2014 Virginia State University and Virginia Polytechnic Inst. & 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 continues with 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. There are eleven Program Teams coordinating state level programming, including situation analysis, program planning, program development, evaluation, and reporting for the Strategic Plan objectives aligned with it.

VCE has stabilized in growth to approximately 250 agents after several years of new appropriations from the Virginia General Assembly. District Program Leadership Teams made up of experienced agents representing all program areas, are providing training and mentoring to new agents on development, delivery and evaluation of programs. This effort is enhancing 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 2014 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	336.7	23.5	264.2	15.5
Actual	349.8	20.0	277.5	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

Virginia State University College of Agriculture has established a blue ribbon Advisory Council to provide guidance and advice to the Dean of the College of Agriculture, in particular, and to the College of Agriculture (COA) in general, to assist the College to meet the agricultural education, Extension and research needs of the residents of the Commonwealth of Virginia and as appropriate national and global needs. The College of Agriculture Advisory Council (CAAC) is composed of eighteen (18) members representing producers, business, agricultural experts, and other who have an interest in COA. At least five (5) of the Council members are producers representing a cross-section of agricultural enterprises served by COA. The members of the CAAC have been carefully selected; therefore, they will be able assist the Dean and the College of Agriculture (COA) in developing/enhancing a proper perspective of needs and expectations of the clientele and stakeholders of the College of Agriculture as well as in identifying resources that may be acquired to meet the challenges and exploit opportunities.

Evans-Allen Proposal Review

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 when developing a proposal.

Review of Full Evans-Allen Proposal - A full proposal is submitted by applicant(s) to the Director of Research for review. The Director then makes a determination on how the proposal is reviewed. It could be sent to external anonymous experts in the respective fields. The Director of Research's Office facilitates this process. 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.
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.

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, VCE Director from VT, VCE Administrat or 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 stakeholders 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, 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.

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.

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
7378869	2437898	5280051	2869724

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	8337126	2437898	4215959	2078624
Actual Matching	12054128	2534476	4891781	3093125
Actual All Other	23124820	3436856	53368739	1194824
Total Actual Expended	43516074	8409230	62476479	6366573

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
102	Soil, Plant, Water, Nutrient Relationships	10%	20%	10%	0%
111	Conservation and Efficient Use of Water	8%	0%	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%	20%	10%	0%
206	Basic Plant Biology	0%	0%	5%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	0%	5%	10%
212	Diseases 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%	15%	5%	15%
311	Animal Diseases	0%	7%	0%	0%
315	Animal Welfare/Well-Being and Protection	8%	0%	0%	0%
601	Economics of Agricultural Production and Farm Management	5%	10%	5%	0%
603	Market Economics	0%	13%	0%	0%
604	Marketing and Distribution Practices	0%	15%	0%	0%
606	International Trade and Development Economics	1%	0%	10%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Paid	120.0	10.5	184.4	8.5
Actual Volunteer	3091.0	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**
2956616	863127	2802225	1497595
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
4274787	1273482	3251423	1947982
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
8200815	1774752	35472635	641099

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. Information is shared and supported by involved in several COP's. For example, Animal Welfare, Apples, Bee Health, Beef Cattle, Community, Local and Regional Food Systems, Corn and Soybean Production, DAIReXNET, Farm Safety and Health, Goat Industry, Invasive Species, Pesticide Environmental Stewardship, Precision Agriculture, Sheep, Sustainable Ag Energy, Water Conservation for lawn and Landscape, and Youth Agriculture.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	369885	564636	100895	6852

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

Patent Applications Submitted

Year: 2014

Actual: 5

Patents listed

Plant Variety Protection of Wheat Cultivar 72014415
Plant Variety Protection of Wheat Cultivar Featherstone 73
Plant Variety Protection of Wheat Cultivar MCIA Venus
Plant Variety Protection of Wheat Cultivar Southern Harvest 3200
Use of Burkholderia contaminans MS14 and occidiofungin as a fungicide against plant pathogens.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	61	249	310

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
2014	5203

Output #2

Output Measure

- The number of peer-reviewed research publications published

Year	Actual
2014	249

Output #3

Output Measure

- The number of Extension publications published

Year	Actual
2014	7942

Output #4

Output Measure

- The amount of competitive grant funding received.

