure. As land continues to be sold and divided into smaller pieces, forestland ownership is turning over. On average, a given piece of woodland will have a new owner every seven years or less. As a result, there is a continual need to educate new landowners and acquaint them with professional assistance availability. Research into landowner decision making highlights the importance of planning, professional assistance and peer influence to increase stewardship while meeting society's demands.

What has been done

A variety of educational offerings provide forest landowners with learning and networking opportunities. Annual Landowners' Woods & Wildlife Conferences and Forestry and Wildlife Bus Tours showcase good management practices and connect landowners with local natural resource professionals. Peer-to-peer learning is facilitated through the Piedmont Landowners Association (PLA), a volunteer lead association that offers monthly educational and networking opportunities. Additional outreach targets forest landowners through online and printed media such as the On-line Woodland Options Course.

Results

An average of 500 landowners, representing approximately 20,000 forested acres, participates in at least one educational offering each year. Participants of management related programs indicated an increase in knowledge and an intention to put practices into place. Follow-up evaluations reveal various implementations such as, completed management plans, controlled invasive plants, improved wildlife habitat and conducted successful timber sales. Approximately 30% of program participants contact a natural resource professional following educational events. One landowner, following recommendations from class, increased the value of his timbersale 150% from $20,000 to $50,000. Due to rapid turnover of landowners in the region, the task of educating landowners is insurmountable through traditional means. The PLA functions as a networking hub and regular education venue for landowners to enhance the management of their land to achieve economic and environmental goals. Average attendance to the monthly meeting included 15 individuals from Rappahannock, Culpeper, Orange, Madison and Greene Counties. The formation of this group has spawned leadership growth in the current and past president who have effectively advocated for forestry interests at the local and regional level. Members have also begun volunteering for Extension Programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
403	Waste Disposal, Recycling, and Reuse

Outcome #12

1. Outcome Measures

Increase in the number of acres directly impacted by new or improved land management practices.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Increase basic and applied knowledge relating to ecological processes and global climate change

Not Reporting on this Outcome Measure

Outcome #14

1. Outcome Measures

Coupled Biochemical/Biophysical Systems to Remove Contaminants from Shallow Groundwater

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Denitrifying bioreactors are an emerging technology for nitrogen attenuation that function by supporting ubiquitous soil denitrifiers. Although successful nitrogen removal has been observed in these field scale systems, the majority of studies do not measure denitrification directly. With the lack of data, incomplete denitrification resulting in nitrous oxide emission has been recognized as a potential drawback to implementation. The goal of this research is to optimize complete denitrification while minimizing green house gas emission. Denitrification is quantified and the ratio of the products is compared to environmental factors and carbon media treatment to elucidate design principles for more effective bioreactors.

What has been done
We have developed and demonstrated enhanced nutrient removal (via denitrification, P precipitation and sorption) from several nutrient reduction systems already installed on the Coastal Plain of VA and MD. Intensive agricultural activity on productive Coastal Plain soils can elevate N and P concentrations in groundwater. Indeed, we have consistently measured NO3 levels > 20 mg L-1 and P levels > 2.5 mg L-1, both of which are well above the environmental threshold for eutrophication in surface water. The systems we have developed and demonstrated function under a variety hydro-climatic conditions and influent concentrations and require relatively little maintenance, making them ideally suited for remediation of diffuse nutrients. Additionally, the limited footprints of these systems remove little agricultural land from production and thus might be more palatable to producers than other nutrient reduction strategies.

Results
The overarching goal of the proposed work is to apply original research improve the health of water resources, with a particular focus on the Chesapeake Bay, by contributing to the development of denitrifying bioreactors that can be implemented strategically within the watershed as highly cost effective component of a broader management scheme to mitigate

nonpoint source pollution. Contribution to routine analysis of dissolved gas profiles, employed here to quantify denitrification, and may prove valuable to many aspects of water resources research including nutrient cycling, microbial processes, and characterization of groundwater. Specific results of the project include:
1) 6 installed biofilters/bioreactors, which have allowed us to quantify N reductions as high as 90% and P reductions of up to 60%
2) A novel method to quantify denitrification products, including harmful greenhouse gases.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

Outcome #15

1. Outcome Measures

Sequencing the Poison Ivy Transcriptome. In search of the blue print to itchiness.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Poison ivy is a native noxious plant common across the eastern United States. Most people whose skin comes into contact with any part of the poison ivy plant develop swollen, itching, blistering, and oozing skin rashes that last for several weeks. Poison ivy grows well in forests, grasslands, and managed landscapes. Moreover, it was shown that in response to increased carbon dioxide levels poison ivy grows faster, produces more biomass, and makes even more toxic forms of the rash-inducing urushiol. Although the chemical structure of urushiol has been known for decades, there are astonishingly few details about urushiol metabolism in poison ivy. However, more detailed knowledge about urushiol biosynthesis in poison ivy might lead to novel strategies for decreasing urushiol levels in poison ivy populations.

What has been done

Researchers at Virginia Tech is researching various aspects poison ivy molecular biology and chemical ecology. The advent of Next Generation DNA sequencing (NextGen) technologies provide new opportunities to determine the genetic blue prints encoding the metabolic machinery of any living organism. To this end, we took poison ivy seeds and germinated plants that were free from all microbes and extracted out the genetic material (i.e. blue prints?) encoding all the metabolic machinery in poison ivy leaves. Using NextGen DNA sequencing technologies the isolated poison ivy genetic material was translated into digital information that is read by computers to establish the genetic blue prints (genes) responsible for producing all the proteins and enzymes produced in the poison ivy leaves, so called transcriptome. This work was supported by a joint grant from the Virginia Bioinformatics Institutes and Fralin Life Sciences Institutes to the Jelesko lab. Now that we have all the metabolic genes expressed in poison ivy leaves, it is a matter of narrowing the search down to the handful of genes that are the blue prints for making the metabolic machinery responsible for producing urushiol.

Results

A total of 83,165 different protein coding sequences were identified in the poison ivy leaf transcriptome. This number represents not only all the expressed genes, but also includes multiple versions of many genes (e.g. different alleles and gene splice variants). This new knowledge about poison ivy transcriptome is an unprecedented resource for investigating the molecular biology and regulation of urushiol production in poison ivy. By understanding how urushiol is produced in poison ivy, we can begin to develop novel approaches to reduce or stop urushiol production as a means of mitigating the negative impacts of this noxious plant that is expected to become more invasive and more toxic during future climate change.

4. Associated Knowledge Areas

KA Code	Knowledge Area
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals

Outcome #16

1. Outcome Measures

Property Value Effects of Residential Stormwater Infrastructure

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In many areas of the country, urban storm water runoff is a growing water quality problem. To improve storm water programs, regulatory officials are now placing greater emphasis on reducing the volume of runoff. Called green infrastructure or low-impact development, storm water control is increasingly focused on reducing the amount of urban impervious land cover and using vegetative conveyance systems and infiltration areas to reduce negative environmental impacts. While many green infrastructure practices reduce capital infrastructure costs, less is known about the opportunity costs and pecuniary benefits to developers from implementation of green infrastructure to reduce storm water effects.

What has been done

Our research looked at a hedonic property-value model of residential property sale prices regressed on property and location characteristics, which include differing infrastructure design features that affect storm water runoff (street widths, cul-de-sacs, curb and-gutters). The data include 1,360 single-family property transactions in Hanover County, Virginia that occurred in 1995 and 1996.

Results

Results suggest that prohibiting curb-and-gutters and cul-de-sacs would impose an opportunity cost on developers; buyers are willing to pay 1.3 and 7.8% property-price premiums for homes located on a street with a cul-de-sac and curb-and-gutters, respectively. Constructing narrower streets would provide a pecuniary benefit to developers because people would pay approximately 3.5% more for these properties.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics

Outcome #17

1. Outcome Measures

Salt Tolerance of Mycorrhizal Sorghum

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sorghum an important crop, especially in countries of the semiarid tropics of Asia and Africa where it is being used both as a cash crop and staple food source. In 2010, world-wide production of sorghum exceeded 556 million tons; the United States ranked first by producing 9.7 million tons. Other producers including Nigeria, India, Sudan, Ethiopia, Australia Brazil, China (in total 15 counties) produced a substantial amount of sorghum. Although the U.S. exports most of its sorghum, many developing counties consume all of theirs internally. Sorghum is used for making bread, porridge, syrup, cake, cuscus, tortilla, cereal, etc.; and most recently the US is exploring its value as a source of green energy for the production of gasohol. There is great potential for farmers in southeast Virginia to invest in sorghum production both for human consumption (as a gluten-free crop) and forage for animals as well as for the production of syrup and gasohol.