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

Peanut Variety and Quality Evaluation program results in increased profits

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Peanut Variety and Quality Evaluation (PVQE) is a key step towards development and release of Virginia-type peanut for Virginia, North Carolina, and South Carolina. In the PVQE small- and large- plot tests, our research group comparatively evaluate performance of all commercial varieties available on the market and a variable number of advanced breeding lines developed by North Carolina State University and Virginia Tech. These peanut genotypes are compared under optimum growth conditions and management practices for yield potential, grade and quality characteristics. As a result of this activity, one or two of the best performing peanut lines are released as new varieties every year. Research shows that location and year have a significant effect on lines' performance; therefore, replicated test plots are conducted at multiple locations and for at least three years before cultivar release. The PVQE is a USDA/AFRI multi-state project funded by the Virginia Tech, North Carolina State University, V-C Peanut Association, and the NC and SC Peanut Growers; it addresses the CALS mission to increase profitability and environmental sustainability through development of better adapted and better yielding peanut varieties for V-C region.

What has been done

Because its effectiveness in development of Virginia-type peanut varieties, the PVQE project has been around for over 40 years. Because of its importance, the PVQE was extended in the past few years to include South Carolina through collaboration with researchers and extension agents at Clemson University. A new stage of the multi-state PVQE with focus on development of high oleic peanut has been recently approved by the USDA to start in Oct. 2013 and end in Sep. 2018 and to include the University of Florida. Results of the PVQE project are equally used by breeders, researchers, growers, shellers and peanut processors, and constitute a base for education of county agents, growers and industry on varietal selection. Educational activities include various field days and presentations at professional and non-professional meetings every year. Over the years, a number of peanut varieties were released by Virginia Tech through this

program. Since I assumed the leadership of the PVQE the following peanut cultivars were released: 'Bailey' in 2008, 'Sugg' in 2009, and 'Titan' in 2010. In 2013, 'Sullivan' and 'Wynne' cultivars possessing the high oleic acid characteristic were released after being tested for three years in the PVQE. This way, not only that financial contribution of the project's participants is secured, but additional dividends are annually collected for the university, Tidewater AREC, and the PVQE & Crop Physiology program.

Results

Field trials in Virginia, North Carolina, and South Carolina were planted this year at five locations and seven environments. Each trial had 30 genotypes of peanut replicated 2 times. The 2014 results of the PVQE trials were distributed to over 200 participants. Based on these results, decisions on what varieties to be planted in the following year and what new varieties to be released are formulated. The 2008-2010 released cultivars seem to be promising, high yielding and disease tolerant cultivars. For example, Bailey and Sugg have become the predominant cultivars grown in the Virginia-Carolina region worth $16,842,516 more than other cultivars. 'Titan', a Virginia Tech release, is a specialty peanut with extra-big pods and kernels that yields a much higher proportion of larger kernels than many other Virginia-type varieties. The largest sized shelled kernels are called super extra-large, and are used by the local gourmet industry for shipment around the country and world. Many traditional varieties yield less than 5% super extra-large kernels. Cultivar 'Titan' yields 20% or more "supers". The premiums for "supers" are from $0.20 to $0.40 more per pound than for smaller kernels. Data and collaborators on this proposal including county agents, farmers, shellers, processors, and other industry can be identified at http://pubs.ext.vt.edu/.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)

Outcome #2

1. Outcome Measures

Water Recycling Systems enhance crop health and horticultural sustainability

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Safe water recycling is of paramount importance to addressing crop health, water shortage and nonpoint source pollution, three highly interconnected issues constantly facing the nation's $15 billion ornamental horticulture industry. Capture of agricultural runoff in containment ponds prevents fertilizers, pesticides and other chemicals from being released into the natural waterways while increasing the supply of irrigation water. This practice, however, has the potential to accumulate and spread destructive plant pathogens from isolated infections to an entire farm and from a single farm to other farms sharing the same water resource, destroying entire crops within weeks. To dissociate the crop health risk from water recycling practices, the industry currently uses a chlorination recommendation we developed in 2003. Chlorination still is by far the most cost-effective water treatment, but it has some serious drawbacks. First, its efficacy is subject to water pH, being most efficacious at pH 5 to 6, declining by 25% at pH 7, and by 90% at pH 9. Unfortunately, water pH in containment ponds is mostly alkaline during growing seasons, thus water acidification is often required before chlorination. Second, liquid chlorine is corrosive and chlorine gas is explosive, both present health risk to workers and potentially to residents in the surrounding areas.

What has been done

With support from the USDA National Institute of Food and Agriculture and the ornamental horticulture industry, teams of interdisciplinary scientists at Virginia Tech worked with colleagues at six other institutions on how the layout of water recycling systems may impact pathogen survival and the potential economic, social and environmental benefits of implementing better system designs. Specifically, we examined the water quality dynamics in multiple ponds across the mid-Atlantic region and in the Gulf coast states. Using these data as a guide, we designed and performed experiments to determine how major plant pathogens respond to individual water quality parameters such as pH, dissolved oxygen, carbon dioxide, and electrical conductivity under controlled conditions. We also investigated bacterial diversity in nursery irrigation water and selected species and strains for assessment of their biocontrol potential. In the meanwhile, the economics team surveyed approximately 1,500 growers in MD, PA, and VA for their irrigation and disease management practices. These research data were published in scientific journals and presented at professional conferences as well as at extension and outreach venues. To expand our reach and expedite technology transfer to the end user, we also conducted a 14-session monthly webinar series on irrigation pathogens and water quality from October 2013 to November 2014, in collaboration with the AmericanHort and the Society of American Florists.

Results

This project has greatly advanced the recycled water science in a broad range of disciplines from biology to agricultural engineering and economics as illustrated in three dissertations, two theses, forty-five plus scientific publications, a large number of conference papers and abstracts, and numerous lectures and extension/outreach presentations (http://www.irrigation-pathogens.ppws.vt.edu/activities/index.php). These publications and presentations all support the hypothesis that plant pathogens in irrigation water and their incited crop health risk may be managed by better water recycling system design, providing a foundation for developing long-lasting, reliable, environmentally-sound and economically-viable crop health management tools. The overall potential benefits of implementing these new tools are enormous on a national scale. With these new tools, growers will be able to reduce crop losses and, consequently, produce more and better quality horticultural products while conserving water resources and reducing nonpoint source pollution. The immediate benefits are greater profit margins and better public image for the horticulture industry. Disease-free ornamental plants produced with water

may be marketed and sold at greater prices while adding to consumer satisfaction. These additional benefits, in turn, will put the horticulture industry on a fast track to more profitability and sustainability.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Pesticide Safety Education

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2014

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
U.S. Department of Agriculture (USDA) and the US Environmental Protection Agency (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. Virginia has several thousand private applicators and tens of thousands of commercial applicators across the commonwealth. There are many others who are interested in occupations that require certification in pesticide application, such as turf management and residential pest control. To become a commercial or private pesticide applicator in Virginia, a person must meet the requirements and successfully pass the certification exam(s).

What has been done
There are 22 different categories of commercial applicators and 2 main categories of private applicators, but ALL commercial and private applicators must take an exam based on the Virginia Core Manual, 'Applying Pesticides Correctly.' This manual, first released in 1994, covers a variety of pesticide safety education issues, such as pesticide laws and regulations, understanding pesticide labels, human and environmental health, and proper application techniques. While the

manual has all the pertinent information necessary to pass the core exams, there seems to be a need for additional assistance. Many companies who hire inexperienced people and train them for their jobs request help in preparing employees to take these tests. Others who are starting or expanding their own business seek specific information on how to do so.

The Virginia Pesticide Safety Education Program provides workshops, certification courses, training manuals, electronic media, and web-based education for pesticide applicators. In addition the program provides train-the trainer workshops for pesticide applicator trainers. Virginia Tech Pesticide Programs (VTPP) has provided multiple types of assistance for those seeking certification since its beginning. As technology advanced and access to computers and online resources increased throughout the commonwealth, VTPP began offering the online course in 2009 for those seeking certification. There have been previous online courses for specific groups of people such as Master Gardeners, but nothing as large and ongoing as the Virginia Online Core Training. The lessons in the online course include videos, presentations and documents that correspond to the units in the Core Manual. There are practice tests for each unit as well. The entire course is housed within Virginia Tech's Scholar system and can only be accessed with an email ID and password after enrollment by the instructor. This course is free to anyone who is studying to take a core exam and has purchased the Core Manual. Some employers sign up using their own emails and then use the course more as an instructional tool than as a self-guided program. Records are kept on names, occupation, and location for evaluation purposes.