What has been done
At Randolph farm, Virginia State University scientists have been exploring the possible interaction between soil fungi and sorghum plants which could benefit sorghum by helping it adapt to dry and salty environments. The interaction produces a ?fungus-root? mass termed mycorrhizae; which defines the symbiotic relationship that forms between specific fungus and plant species. It is a natural process whereby both parties benefit without causing harm to each other. In this case, the fungus-root system helps the sorghum plant absorb more nutrients and water by increasing the surface area of the root, while the fungus benefits from the sugar that the sorghum plant provides through photosynthesis.

Results
Both greenhouse and field studies conducted at Randolph Farm indicated that mycorrhizae does form in sorghum plants, which helped sorghum to tolerates salt concentrations up to 200 mg/L. In fact, low level of salt (80 ppm) had stimulating effect in sorghum growth regardless of inoculation. Demonstration plots in the field also indicated better growth and yield in mycorrhizal than in non-mycorrhizal sorghum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The business income and natural resource management derived could be affected by natural disasters, changes in the economy, government regulations and public policy changes. The number of acres of land subject to best management practices/conservation plans affected by government regulations and changes in the economy. If greater emphasis is placed on water and environmental quality then even more widespread implementation of these practices will be encouraged. These factors may have immediate impact as they significantly influence items such as production economics, industry infrastructure, marketing systems, and consumer demand. Good economic conditions encourage consumption of value added products and enjoyment of the natural resources. In Virginia, increasing petroleum values in traditional businesses and logistics are a significant challenge. The recent increase in bioenergy production and anticipated future growth of this alternative fuel sources will likely have major impacts. Scope of such impacts is unknown, but anticipated direction has influenced this planned program.

Changes in global food production capacity, energy costs, and epidemic diseases could have unpredictable effects. All external factors affecting personal discretionary spending will affect the implementation of environmentally sound natural resources practices and the number of managers. Natural disasters may affect producers directly but also will affect and impacted natural resource managers. The general economy, public policy and governmental regulations impact production and sales of forestry products. Appropriations and competing programmatic challenges affect the dedication of personnel and programs to the described programs. Population changes affect supply and demand for forestry products.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The goal of the Virginia Household Water Quality Program (VAHWQP) is to improve the water quality and health of the 1.7 million Virginians who rely on private water supplies (wells, springs, and cisterns) for their household water. Many homeowners do not realize that routine testing and maintenance are required, and this lack of knowledge can harm the longevity of water systems, water quality, property values, health and safety of the families who rely on these systems, and ultimately the overall quality of the shared groundwater

resource.

Through county VAHWQP drinking water clinics, homeowners collect their own water samples, which are analyzed on campus for 12 chemical and 2 bacteriological constituents. Approximately 4 weeks later, test reports are confidentially returned to participants during an interpretation meeting, where a trained extension agent delivers a presentation that explains the water test results and recommendations for maintenance of water systems and protection of water quality. Participants are provided with recommendations specific to their drinking water quality and system that they would not receive otherwise. Since December 2008, 71 drinking water clinics have been conducted across Virginia, testing water supplies serving over 9,100 people. Statewide, almost half (44%) of all samples did not meet the EPA standard for public systems for total coliform bacteria, and 9% didn't meet the standards for E. coli. One-fifth of samples exceeded the recommended level for lead in first draw samples. An evaluation is conducted immediately after the clinic to find out what actions, if any, participants plan to take in the following year. In 2013, we finalized the results of a follow-up phone survey with 500 people who participated in clinics between 2009 and 2011 (RR=30%) and found encouraging results. People were actually more likely to take action than they indicated in the post-clinic surveys. According to the phone survey data, 70% of respondents took some action and 64% took more than one action. Specifically, 38% sought additional water quality testing, 52% pumped out their septic tank (a potential source of bacterial pollution to the well if not maintained), 34% performed maintenance on well, 36% shock-chlorinated their well, and 34% purchased water treatment equipment or improved function of existing equipment. Eighty percent of participants indicated they would share what they learned as a result of participating in the VAHWQP drinking water clinic with others.

Key Items of Evaluation

In 2013, we finalized the results of a follow-up phone survey with 500 people who participated in clinics between 2009 and 2011 (RR=30%) and found encouraging results. People were actually more likely to take action than they indicated in the post-clinic surveys. According to the phone survey data, 70% of respondents took some action and 64% took more than one action. Specifically, 38% sought additional water quality testing, 52% pumped out their septic tank (a potential source of bacterial pollution to the well if not maintained), 34% performed maintenance on well, 36% shock-chlorinated their well, and 34% purchased water treatment equipment or improved function of existing equipment. Eighty percent of participants indicated they would share what they learned as a result of participating in the VAHWQP drinking water clinic with others.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Strengthening Virginia Families

☑ 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
602	Business Management, Finance, and Taxation	0%	5%	0%	0%
607	Consumer Economics	0%	10%	0%	0%
724	Healthy Lifestyle	0%	30%	0%	0%
801	Individual and Family Resource Management	55%	25%	0%	0%
802	Human Development and Family Well-Being	40%	30%	0%	0%
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	0%	0%	0%
	Total	100%	100%	0%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	12.6	1.0	14.1	0.0
Actual Paid Professional	39.5	1.0	0.0	0.0
Actual Volunteer	1191.0	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**
490503	380869	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
513669	287353	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1247724	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

To address the Strengthening Virginia Families planned program, we:

1. Conducted workshops in human development, parenting education, child care provider training, housing, and individual and family resource management
2. Delivered services in individual and family resource management
3. Developed print and electronic resources in human development, housing, and individual and family resource management
4. Provided and distributed available resources, including eXtension, in human development, housing, and individual and family resource management
5. Provided professional and volunteer development training in child care, parenting, and individual and family financial management
6. Provided counseling in financial management
7. Partnered with local, regional and state agencies, organizations, faith-based groups, etc.
8. Facilitated meetings of task forces, coalitions, committees, addressing human development, housing, and/or individual and family financial management needs

2. Brief description of the target audience

Parents, grandparents, adult home caregivers, child care providers and early childhood educators, providers of after-school care, community organizations, community partners, community leaders and government officials, youth, donors, K-12 educators, homeowners, limited-resource individuals and families, and volunteers.

3. How was eXtension used?

The resources available through eXtension sources were used to both enhance community-based education and aliviate time spent on requests for assistance that were of a basic, and purely informational, nature. eXtension is referenced as a source for information in our classes and publications (where applicable) and Ask-the-Expert functionality is supported on our web pages. There is also an Ask-the-Expect link on our publications page. In addition the eXtension CoP framework was used to develop and host webinars, FAQ, and other published materials to increase the reach and audience of each program listed:

1. Parenting
2. Child Care
3. Family Caregiving
4. Individual and Family Financial Management
5. Youth Financial Education
6. Healthy Home Environments

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	32902	62908	16161	1012

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	1	41	42

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of trainings, educational workshops, and on-line education sessions for VCE's targeted audiences.

Year	Actual
2013	1400

Output #2

Output Measure

- Number of fact sheets, publications, newspaper articles, and curricula on families and communities.

Year	Actual
2013	214

Output #3

Output Measure

- Number of adults engaged in community-based leadership development education.
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of communities partnering with Virginia Cooperative Extension faculty to address emerging issues (i.e. land use, agritourism, bioenergy, youth gangs, and others).
  Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Number of workshops, activities, or programs offered to address emerging issues.
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Number of adults engaged in facilitation skills training.
  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- The number of volunteers completing training to become Master Financial Education Volunteers.

Year	Actual
2013	163

Output #8

Output Measure

- Number of individuals and families completing basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program, and implementing practices to reduce the chance for identity theft after receiving instruction.

Year	Actual
2013	3294

Output #9

Output Measure

- Number of youth attending educational programs conducted on basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing.

Year	Actual
2013	7681

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Parenting Education - Increase the percentage of parenting education participants that indicate increased knowledge of effective parenting practices, such as nurturing and guiding children, understanding basic child development, reducing family conflict and managing stress, and knowing how to access available community resources to meet family needs.
2	Parenting Education - Increase the percentage of parenting education participants that adopt developmentally appropriate, effective parenting practices, such as nurturing and guiding children, and actively seeking to manage stress and reduce family conflicts.
3	Child Care Provider/Early Childhood Training - Increase the percentage of early childhood professional development participants that indicate increased knowledge of core competency areas, such as basic child development, appropriate child observation and assessment, effective interaction strategies, and effective learning environments.
4	Child Care Provider/Early Childhood Training - Increase the percentage of early childhood professional development participants that improve their early childhood learning environment by making practice changes, such as implementing developmentally-appropriate learning practices, interaction practices and observation assessment strategies.
5	Facilitation Skills Training - Increase the percentage of trained volunteers and citizens participating in facilitation skills training that indicate improved knowledge and skills as a result of participation.
6	Leadership Development Education - Increase the percentage of adult citizens participating in leadership development education programs that indicate improved knowledge and skills as a result of participation.
7	Youth Financial Education - Increase the number of youth learning the basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.
8	Adult Financial Education - Increase the number of individuals completing basic financial management strategies including budgeting, setting financial goals, establishing a saving/investing program.
9	Master Financial Volunteers - The number of programs and one-on-one counseling sessions offered by Master Financial Education Volunteers.

Outcome #1

1. **Outcome Measures**

Parenting Education - Increase the percentage of parenting education participants that indicate increased knowledge of effective parenting practices, such as nurturing and guiding children, understanding basic child development, reducing family conflict and managing stress, and knowing how to access available community resources to meet family needs.

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Parenting Education - Increase the percentage of parenting education participants that adopt developmentally appropriate, effective parenting practices, such as nurturing and guiding children, and actively seeking to manage stress and reduce family conflicts.

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Child Care Provider/Early Childhood Training - Increase the percentage of early childhood professional development participants that indicate increased knowledge of core competency areas, such as basic child development, appropriate child observation and assessment, effective interaction strategies, and effective learning environments.

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Child Care Provider/Early Childhood Training - Increase the percentage of early childhood professional development participants that improve their early childhood learning environment by making practice changes, such as implementing developmentally-appropriate learning practices, interaction practices and observation assessment strategies.

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Facilitation Skills Training - Increase the percentage of trained volunteers and citizens participating in facilitation skills training that indicate improved knowledge and skills as a result of participation.

Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

Leadership Development Education - Increase the percentage of adult citizens participating in leadership development education programs that indicate improved knowledge and skills as a result of participation.

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Youth Financial Education - Increase the number of youth learning the basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.

2. **Associated Institution Types**

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	7681

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to Jump $tart Coalition's bi-annual survey of high schoolers, financial literacy among teens has fallen to its lowest level with a score of 48 percent. American college graduates scored slightly higher with a score of 65 percent. Only 25 percent of young adults are graduating from college. This means that 75 percent of adults are likely to lack skills to make educated financial decisions. Virginia has responded by requiring students to take economics and personal finance

to graduate with a standard or advanced studies diploma.

What has been done

VCE used several approaches to educate students about sound money management skills and the financial planning process and to help them begin developing positive behaviors necessary to attain financial maturity and achieve a secure future. VCE offered Reality Store simulations, Kids Marketplace simulations, NEFE High School Financial Planning programs, Real Money Real World and Camp Millionaire. Each of these programs offers hands-on learning in an environment that correlates to Standards of Learning and educational mandates.

Results

About 7,681 youth attended financial education programming, and 654 volunteers contributed 2,725 hours worth $62,403. Reality Store evaluations revealed: 93% increased awareness of making smart financial decisions, and 97% understood that insurance and a savings account can help with emergency plans. Real Money, Real World programs participants in middle school said they learned a lot about how every spending decision affects other spending decisions (79%) and 80% learned a lot about what type of education it takes to get the job they want. Four agents conducted Kids Marketplace programs where 87% learned to choose what they need not want, 91% learned that different jobs have different salaries and 87% gained new ideas on how to handle money. A participant commented: "Now I understand why my parents have to say no sometimes."

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #8

1. Outcome Measures

Adult Financial Education - Increase the number of individuals completing basic financial management strategies including budgeting, setting financial goals, establishing a saving/investing program.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	788

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The well-being of Virginians depends on individual and family financial capacity. Evidence shows that education on financial topics is an important issue in Virginia. In 2011, the number of non-business bankruptcy filings was 33,076. Virginia ranks 26th in bankruptcy filings nationwide. As of November 2012, 1 in every 1,345 households in Virginia received a foreclosure filing with Fairfax and Virginia Beach having the highest rates. One in every 9 Virginians lives at or below the poverty level.

What has been done
Fourteen VCE educators and 163 volunteers provided financial education programs to 3,294 low and moderate income individuals and families, incarcerated individuals, recent immigrants, and homeowners facing foreclosure. Financial mentoring was also provided. Financial volunteers contributed 6,526 hours worth $147,487.60. VCE also collaborated with many state, local, faith-based and non-profit organizations, public housing developments, colleges and financial institutions.

Results
The number of evaluation responses for the end-of session evaluations varied from 143 for the question on reading insurance policies to 788 for the question on reviewing credit reports annually. Participants indicated changes they planned to make as a result of the programs, including the following: 40% had written short term goals before the program, 88% planned to do so afterwards; 26% had paid themselves first for savings before the program, 84% planned to do so afterwards; 31% had read and understood their insurance policies before the program, 93% planned to do so afterwards; 17% had calculated the percentage of their income going to debt repayment before the program, 91% planned to do so afterwards; 36% had a plan for paying down debt before the program, 87% planned to do so afterwards.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #9

1. Outcome Measures

Master Financial Volunteers - The number of programs and one-on-one counseling sessions offered by Master Financial Education Volunteers.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	6929

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is an urgent need to increase economic challenges facing Virginia families. Financial literacy is one promising strategy. High school students average a failing grade of 48 percent on a Jump$tart Coalition financial literacy exam. In 2011, there were 33,076 non-business bankruptcy filings in Virginia. One-tenth of Virginians reported using high cost, short term loans to make ends meet. In 3rd quarter 2013, there was a 36 percent increase in real estate bank repossessions, and one of every 2126 households received a foreclosure filing.

What has been done

In 2011, state specialist Celia Hayhoe and the Family Financial Management Leadership Team revamped the Master Financial Education Volunteer Program to standardize training across the state. Volunteers receive a minimum of 20 hours of classroom training and in return give back a minimum of 40 hours. Since that time, the pool of Master Financial Education Volunteers has steadily grown. FCS agents trained 163 in 2013 compared to 75 in the year prior.

Results

In 2013, existing and new volunteers gave back 6526 hours by conducting one-on-one financial counseling sessions, assisting at Reality Store, Kids Marketplace, and poverty simulations, teaching youth money management workshops, leading financial classes for adults on topics such as budgeting, getting out of debt, preventing identity theft, saving strategies, insurance, investing, and retirement planning, and teaching Money Talk: a financial course for women. Further, the addition of new volunteers prompted many FCS agents to expand their program to include volunteer coordinators, newsletters, and annual in-service training thus maximizing program delivery. Overall, volunteers helped over 6929 individuals to improve their financial skills. For outstanding achievement of VCE's financial volunteer program, one agent and her team won the coveted National Dean Don Felker Financial Management Award.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

In 2013, local government budgets were strained once again. After several years of having a very limited staff available to serve in this planned program area, positions that had been vacant were able to be filled. Coupled with the growth of a master financial volunteer program, this allowed for outcomes in some knowledge areas, such as individual and family resource management and youth financial education, to be realized. In the knowledge area of human development and family well-being, some competing public priorities may limit the number of programs provided, as the same staff assigned to deliver these programs are asked to address financial management and food, nutrition and health issues.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

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About 7,681 youth attended financial education programming, and 654 volunteers contributed 2,725 hours worth $62,403. Reality Store evaluations revealed: 93% increased awareness of making smart financial decisions, and 97% understood that insurance and a savings account can help with emergency plans. Real Money, Real World programs participants in middle school said they learned a lot about how every spending decision affects other spending decisions (79%) and 80% learned a lot about what type of education it takes to get the job they want. Four agents conducted Kids Marketplace programs where 87% learned to choose what they need not want, 91% learned that different jobs have different salaries and 87% gained new ideas on how to handle money. A participant commented: "Now I understand why my parents have to say no sometimes."

Key Items of Evaluation

Adults particating in financial management programs indicated changes they planned to make as a result of the programs, including the following: 40% had written short term goals before the program, 88% planned to do so afterwards; 26% had paid themselves first for savings before the program, 84% planned to do so afterwards; 31% had read and understood their insurance policies before the program, 93% planned to do so afterwards; 17% had calculated the percentage of their income going to debt repayment before the program, 91% planned to do so afterwards; 36% had a plan for paying down debt before the program, 87% planned to do so afterwards.

Financial managment programs were delivered to 7,681 youth in various formats. Reality Store evaluations revealed: 93% increased awareness of making smart financial decisions, and 97% understood that insurance and a savings account can help with emergency plans. Real Money, Real World programs participants in middle school said they learned a lot about how every spending decision affects other spending decisions (79%) and 80% learned a lot about what type of education it takes to get the job they want. Four agents conducted Kids Marketplace programs where 87% learned to choose what they need not want, 91% learned that different jobs have different salaries and 87% gained new ideas on how to handle money. A participant commented: "Now I understand why my parents have to say no sometimes."