Results

Because of Virginia Cooperative Extension's 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, we sponsored 2 train-the-trainer workshops. The 22nd annual Virginia Pesticide Safety Educators Workshop enrolled 115 Extension agents, specialists, and pesticide investigators. We sponsored 4 online courses to help commercial and private applicators, and registered technicians prepare for certification. We had over 119 different companies, 46 government entities, 4 farms, and 5 schools which resulted in 507 individuals enrolled in three courses. Several instructors used course content as teaching tools.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Beef Quality Assurance Program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2014

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Adding value to Virginia's beef cattle operations is critical to sustainability of Virginia agriculture and rural communities. Adopting improved health, management, and marketing practices for Virginia feeder cattle adds value to the Commonwealth's second largest agricultural commodity. The reproductive performance of a beef cattle herd is the best predictor of profitability. High reproductive performance is challenged by the low cost production systems that must be employed to achieve profitability. New technologies have become available to enhance the use and success of Artificial Insemination in beef cattle. These technologies have the potential to increase both the quantity and quality of beef produced by Virginia beef cattle operations. Reproduction is a key component of successful dairy farming. Getting cows pregnant is the key to future milk production and producing replacement dairy heifers to sustain the dairy operation.

What has been done

Extension Specialists partnered with the Virginia Cattlemen's Association to develop and administer this program which encourages the use of scientifically-based cattle health and management procedures for feeder cattle. The VQA program is a cooperative effort among VCE, the Virginia Cattlemen's Association, VDACS, VMRCVM, and producer organizations. Producers that manage their cattle in this manner are eligible to market their calves through the VQA certified feeder cattle program with purple and gold ear tags.

Results

In 2014, a total of 14,506 calves were marketed through the VQA program. Producers received a premium of $81 per calf resulting in $1.17 million of additional income realized by Virginia beef producers. Since 1997, producers have marketed over 125,000 head of feeder cattle resulting in $6.4 million in value-added income. An estimated 3,000 bulls received 'Breeding Soundness Examinations' in 2014 and 400 bulls were evaluated for reproductive soundness at the Beef Cattle Improvement Association Bull Evaluation Centers in Virginia in 2014. Prevention of bull breeding failures resulted in an estimated $500,000 in pregnancy loss prevention in Virginia. 12% of beef cows in Virginia were exposed to Artificial Insemination in 2014. There has been a doubling in the amount of AI that has been employed in beef cattle in Virginia in the last 10 years. AI is estimated to increase the profitability of each cow by $270 if she becomes pregnant to this insemination. A 1% increase in cows inseminated artificially would result in 3,400 additional AI pregnancies if a 50% success rate were achieved. This would increase the profitability of Virginia cattle operations by $918,000 in 2014. Days open on dairy cows were decreased by 5 days in 2014 according to DHIA records. This reduction in days is worth $2,225,000 to dairy farmers in the state of Virginia. The Central Virginia Cattlemen Association has cooperatively marketed

32,706 weaned, health-certified feeder calves to garner an average premium price per pound over the market of 8.7 cents per pound. The average calf weighed 681 pounds. Since the program has existed the farmers marketing through the program have collectively received over $1,957,460 in premiums over market for participating. The farmers have purchased 4884 tons of mineral premix and have saved on bulk buying minerals about $280 per ton for a collective savings of approximately $1,367,520. This is further compounded by a 35% reduction in the cost of pharmaceuticals and gate purchases. The pharmaceutical savings members achieved totals nearly $733,000 over a thirteen year period and the gate and equipment savings totals nearly $185,000. 300 farmers have participated in the cattle classes and meetings held by the extension agents. Evaluation instruments developed measured participants' increase in knowledge and behavior change. The long term impacts of this program has led to enhanced sustainability of the family farms in the region producing $4,242,980 in cost savings and premiums received for their livestock. During 2014 there were 697 producers either certified or re-certified. These producers came from 79 counties and three 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.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