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Youth Development

☑ 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
806	Youth Development	100%	100%	0%	0%
	Total	100%	100%	0%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	100.6	2.0	0.0	0.0
Actual Paid Professional	87.5	1.3	0.0	0.0
Actual Volunteer	16659.0	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
2299232	369749	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
2407822	272411	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
5848706	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities include leadership, civic engagement, 4-H camping programs (overnight and day), 4-H after-school programs, 4-H in-school programs, 4-H school enrichment programs, 4-H clubs (community and military), 4-H special interest programs, 4-H Cloverbud groups, district 4-H trainings, local

4-H trainings, home school education, online education and distance learning, and specialized trainings and workshops to qualify instructors and to educate trainers.

2. Brief description of the target audience

Youth between the ages of 5-19

3. How was eXtension used?

eXtension is used as a resource by agents and volunteers for training purposes and to answer questions (ask an expert). All Virginia 4-H Youth Development Specialists are listed as an expert in their respective specialty
areas within eXtension. Thus, they regularly receive and answer questions from all across the United States on their specialty areas.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	159151	205254	762319	319509

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	26	1	27

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of trainings, educational workshops, and on-line education sessions for VCE's targeted audiences

Year	Actual
2013	16603

Output #2

Output Measure

- Number of fact sheets, publications and curricula on youth development.

Year	Actual
2013	504113

Output #3

Output Measure

- Number of members enrolled in-school, after-school, community clubs, special interest activities, 4-H military programs, and camps.

Year	Actual
2013	80188

Output #4

Output Measure

- Number of youth engaged in leadership development education.

Year	Actual
2013	22492

Output #5

Output Measure

- Number of youth involved in structured after school programming.

Year	Actual
2013	7851

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	4-H Camping - Increase the number of 4-H youth, or parents of youth that report a positive change in responsibility and social development as a result of participation in a 4-H camp.
2	4-H Citizenship - Increase the number of 4-H youth participating as volunteers and through community service that demonstrate teamwork skills and community commitment.
3	4-H Animal Science - Increase the number of 4-H youth and adults participating in animal science programming that demonstrate increased knowledge of raising animals in a responsible, ethical, and economically viable manner.
4	4-H Communication and Expressive Arts - Increase the number of 4-H youth participating in communication and expressive arts programming that demonstrate increased self-efficacy in public speaking, presentations, visual arts, and performing arts.
5	4-H Foods, Nutrition and Health - Increase the number of 4-H youth participating in foods, nutrition, and health programs that demonstrate healthy living choices.
6	4-H Natural Resources and Environmental Education - Increase the number of 4-H youth participating in natural resources and environmental education programs that demonstrate environmentally responsible behavior.
7	4-H Plants, Soils and Entomology - Increase the number of 4-H youth participating in plant, soils, and entomology programming that learn the interconnectedness of organisms and their environment.
8	4-H Science, Engineering and Technology - Increase the number of 4-H youth that demonstrate increased knowledge, skills, aspirations, and attitudes in STEM programming.
9	4-H Careers and Consumer Education - Increase the number of 4-H youth that increase their awareness of potential career pathways through service learning programs and/or through the 4-H college fair.
10	4-H Careers and Consumer Education - Increase the number of 4-H youth that indicate increased knowledge/skills related to economic education and/or entrepreneurship.
11	4-H Leadership and Personal Development - Increase the number of 4-H youth that demonstrate leadership knowledge by participating in a leadership position on the club, county, state, or national level.
12	4-H Character Counts! - Increase the number of 4-H youth or parents of youth that indicate a positive change in behavior as a result of participating in 4-H Character Counts! programming.
13	4-H Adult Leaders - Increase the percent of adult 4-H volunteers participating in leadership and volunteer development trainings that indicate increased knowledge and skills in implementing 4-H programming as a result of participation.

Outcome #1

1. Outcome Measures

4-H Camping - Increase the number of 4-H youth, or parents of youth that report a positive change in responsibility and social development as a result of participation in a 4-H camp.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	14000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The goal of 4-H camping is to provide positive youth development experiences using hands-on learning in a safe setting facilitated by caring adults. ?Organized camping? is a sustained experience that provides a creative, recreational, and educational opportunity in group living in the out-of-doors. In essence, 4-H camping is cooperative group living in a natural environment, which focuses on the individual?s social, spiritual, mental, and physical development.

What has been done
In 2013, the state of Virginia hosted 184 camps with over 14,000 participating at the 6 4-H Educational Centers as well as other locations across the Commonwealth. These numbers include Junior 4-H Camp, Teen Camps, Cloverbud Camps, and Specialty Camps (i.e. STEM, Shooting Education, Arts).

Results
Post camp surveys indicate that campers ages 9-13 report increasing their independence as a result of attending 4-H camp by 17%. The survey also indicated a 14% increase in youth working as a team, a 12% increase in youth taking responsibility for their actions, and finally a 15% increase in youth expressing their opinion with others.

Out of a total of 1,854 randomly surveyed 4-H Jr. Campers, 97 % indicated they would come back next year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

4-H Citizenship - Increase the number of 4-H youth participating as volunteers and through community service that demonstrate teamwork skills and community commitment.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	52534

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A number of studies have documented the impact of international exchange programs on participants, host families, & the host institutions. Tritz & Martin (1997) suggested that exposure to a country, its people & culture, will have an impact on anyone who has studied abroad. As a result of the exposure, perceptions are changed, thoughts challenged, & most important, a worldly perspective is garnered.

What has been done
Through a wide variety of citizenship programs including the International Exchange programs, in school programs, cooperative programs with local government, 4-H Day at the Capitol as well as club service and citizenship projects, youth were given the opportunity to participate in a variety of citizenship and service projects as well as learn more about their local, state and federal government. Youth also engaged in learning experiences by hosting and interacting with foreign exchange students at a variety of 4-H events.

Results
In Virginia over 52,000 youth participated in citizenship projects. In one particular county, of the 500 youth participating in citizenship, 90% indicated that 4-H had increased their interest in civic involvement and 85% stated that they experienced a greater sense of empathy and understanding of other cultures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

4-H Animal Science - Increase the number of 4-H youth and adults participating in animal science programming that demonstrate increased knowledge of raising animals in a responsible, ethical, and economically viable manner.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

4-H Communication and Expressive Arts - Increase the number of 4-H youth participating in communication and expressive arts programming that demonstrate increased self-efficacy in public speaking, presentations, visual arts, and performing arts.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

4-H Foods, Nutrition and Health - Increase the number of 4-H youth participating in foods, nutrition, and health programs that demonstrate healthy living choices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	91164

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Centers for Disease Control (CDC) & Prevention report that 62% of adult Virginians & 17% of youth (2-19 years of age) are overweight or obese & at risk of chronic disease. Given the link between obesity & diabetes, it is expected that one in three children will be diagnosed with Type 2

Diabetes in their lifetime. Furthermore, according to the Campaign for Tobacco-Free Kids, 15% (66,100) of high school students reported that they currently use tobacco products & in one year alone, 15.2 million packs of cigarettes will be bought by Virginia?s youth.

What has been done

Good nutrition, physical activity, & healthy lifestyle choices are critical to healthy weights, fitness levels, & avoidance of risky behaviors such as drug, alcohol, & tobacco usage among youth. VCE is well-positioned to help ensure that Virginians are fit to serve in all capacities & lower healthcare costs, given its mission, history, & existing partnerships. Through interdisciplinary programming efforts, Virginia 4-H delivers numerous healthy living programs to improve the overall health and quality of life of Virginia youth.

Results

Teen Cuisine was delivered to & evaluated by 73 teens. Based on post-tests, 80% indicated they drank less soda & 89% more water. 76% ate more fruits & vegetables, 69% more whole grains, 67% less junk food & less saturated fat. Each of the five Jr. Master Food Volunteer Teens reciprocated a minimum of 15 hours by supporting youth/adult partnerships through education & outreach efforts & reaching 42 youth through a 4-H Day Camp. Of the 3,769 youth who received a minimum of 10 hours of Health Rocks! programming, 95% increased their knowledge in identifying the signs, long-term effects & influence of drug use. 90% indicated changes in their beliefs & attitudes about drugs, alcohol, & healthy living & 85% increased their skills & confidence in resisting peer pressure & making healthy lifestyle choices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

4-H Natural Resources and Environmental Education - Increase the number of 4-H youth participating in natural resources and environmental education programs that demonstrate environmentally responsible behavior.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

4-H Plants, Soils and Entomology - Increase the number of 4-H youth participating in plant, soils, and entomology programming that learn the interconnectedness of organisms and their environment.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #8

1. Outcome Measures

4-H Science, Engineering and Technology - Increase the number of 4-H youth that demonstrate increased knowledge, skills, aspirations, and attitudes in STEM programming.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	92146

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A mere 5 percent of current us college graduates earn science, engineering, or technology degrees compared to 66% in Japan and 59% in China. Current scientists and engineers are retiring in record numbers.
To ensure global competitiveness, we must act now to prepare the next generation of science, engineering, & technology leaders.

What has been done
The 4-H Science, Engineering, & Technology initiative is our response to our nation?s & state?s concern for improving human capacity & workforce abilities in the areas of science, engineering, math & technology. It combines non-formal education with hands-on inquiry based learning in a youth development context, to increase the number of new scientist. Programs such as Kids' Tech University, Catfish in the Classroom, 4-H Intermediate Congress & the Future You Imagine help in forwarding a diverse group of students in that direction.

Results
Of the 872 youth surveyed participating in STEM programming: 92% of participants reported an improvement in their understanding of the importance of STEM. 95% of participants reported a greater appreciation of STEM in their everyday lives. 75% of participants reported an increase in their interest in STEM. Teachers and parents reported that the programming offered was beneficial to the youth & provided a variety of opportunities for students to be exposed to STEM in new ways. The teachers also reported that it helped the youth to meet the Virginia SOLs in Science, especially in regards to the Methods of Science which the 4-H Science Fair emphasizes.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #9

1. Outcome Measures

4-H Careers and Consumer Education - Increase the number of 4-H youth that increase their awareness of potential career pathways through service learning programs and/or through the 4-H college fair.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

4-H Careers and Consumer Education - Increase the number of 4-H youth that indicate increased knowledge/skills related to economic education and/or entrepreneurship.

Not Reporting on this Outcome Measure

Outcome #11

1. **Outcome Measures**

4-H Leadership and Personal Development - Increase the number of 4-H youth that demonstrate leadership knowledge by participating in a leadership position on the club, county, state, or national level.

Not Reporting on this Outcome Measure

Outcome #12

1. **Outcome Measures**

4-H Character Counts! - Increase the number of 4-H youth or parents of youth that indicate a positive change in behavior as a result of participating in 4-H Character Counts! programming.

Not Reporting on this Outcome Measure

Outcome #13

1. **Outcome Measures**

4-H Adult Leaders - Increase the percent of adult 4-H volunteers participating in leadership and volunteer development trainings that indicate increased knowledge and skills in implementing 4-H programming as a result of participation.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes

Brief Explanation

External factors that affected outcomes in 2013 include:

Economy - As areflection of the national economic downturn, Virginia families have lost jobs, homes and have been displaced emotionally affected.

Appropriations Changes - Fortunately, we have been able to hire some new 4-H agents over the last year however, they are still in the process of being trained and still learning the system.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Relevance

Positive youth development focuses on targeting life skills that youth need to be successful, contributing members of society. The Community Network for Youth Development identifies development of independence skills as an important step in youth learning to be productive, connected and to navigate the world. In an increasingly structured and supervised environment, youth need opportunities to practice independence skills including decision-making, problem-solving and communicating with each other.

Response

Independence is fostered through attending short term residential camping programs. Youth attending 4-H Junior Camp develop independence by practicing decision making through daily programming activities, choosing schedules and making personal living choices. Problem-solving skills are enhanced through camp classes, living in a group enviroment and participating in group activities. Communication skills are addresses as youth work with teen and adult volunteers to develop activities, prepare team challenges and plan their day.

Results

Post camp surveys indicate that campers ages 9-13 report increasing their independence as a result of attending 4-H camp by 17%. The survey also indicated a 14% increase in youth working as a team, a 12% increase in youth takig responsibility for their actions, and finally a 15% increase in youth expressing their opinion with others.

Key Items of Evaluation

Out of a total of 1,854 randomly surveyed 4-H Jr. Campers, 97% indicated they would come back next year.

What do the campers say?
"...take responsibility for my actions" - 71%
"...work as a team" - 68%
"...make new friends" - 63%
"...make decisions for myself" - 60%
"...enjoy learning new skills" - 71%
"...enjoy helping others" - 69%
"...express my opinions with others" - 56%

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Childhood Obesity

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in Food, Nutrition and Health Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	5.1	1.0	5.7	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct educational classes, workshops, short courses, meetings, seminars, and trainings for children, parents, teachers, school food service workers, and health and other professional groups; develop curriculum, newsletters, and other educational resources; establish and implement train-the-

trainer models to promote educational opportunities; facilitate local and statewide coalitions and/or task forces; conduct assessments and community surveys; partner with community agencies and institutions to facilitate programs and community development; contribute to the creation/revision of social systems and public policies; conduct research studies and disseminate program and research results to both the professional community and lay public through journal articles, papers, reports, and public media; develop and implement marketing strategies using various outlets to promote program participation and reinforce other activities, with special attention to underserved and disadvantaged audiences; disseminate research-based information to lay audiences and address emerging needs using a variety of media and innovative technology resources; cooperate with media and other community agencies to seek effective means of targeting new and non-traditional audiences; and respond to consumer inquiries.

Programs will be behaviorally-focused and help facilitate children and youth meeting the current U.S. Dietary Guidelines for Americans. Recommendations include: A) **consuming more healthy foods** such as: vegetables, fruits, whole grains, fat-free or low-fat milk and milk products,seafood, lean meats and poultry, eggs, beans and peas, and nuts and seeds; B) **consuming less foods/food components that are commonly eaten in excess** such as: sodium, solid fats, added sugars, and refined grains; and C) **following healthy eating patterns** such as: eating breakfast, eating as a family, making healthy snack choices, etc.

2. Brief description of the target audience

Childhood Obesity: young children (ages 2 - 5 years); school-age children; adolescents; parents, foster parents, and grandparents; caregivers (in-home and for-profit day care providers); teachers and other school faculty for young children, youth, and adolescents; school nutrition directors and staff; school wellness committees; school nurses and other health care providers; and Extension educators.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	7	7	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of children and youth participating in Extension nutrition education, physical activity, or other obesity-prevention programs at childcare centers, schools, after school programs, camps, or other settings.

Year	Actual
2013	0

Output #2

Output Measure

- Number of families, caregivers participating in Extension nutrition education, physical activity, or other obesity-prevention programs.

Year	Actual
2013	0

Output #3

Output Measure

- Number of Head Start and preschool teachers, elementary and secondary school teachers, school nurses, school nutrition directors, and school health and wellness committee members participating in Extension trainings to implement nutrition education, physical activity, and other obesity-prevention programs for children and youth.

Year	Actual
2013	0

Output #4

Output Measure

- Number of children and youth who are exposed to nutrition education, physical activity, or other obesity-related messages from extension-led social marketing campaigns.

Year	Actual
2013	0

Output #5

Output Measure

- Number of policy changes implemented to support healthy eating and physical activity guidelines for children and youth.

Year	Actual
2013	0

Output #6

Output Measure

- Number of environmental changes implemented to support healthy eating and physical activity guidelines for children and youth.

Year	Actual
2013	0

Output #7

Output Measure

- Number of active research projects on the development or adoption of healthy eating and physical activity guidelines and childhood obesity.

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of children and youth who report eating more healthy foods.
2	Number of children and youth who report eating less of foods/food components which are commonly eaten in excess.
3	Number of children and youth who report adopting healthier eating patterns.
4	Number of families/caregivers who report eating more healthy foods.
5	Number of families/caregivers who report eating less of foods/food components which are commonly eaten in excess.
6	Number of families/caregivers who report adopting healthier eating patterns.
7	Number of children and youth who report increasing their physical activity
8	Number of children and youth who report decreasing sedentary activity (i.e. screen time).
9	Number of children and youth who report engaging daily in 60 minutes of physical activity.
10	Number of children, youth, and families/caregivers who report spending time together in physical activity.

Outcome #1

1. Outcome Measures

Number of children and youth who report eating more healthy foods.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of children and youth who report eating less of foods/food components which are commonly eaten in excess.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Number of children and youth who report adopting healthier eating patterns.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Number of families/caregivers who report eating more healthy foods.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #5

1. Outcome Measures

Number of families/caregivers who report eating less of foods/food components which are commonly eaten in excess.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #6

1. Outcome Measures

Number of families/caregivers who report adopting healthier eating patterns.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #7

1. Outcome Measures

Number of children and youth who report increasing their physical activity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #8

1. Outcome Measures

Number of children and youth who report decreasing sedentary activity (i.e. screen time).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #9

1. Outcome Measures

Number of children and youth who report engaging daily in 60 minutes of physical activity.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #10

1. Outcome Measures

Number of children, youth, and families/caregivers who report spending time together in physical activity.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Loss of county agents)

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Food Safety

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Food, Nutrition and Health Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	13.9	0.8	15.4	1.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct educational classes, workshops, meetings, and trainings, develop products, curriculum, resources, facilitate coalitions and/or task forces, conduct assessments and community surveys, partner with community agencies and institutions to facilitate programs and community development, create/revise

social systems and public policies, conduct research studies, disseminate program and research results through papers, reports, and media, develop and implement marketing strategies using various outlets to promote program participation, disseminate research-based information to consumers using a variety of media and technology resources, cooperate with media and other community agencies to seek effective means of reaching new and non-traditional audiences, and respond to consumer inquiries.