Increasing Community Garden Activities

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Around the world, educators, governments, political bodies, planners, landscape architects, and engineers refer to the idea of 'sustainable landscapes' as a subject of increasing importance. Sustainability and sustainable development are at the intersection of environment, economy, and society, reflecting the significance and relevance of ecosystem services and limits, fair and

durable prosperity, health, and social justice. Sustainable landscapes foster environmental sustainability and the preservation of its relevant functions (e.g., biodiversity, water filtration, energy balance). In addition, sustainable landscapes support ecosystems while providing for human well-being through provision of food, water, timber, and fiber, and by regulating services that affect climate, diseases, flooding, and water quality. These ecosystem services are also tied to the acquisition of cultural services that deliver recreational, aesthetic and even spiritual values, while supporting soil formation, photosynthesis, nutrient cycling, and carbon sequestration. In VCE's Strategic Plan (2011-2016) leading issues of concern emerged, among them, the importance of sustaining Virginia's natural resources and the environment.

What has been done

In order to establish a dedicated support effort to new and established community gardens, word was sent out to community garden managers, organizations receiving community garden grants, and to schools that Extension volunteers could provide support in many ways to help. In 2014, 14 site visits were made to community gardens throughout Arlington and Alexandria. Some had been established for several years most were less than 2 years old. Advice was provided on problem solving for everything from tool storage to traffic patterns, weed, disease, and pest management, vandalism and theft. A community gardening database was established with 10 Master Gardener volunteers signing up to provide liaison to these gardens. In 2014 Extension's response to this need was to promote our office as a major source of education on gardening, disease and pest management and plant selection. Free seed distribution was offered alongside advice on selection, the Community Gardens Coaches support team offered support to new and established gardens, VCE partnered with the Arlington Food Assistance Center's community education offerings, our Urban Agriculture education series offered composting, edible landscape, fruit trees/shrubs, vegetable, disease and pest control and ID, and container gardening classes. Along with our community gardens one on one gardening education, we had a yearlong partnership with the Arlington Food Assistance Center's Wednesdays in the Garden programs and a regular series of compost education efforts to support the County's Zero Waste needs.

Results

In collaboration with the Master Gardener Coordinator, Master Gardener volunteers craft appropriate projects to assist the community based on community need and the "Sustainable Landscape Management" principles. Classes are centered on teaching the Landscape Best Management Practices (BMPs) developed by the Northern District Horticulture Agents. Centered on landscape BMPs, the 140 Master Gardeners contributed 8,532 hours & contacted 5,239 clients while serving the horticultural needs in the Albemarle community. The financial impact of the volunteer's work is valued at $192,396. In 2014 we distributed over 4,500 packages of seeds at special events and community education offerings. Community Gardens coaches made 14 site visits to a collection of gardens that altogether involved over 100 people of all ages. 9 dedicated individual public education classes on Composting were offered alongside compost education displays for 3 community events. Community Garden Coaches Trainer provided 17 of the 28 'Wednesdays in the Garden' workshops in a partnership with Arlington Food Assistance Center Plot Against Hunger. VCE provided 18 programs on vegetable or edible landscaping, and 6 programs on container gardening. Staff and volunteer contacts for this program area are estimated at over 15,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
201	Plant Genome, Genetics, and Genetic Mechanisms

202	Plant Genetic Resources
205	Plant Management Systems
206	Basic Plant Biology

Outcome #6

1. Outcome Measures

Small Ruminant Meat Production

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many new limited resource farmers are interested in starting a small ruminant meat enterprise due to their ease of handling and an increased demand for their products. For instance, many are unsure as to how to choose the right breed, the facilities and supplies required, what to feed them and how to keep up on vaccinations and proper hoof care.

What has been done
In April, VCE hosted a workshop for farmers interested in small ruminant meat and dairy production and presentation about starting a small ruminant meat enterprise and demonstrate how to perform simple management techniques including hoof trimming, body condition scoring and administering vaccinations.

Results
Following this workshops, 57 participants increased their knowledge on things to consider prior to starting a small ruminant enterprise as well as how to conduct simple management techniques on their farms.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals

302	Nutrient Utilization in Animals
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection

Outcome #7

1. Outcome Measures

Introduction of Vegetable Soybean (Edamame)

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Since the peanut and tobacco quota buyouts of 2002 and 2004, farmers in Virginia have experienced loss of income and cropland. In the search for alternative crops to replace the two former mainstays of Virginia agriculture, researchers at Virginia State University (VSU) have identified vegetable soybean (edamame) as a potentially profitable option for former tobacco farmers. Unlike commodity soybean, edamame is harvested green and marketed as a specialty vegetable. Similar to tobacco in that it lends itself to intensive cultivation in small holdings, edamame can, with proper marketing, emerge as a lucrative cash crop. For example, sales have averaged $2 per pound of fresh in-the-pod edamame, and one grower was able to sell half-pound packs of shelled edamame for $6.