2. Brief description of the target audience

Retail and food service employees, retail and food service management, temporary food vendors, child care providers, young adults (ages 25-59), older adults (ages 60 and older), Extension educators, **other researchers, policy makers** and commercial food processors.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	3	5	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- The number of food handlers (managers, supervisors, and food handling personnel from restaurants, public school and hospital cafeterias, daycare centers, nursing homes, farmers markets, university foodservice, correctional centers, civic/community groups and volunteers) completing food safety training offered by extension educators in Virginia

Year	Actual
2013	0

Output #2

Output Measure

- Number of home-based food business workshops conducted for food product formulation, facility planning, food processing and safety, product evaluation, food packaging and labeling, and record keeping.

Year	Actual
2013	0

Output #3

Output Measure

- Number of short-courses provided on food safety practices including HACCP training, Good Agricultural Practices and recall workshops to industry personnel, consumer organizations, Extension Agents and to local, state, and federal health inspectors

Year	Actual
2013	0

Output #4

Output Measure

- Number of research projects completed or in progress in the area of food safety.

Year	Actual
2013	0

Output #5

Output Measure

- Food Safety - Number of home based business entrepreneurs that have products evaluated for their safety by the 'Food Processor Technical Assistance Program' to prevent foodborne illness across the commonwealth.

Year	Actual
2013	0

Output #6

Output Measure

- Number of consumers completing home food preservation training offered by extension educators in Virginia

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase in the number of food handlers (managers, supervisors, and food handling personnel from restaurants, public school and hospital cafeterias, daycare centers, nursing homes, university food service, correctional centers, civic/community groups and volunteers) who increase knowledge and skills in safe food handling practices.
2	Increase in number of home-based business entrepreneurs that increase awareness and knowledge in producing safe high acid and acidified food products.
3	Increase in number of discoveries from completed food related research projects which focus on enhancing the safety of the Nation's food supply and the development of value added foods.
4	Increase in the number of consumers that increase their knowledge on how to safely preserve foods at home.
5	Increase in number of Virginia food producers and processors to implement pre and post harvest safety and quality assurance programs resulting in increased food safety and processing efficiency.

Outcome #1

1. Outcome Measures

Increase in the number of food handlers (managers, supervisors, and food handling personnel from restaurants, public school and hospital cafeterias, daycare centers, nursing homes, university food service, correctional centers, civic/community groups and volunteers) who increase knowledge and skills in safe food handling practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Increase in number of home-based business entrepreneurs that increase awareness and knowledge in producing safe high acid and acidified food products.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Increase in number of discoveries from completed food related research projects which focus on enhancing the safety of the Nation's food supply and the development of value added foods.

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Increase in the number of consumers that increase their knowledge on how to safely preserve foods at home.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #5

1. Outcome Measures

Increase in number of Virginia food producers and processors to implement pre and post harvest safety and quality assurance programs resulting in increased food safety and processing efficiency.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Global Food Security and Hunger - Agricultural Systems

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Agriculture Profitability and Sustainability Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	6.8	2.0	7.5	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments that educate and solve applied problems, establish partnerships to identify needs and develop solutions, conduct workshops, both traditional procedures and hands-on, and meetings to provide training for farmers and educators, organize and conduct state and regional

conferences, establish on-farm demonstrations, develop enterprise budgets, develop products, curriculum, and resources for use by educators and directly by producers, and conduct assessments as needed to evaluate progress

2. Brief description of the target audience

Commercial producers, 4-H youth, Master Gardeners, state and federal agency personnel, Extension educators, policy makers, consumers and supermarket chain store buyers.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	15	25	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of agriculture systems educator training workshops.

Year	Actual
2013	0

Output #2

Output Measure

- Number of agriculture systems field research experiments

Year	Actual
2013	0

Output #3

Output Measure

- Number of agriculture systems on-farm demonstrations

Year	Actual
2013	0

Output #4

Output Measure

- Number of agriculture systems producer training workshops

Year	Actual
2013	0

Output #5

Output Measure

- Number of existing and future nutrient management planners and educators trained

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percent increase in gross income from agriculture attributable to extension efforts.
2	Increase in farms and acres subject to organic management due to extension programming efforts which will increase overall profitability of organic agriculture (total annual sales).
3	Increase in the amount of agricultural land under best management practices due to extension programming efforts.
4	Increase in the number of individuals improving water quality and reducing erosion through participation in an advanced grazing system program.
5	Increase in the number of nutrient management plans, resulting in more efficient utilization of nutrients, and in the number of plan writers trained by Extension.
6	Increase the profitability (total annual sales) of small, part-time and limited resource farmers through sustainable production of specialty agriculture crops and livestock products.

Outcome #1

1. Outcome Measures

Percent increase in gross income from agriculture attributable to extension efforts.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Increase in farms and acres subject to organic management due to extension programming efforts which will increase overall profitability of organic agriculture (total annual sales).

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Increase in the amount of agricultural land under best management practices due to extension programming efforts.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Increase in the number of individuals improving water quality and reducing erosion through participation in an advanced grazing system program.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #5

1. Outcome Measures

Increase in the number of nutrient management plans, resulting in more efficient utilization of nutrients, and in the number of plan writers trained by Extension.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #6

1. Outcome Measures

Increase the profitability (total annual sales) of small, part-time and limited resource farmers through sustainable production of specialty agriculture crops and livestock products.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Global Food Security and Hunger - Animal and Animal Products

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Agriculture Profitability and Sustainability Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	20.2	2.0	22.4	5.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments, conduct workshops, meetings, trainings, develop publications, curriculum, resources, provide consultation, leadership, facilitation, partner with industry, and conduct needs assessment and impact.

2. Brief description of the target audience

The target audience includes animal owners, youth, Extension educators, allied industry personnel, consumers, policy-makers, and academic colleagues.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	5	10	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of animals and animal products educational meetings, workshops, conferences, training sessions, and field days

Year	Actual
2013	0

Output #2

Output Measure

- Number of animals and animal products fact sheets, publications, newsletters, and other print resources

Year	Actual
2013	0

Output #3

Output Measure

- Number of animal and animal products web sites, applications, and modules

Year	Actual
2013	0

Output #4

Output Measure

- Advances in basic and applied animal science as evidenced by programatic progress and publications

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percent increase in beef cattle marketed through value-added programs
2	Number of additional beef producers trained and certified for quality assurance/best management practices
3	Number of dairy herds improving milk quality by culturing quarter milk samples and implementing mastitis control procedures.
4	Number of swine producers receiving continuing education credit for best management practices
5	Number of youth adopting best practices related to animal agriculture through youth animal projects and events
6	Number of program participants acquiring knowledge on best management practices related to equine.
7	Percent increase in freshwater shrimp production by Virginia farmers utilizing best management practices
8	Percent increase in sales of pond raised fish due to adoption of best management practices.
9	Increased fish production via recirculating aquaculture system (RAS) and pond production techniques through innovative research and dissemination and application of results through VCE programming to producers.
10	Number of individuals who gain knowledge to improve small ruminant production.
11	Number of commercial poultry growers adopting biosecurity practices to lower the risk of disease transmission
12	Increasing knowledge of animal nutrition, health and production agriculture through research programs and publications.

Outcome #1

1. Outcome Measures

Percent increase in beef cattle marketed through value-added programs

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of additional beef producers trained and certified for quality assurance/best management practices

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Number of dairy herds improving milk quality by culturing quarter milk samples and implementing mastitis control procedures.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Number of swine producers receiving continuing education credit for best management practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #5

1. Outcome Measures

Number of youth adopting best practices related to animal agriculture through youth animal projects and events

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #6

1. Outcome Measures

Number of program participants acquiring knowledge on best management practices related to equine.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #7

1. Outcome Measures

Percent increase in freshwater shrimp production by Virginia farmers utilizing best management practices

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #8

1. Outcome Measures

Percent increase in sales of pond raised fish due to adoption of best management practices.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #9

1. Outcome Measures

Increased fish production via recirculating aquaculture system (RAS) and pond production techniques through innovative research and dissemination and application of results through VCE programming to producers.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #10

1. Outcome Measures

Number of individuals who gain knowledge to improve small ruminant production.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #11

1. Outcome Measures

Number of commercial poultry growers adopting biosecurity practices to lower the risk of disease transmission

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #12

1. Outcome Measures

Increasing knowledge of animal nutrition, health and production agriculture through research programs and publications.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Populations changes (immigration, new cultural groupings, etc.)
- Other (land values near urban areas)

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Global Food Security and Hunger - Biotechnology and Genomics

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Biotechnology, Biomaterials, and Energy Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	27.7	0.0	30.6	1.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Processes of research studies, dissemination of research results, papers and citations, commercialization of techniques and products, conduct research experiments, conduct workshops, meetings, develop products, resources, work with media and establish and sustain partnerships.

2. Brief description of the target audience

Research scientists, government officials, high school teachers, general public

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	50	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of biotechnology and genomics research projects in program areas

Year	Actual
2013	0

Output #2

Output Measure

- Number of peer reviewed biotechnology and genomics research papers published

Year	Actual
2013	0

Output #3

Output Measure

- Number of biotechnology and genomics presentations

Year	Actual
2013	0

Output #4

Output Measure

- Number of non-peer-reviewed biotechnology and genomics publications

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of projects to reduce impact of biotic and abiotic factors on food security
2	Number of projects to improve quality of food crop plants through genetic and metabolomic research
3	Projects manipulating genomes of insects vectoring diseases.
4	Number of research projects addressing genomes of animals

Outcome #1

1. Outcome Measures

Number of projects to reduce impact of biotic and abiotic factors on food security

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of projects to improve quality of food crop plants through genetic and metabolomic research

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Projects manipulating genomes of insects vectoring diseases.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Number of research projects addressing genomes of animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Global Food Security and Hunger - Agricultural Management, Marketing and Policy

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Agriculture Profitability and Sustainability Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.2	0.8	0.2	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research and educational programs will be conducted to support the needs of Virginians and Virginia farm and small business managers. Research in personal finance issues and evaluation of programming will be conducted to improve financial literacy. Research will be conducted to

develop knowledge of production and market systems. Research-based information will be disseminated via media and informational meetings. Decision aids, workshops, detailed curriculum, and distance educational methods will be used to support change in the overall behavior of learners.

2. Brief description of the target audience

Individuals, families, owners and managers of farms, and small businesses; local, state, and federal personnel and policy-makers; and private sector service suppliers are the targeted audiences.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	5	10	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of farmers creating succession/transition plans for their farm business

Year **Actual**

2013	0

Output #2

Output Measure

- Number of education programs conducted in farm and agribusiness management and risk management

Year	Actual
2013	0

Output #3

Output Measure

- Number of education programs conducted in marketing and direct marketing

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase the number of land owners who implement transition plans.
2	Increase the number of program participants (farmers, agricultural business managers and leaders, food processors, government agencies, and agribusiness firms) making more informed business and economic decisions.

Outcome #1

1. Outcome Measures

Increase the number of land owners who implement transition plans.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Increase the number of program participants (farmers, agricultural business managers and leaders, food processors, government agencies, and agribusiness firms) making more informed business and economic decisions.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

Global Food Security and Hunger - Family Nutrition Program

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Food, Nutrition, and Health Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.4	2.0	4.9	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Nutrition education will be taught to the target audience of impoverished Virginians with a comprehensive methodology. Participants completing the comprehensive programs will be assessed to determine that behavior change has been attained.

2. Brief description of the target audience

The target population is comprised of people who are SNAP and WIC participants as well as those who are eligible to participate in those programs. The youth participants attend schools that have a high percentage of students participating in the Free and Reduced Lunch program. People who have income more than 150% of the federal poverty guidelines are not enrolled as program participants. Frequently, participants have dropped out of school, have minimal job skills, have multiple health conditions, stemming from issues related to obesity and have many economic constraints due to poverty.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	2	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of sites where programming was delivered.

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase the number of adult participants who report that they ran out of food less often after participating in the Family Nutrition Program.

Outcome #1

1. Outcome Measures

Increase the number of adult participants who report that they ran out of food less often after participating in the Family Nutrition Program.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Global Food Security and Hunger - Local Food Systems

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in other the Food, Nutrition, and Health Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	8.5	1.0	9.4	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct consumer education workshops and training on food budgeting, the cost effectiveness of

local and regional foods, healthy eating and cooking skills
- Conduct educational programs on crop and livestock production specific to local marketing channels
- Conduct research on the social, economic and environmental impacts of local or regional food system to communities
- Conduct research on local or regional food system impact on the dietary and health of consumers
- Encourage collaboration and partnerships to improve food availability, food access, and consumption of fresh, nutritious local foods
- Provide educational programming on whole farm planning, resource management planning, marketing, food safety, and other educational needs to improve supply and availability of local foods.
- Develop and conduct a Virginia food system assessment and
- Continue to implement the Virginia Farm-to-Table Plan
- Organize and conduct, local regional and state conferences

2. Brief description of the target audience

The program's target audience is all residents of Virginia and those most susceptible to food insecurity and hunger, but with specific emphasis on producers, consumers and local food system stakeholders that can improve food availability and affordable access.

Consumers

Producers
Educators pre-K - 12
Governmental and community development officials
Extension educators
Food-based business owners
Farm-related business owners
Environmental professionals
Health and nutrition professionals
Retail and institutional food service
Processors and Distributors
Community advocates
Insititutional food service
Schools and universities

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	5	5	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of programs offered regarding local foods and community food systems.

Year	Actual
2013	0

Output #2

Output Measure

- Number of community gardens initiated to address local food security.

Year	Actual
2013	0

Output #3

Output Measure

- Number of farmers markets that Extension has worked with to improve food access through implementation Electronic Benefits (EBT) and Supplemental Nutrition Assistance Programs (SNAP)at farmers markets

Year	Actual
2013	0

Output #4

Output Measure

- Number of communities engaged in improving access to local foods for low-income and under-served audiences..

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase the number of local communities partnering with Virginia Cooperative Extension faculty to strengthen the connection between local agriculture producers and growers with local food-related businesses and purchasing institutions.
2	Number of community gardening programs implemented to address food insecurity/hunger issues.

Outcome #1

1. Outcome Measures

Increase the number of local communities partnering with Virginia Cooperative Extension faculty to strengthen the connection between local agriculture producers and growers with local food-related businesses and purchasing institutions.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of community gardening programs implemented to address food insecurity/hunger issues.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Competing Programmatic Challenges

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 16

1. Name of the Planned Program

Global Food Security and Hunger - Pest Management

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Agriculture Profitability and Sustainability Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	36.3	0.5	40.1	1.5
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Continue coordinated research aimed at integrated pest control and resulting in the basic and applied knowledge needed by the agricultural industry and general public. Conduct workshops, meetings, field tours, demonstrations, develop training media, training manuals, curriculum, resources,

provide training, provide counseling, conduct assessments, facilitate meetings, and document stakeholder input, partner with other state and federal agencies including VDACS, USDA, EPA, conduct pesticide disposal events and related activities, conduct on-line courses and hands-on activities, conduct research experiments and surveys, maintain websites, the VA Ag Pest Advisory, and phone assisted hotlines.

2. Brief description of the target audience

Consumers, landowners, homeowners, producers, producer groups, pesticide applicators seeking certification under federal and state laws, pesticide regulators, boards, commissions, and enforcement officials, local government, councils, and community groups, universities, colleges, K-12, youth aged 13-18, schools, advocacy and consumer protection groups and associations, pesticide safety educators, pest management specialists, and related experts, authors, journalists, other media specialists, institutional, industrial, and vector control groups and individuals, health/medical, environmental, and emergency response personnel and organizations, farm workers, migrants, and day-laborer groups and individuals, researchers, scientists, pesticide toxicologists, extension educators and related experts.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	10	25	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of non-peer reviewed outreach citations incorporating information on the most effective IPM strategies and systems for use on selected commodities and/or at selected sites

Year	Actual
2013	0

Output #2

Output Measure

- Number of private applicators trained for certification

Year	Actual
2013	0

Output #3

Output Measure

- Number of commercial applicators trained for certification

Year	Actual
2013	0

Output #4

Output Measure

- Number of private applicators trained for recertification

Year	Actual
2013	0

Output #5

Output Measure

- Number of commercial applicators trained for recertification

Year	Actual
2013	0

Output #6

Output Measure

- Number of non-certified applicators trained

Year	Actual

2013	0

Output #7

Output Measure

- Number of stakeholders enrolled in the IPM Stakeholder Network

Year	Actual
2013	0

Output #8

Output Measure

- Number of trainers and regulatory officials trained

Year	Actual
2013	0

Output #9

Output Measure

- Educational media website visits communicated through the Pesticide Safety Education website

Year	Actual
2013	0

Output #10

Output Measure

- Number of non-peer reviewed research citations incorporating information on the most effective IPM strategies and systems for use on selected commodities and/or at selected sites.