What has been done

Edamame has a short harvest window and limited shelf life. So far, the biggest challenges to growers have been coordinating a timely harvest of all fields and processing/delivering the crop to market before spoilage occurs. To address these problems, VSU researchers are looking at combinations of planting dates and varieties that will widen the window for planting. Breeding of short-season varieties would greatly benefit this effort. There is also a need to diversify the market for edamame, which includes the use of edamame as raw material for value-added products, such as "ready-to-eat" snack packs, succotash or hummus. The market cannot absorb all the fresh harvest; consequently, preservation methods such as freezing or canning need to be investigated. If all goes as anticipated, edamame will become a new cash crop that will supplement farm income and help small farmers salvage their livelihoods and legacies.

Results
With support from the Virginia Tobacco Commission, VSU is working with Virginia growers to commercialize three edamame varieties developed by the Soybean Breeding Program at the VSU Agriculture Research Station. So far, 25 growers have been contracted to grow and market edamame. The project has purchased harvesting and processing equipment and set up a centralized processing facility in Farmville, VA.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
206	Basic Plant Biology
601	Economics of Agricultural Production and Farm Management

Outcome #8

1. Outcome Measures

Transporting Fish to Farm

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many farmers do not have any capabilities to transport fish to their farms. Typical fish producers need to transport 500-1,000 fish to their farm. Fish must be transported in a tank designed for hauling fish. An aeration system is needed for keeping fish alive during transport. The use of oxygen is the preferred way for aerating a tank transporting fish. Farmers don't have this capability.

What has been done
Since not rental or custom transport exists. VSU has provided technical assistance for farmers with transporting fish. Sometimes a farmer will borrow a small 50 gallon tank, but this has limited capabilities for hauling fish quantities. VSU has provided assistance with larger tanks that has the abilities to transport 1,000 fingerlings, catfish or trout.

Results
By assisting fish producers in transporting fish has allowed many farmers to continue their aquaculture efforts. Sufficient fish for their cage operation, they can continue their marketing efforts in the local Farmers Markets. It is estimated that VSU has transported eight thousand fish in the last 2 years for farmers. Until farmers create sufficient capacity, the cost of transport by the supplier is not cost effective, VSU will continue to provide technical support to fish farmers.

4. Associated Knowledge Areas

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

Outcome #9

1. Outcome Measures

Using agro-byproducts to improve growth of forage-fed hair sheep

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A comprehensive review of the U.S. sheep industry by the National Research Council in 2008 identified forage-finished lamb, and direct marketing of high quality, lighter weight lambs to the expanding ethnic markets as key opportunities to improve efficiency and competitiveness of the sheep industry. The report also recognized the role of hair sheep in addressing these structural changes in the industry. A report on ?Nontraditional Lamb Market in the United States: Characteristics and Marketing Strategies? commissioned by the American Sheep Industry Association in 2010 echoed a similar sentiment and indicated that the greatest potential for sheep industry expansion lies primarily in the area of non-traditional markets, and that alternative breeds, such as hair sheep, are well suited to serve these markets.

Hair sheep can be raised with limited management inputs such as dewormers and lamb readily on pasture, making them the prototype of the ?easy care? sheep. Hair sheep lambs should be targeted at consumers and markets that will pay a premium for this type of product (grass-fed,

organic or naturally raised). However, mature size and growth rates are generally smaller than in traditional wool sheep, and management tools that will improve growth performance should benefit this industry.

What has been done

This project evaluated soy hull and corn gluten feed as supplements for hair sheep lambs fed forage-based diets. These agro-byproducts are sources of highly digestible fiber, and may be better suited for hair sheep than the more expensive traditional grain supplements. Two pen-feeding trials using high quality orchard grass hay as a forage source showed that total feed intake and growth rate of hair sheep lambs increased linearly as supplement feeding increased from 0 to 3% of body weight. Growth rates were higher and adaption to the diet faster in the lambs supplemented with soy hull than with corn gluten feed. When trials were moved to pasture, hair sheep lambs rotationally grazing fescue pasture had higher growth rates when supplemented with soy hull than cracked corn at 2% of body weight. Supplementation with soy hull improved growth rate lambs by 80% compared to lambs grazing pasture only.