Year	Actual
2013	0

Output #11

Output Measure

- Number of presentations on IPM related topics.

Year	Actual
2013	0

Output #12

Output Measure

- Number of volunteer hours dedicated to pest management programming

Year	Actual
2013	0

Output #13

Output Measure

- Number of extended learners with four or more hours of contact related to pest management

Year	Actual
2013	0

Output #14

Output Measure

- Amount of revenue generated in dollars for pest management Extension and research programming

Year	Actual
2013	0

Output #15

Output Measure

- IPM publications for clientele including extension publications, manuals and guides, multi-media pieces, websites, newspaper and trade journal articles, and papers provided at production meetings and field days.

Year	Actual
2013	0

Output #16

Output Measure

- Number of samples evaluated by current and improved plant diagnostic methods

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals gaining knowledge of IPM through training course completion and/or examination
2	Number of applicators who gain knowledge in pesticide safety through certification training and pass the state certification exam(s).
3	Number of applicators who gain additional knowledge in pesticide safety through re-certification training and sufficient credit to maintain their certification
4	Number of applicators, farmworkers, and the general public who gain knowledge in general pesticide safety who are not seeking certification as pesticide applicators
5	Number of trainers who gain knowledge in pesticide safety and pesticide curriculum and program training in established train-the-trainer workshops
6	Through educational programming and collaborative efforts, support the collection and proper disposal of unwanted pesticides in Virginia localities.
7	Number of localities participating in a pesticide container recycling program.
8	Number of participants gaining knowledge about invasive NIS
9	Increase the number of stakeholders collaborating with pesticide regulatory information network and activities, which support the communication of the pest management needs of Virginia and regional agricultural interests to pesticide regulatory policymakers.
10	Increase in the number of facilities that are impacted in a positive way by IPM program activities.
11	Number of applicators who indicated that they understand that they need to comply with state and federal regulations as a result of VCE training.
12	Number of applicators who read pesticide labels and wear personal protective equipment as a result of VCE training.
13	Number of applicators who changed their use of application equipment or calibration to reduce spray drift as a result of VCE training.
14	More than 20% of commercial producers indicate that plant disease diagnosis and recommendations results in reduced pesticide use in their operations.
15	Pest monitoring programs result in cost and time savings and increased crop protection for an increasing number of acres
16	Using cultural practices and on-site weed identification clinics to improve management of disease and weed pests in the horticultural industry and urban environment.
17	Providing homeowners, ag agents and producers with rapid and accurate pest identification and educational materials, via the VA Plant Disease Clinic, to increase awareness and adoption of IPM practices

18	Minimizing the spread and impact of invasive weed species in urban settings, plant nurseries and agricultural landscapes
19	Using plant disease forecasting, advisories and non-chemical mitigation methods to reduce pesticide applications and increase profitability for vegetable producers.
20	Using advisories, pest monitoring, rapid communication systems and on-the-ground training demonstrations for managing corn earworm, stink bugs (native and invasive species) and other pests in soybean

Outcome #1

1. Outcome Measures

Number of individuals gaining knowledge of IPM through training course completion and/or examination

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of applicators who gain knowledge in pesticide safety through certification training and pass the state certification exam(s).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Number of applicators who gain additional knowledge in pesticide safety through re-certification training and sufficient credit to maintain their certification

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Number of applicators, farmworkers, and the general public who gain knowledge in general pesticide safety who are not seeking certification as pesticide applicators

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #5

1. Outcome Measures

Number of trainers who gain knowledge in pesticide safety and pesticide curriculum and program training in established train-the-trainer workshops

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #6

1. Outcome Measures

Through educational programming and collaborative efforts, support the collection and proper disposal of unwanted pesticides in Virginia localities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #7

1. Outcome Measures

Number of localities participating in a pesticide container recycling program.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #8

1. Outcome Measures

Number of participants gaining knowledge about invasive NIS

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #9

1. Outcome Measures

Increase the number of stakeholders collaborating with pesticide regulatory information network and activities, which support the communication of the pest management needs of Virginia and regional agricultural interests to pesticide regulatory policymakers.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #10

1. Outcome Measures

Increase in the number of facilities that are impacted in a positive way by IPM program activities.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #11

1. Outcome Measures

Number of applicators who indicated that they understand that they need to comply with state and federal regulations as a result of VCE training.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #12

1. Outcome Measures

Number of applicators who read pesticide labels and wear personal protective equipment as a result of VCE training.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area

{No Data}	null

Outcome #13

1. Outcome Measures

Number of applicators who changed their use of application equipment or calibration to reduce spray drift as a result of VCE training.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #14

1. Outcome Measures

More than 20% of commercial producers indicate that plant disease diagnosis and recommendations results in reduced pesticide use in their operations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #15

1. Outcome Measures

Pest monitoring programs result in cost and time savings and increased crop protection for an increasing number of acres

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #16

1. Outcome Measures

Using cultural practices and on-site weed identification clinics to improve management of disease and weed pests in the horticultural industry and urban environment.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done

{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #17

1. Outcome Measures

Providing homeowners, ag agents and producers with rapid and accurate pest identification and educational materials, via the VA Plant Disease Clinic, to increase awareness and adoption of IPM practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #18

1. Outcome Measures

Minimizing the spread and impact of invasive weed species in urban settings, plant nurseries and agricultural landscapes

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #19

1. Outcome Measures

Using plant disease forecasting, advisories and non-chemical mitigation methods to reduce pesticide applications and increase profitability for vegetable producers.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #20

1. Outcome Measures

Using advisories, pest monitoring, rapid communication systems and on-the-ground training demonstrations for managing corn earworm, stink bugs (native and invasive species) and other pests in soybean

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 17

1. Name of the Planned Program

Global Food Security and Hunger - Plants and Plant Products

☐ Reporting on this Program

Reason for not reporting

We changed our set of Planned Programs starting with 2013 reporting. The work in this area will be captured in the Agriculture Profitability and Sustainability Planned Program.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	32.1	1.5	35.5	4.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments on genetic improvement and manipulation of plants, bioprocessing, production systems, and BMP effectiveness. Contribute presentations and scholarly publications to regional, national, and international scientific organizations. Engage with clientele to adapt research

products to the production environment. Conduct multi-county and in-depth educational programs and short courses on new plants and plant products, their management, food safety issues, and associated BMPs. Collaborate with other state specialists to develop regional publications in these areas. Maintain demonstration plots of cultural practices, techniques and germplasm adaptability of selected crops. Publish (listserv, web, and mailing) newsletters to provide practical information on pest management, cultural practices, and other research-based aspects of plant management.

2. Brief description of the target audience

The target audience includes the scientific communiity, Extension educators, commercial producers, policy makers, small businesses, pesticide applicators, homeowners and other plant and food product consumers. Youth, their parents and limited income consumers are targeted through 4-H horticulture programs and community gardening efforts.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	15	35	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of plants and plant products educational presentations conducted

Year	Actual
2013	0

Output #2

Output Measure

- Number of plants and plant products volunteers

Year	Actual
2013	0

Output #3

Output Measure

- Number of plants and plant products research citations

Year	Actual
2013	0

Output #4

Output Measure

- Number of plants and plant products extension/outreach citations

Year	Actual
2013	0

Output #5

Output Measure

- Number of BMPs developed/updated

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase the number of commercial producers educated and adopting about new plants, cultivated varieties, production techniques or BMPs
2	Increase the number of noncommercial gardeners/producers educated and adopting new techniques or BMPs
3	Number of new cultivated varieties released
4	Increased number of acres dedicated to vegetable and fruit specialty crops to enhance agricultural profitability.
5	Increase in the number of commercial producers educated about the reuse, recycling and utilization of agricultural products agricultural plastics.
6	Increase the yield, input efficiency (fertilizer, fungicides, insecticides, herbicides, irrigation, etc.), and profit for Virginia vegetable, fruit, and ornamental plant producers

Outcome #1

1. Outcome Measures

Increase the number of commercial producers educated and adopting about new plants, cultivated varieties, production techniques or BMPs

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Increase the number of noncommercial gardeners/producers educated and adopting new techniques or BMPs

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Number of new cultivated varieties released

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #4

1. Outcome Measures

Increased number of acres dedicated to vegetable and fruit specialty crops to enhance agricultural profitability.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #5

1. Outcome Measures

Increase in the number of commercial producers educated about the reuse, recycling and utilization of agricultural products agricultural plastics.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #6

1. Outcome Measures

Increase the yield, input efficiency (fertilizer, fungicides, insecticides, herbicides, irrigation, etc.), and profit for Virginia vegetable, fruit, and ornamental plant producers

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}