Results

The project quantified improvements in growth rates derived from supplementing forage-based diets with agro-byproducts. It also identified soy hull as supplement with considerable potential for integration into hair sheep management systems.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems

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

IPM Evaluation: A survey of fruit producers and crop advisors conducted at the 2014 fruit schools indicated that: Ninety-five percent of survey respondents have used information from fruit schools to help guide their application of pesticides. Ninety-eight percent of respondents reported that the fruit schools had been helpful or extremely helpful in improving their ability to manage pest problems. Several growers noted that they were now rotating insecticide classes to reduce resistance; or were using different pesticides, including mating disruption; or had lowered the rates used. Of the 74 participants who answered the question, "How has using the information from Fruit Schools affected the profitability of your operation (or the operations of the growers you consult with)?", 46%) reported an increase, 53%) reported no change, and only 1% reported a decrease in profitability. Thirteen growers estimated their yearly increase in profitability based on using the information from fruit schools. These estimates ranged from $300 to $200,000. The total of these estimates was $600,600. The Northampton County Insect Monitoring Program received very positive feedback from growers in the county who stated that spray applications were reduced as a result of the program. Funding was obtained from the Virginia Potato and Vegetable Growers Association to support the supplies needed. This program helped growers to determine weekly insect "hot spots" in the county and decide when it was necessary to make an insecticidal application. Due to grower feedback was determined that reduced insecticidal applications constituted a savings of around $87,000 in unnecessary inputs for Northampton County corn and soybean growers.

Key Items of Evaluation

Use of clickers in training programs to gather data and to report quick feedback.

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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	3.1	0.0	3.3	1.0
Actual Paid	3.2	0.0	8.3	1.0
Actual Volunteer	49.0	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**
133181	0	126226	93470
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
192558	0	146461	228891
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
369406	0	1597866	92108

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.

- Clean energy project analysis via RETScreen

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?

Information is shared and supported by involvement in several COP's. For example, Home Energy, Wood Products, and Sustainable Ag Energy.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1401	171	15	62

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

Patent Applications Submitted

Year:	2014
Actual:	1

Patents listed
Bio-nanoparticles as a novel nicotine vaccine

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	66	66

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2014	15

Output #2

Output Measure

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

Year	Actual
2014	89

Output #3

Output Measure

- Number of On-farm Demonstrations

Year	Actual
2014	6

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	Vaccine developed against porcine reproductive and respiratory syndrome
5	research on energy signaling in plants has potential to increase plant biomass and lengevity
6	The Bioenergy Engineering Education Program (BEEP)
7	Research in arsenic transport in purslane may impact soil remediation

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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Virginia farmers have tracked production expenses and realized the level of use and cost of fuel, oil, and electricity are continually increasing and are questioning how to design and implement efficient energy use plans. According to the 2012 National Agriculture Statistical Service (NASS) report, farm energy prices (including fuel, oil and electricity) increased approximately 19% from 2007 to 2011. It is estimated that across the 34 counties of Southside and Southwest Virginia, farmers spent more than $66 million in farm energy related expenses during 2011 (NASS, 2007 & 2012). Using the 2011 expense estimate, a 10% increase in on-farm energy efficiency (realized without compromising output), would result in an additional $6.6 million in income to farmers.

What has been done
Understanding the urgency to address this need, VCE and its partners launched the 2010-2012 On-Farm Energy Efficiency Pilot project. Funded by a $248,842 grant from the Virginia Tobacco Commission, the program identified over $1 million in potential energy savings for 58 agricultural operations completing the energy audit process. These findings validated the assumption that farms were expending hard-earned dollars on inefficient equipment and that farm profitability would increase when areas of energy loss were identified and efficient technologies were installed.

In 2014, Virginia Cooperative Extension (VCE) secured a $373,000 grant from the Virginia Tobacco Commission to support farm energy efficiency in Southside and Southwest Virginia. Partnerships are in place with USDA Rural Development, Virginia Department of Mines, Minerals and Energy, Old Dominion Electric Cooperative, and other organizations to support this project.

Results
Fifty-three agricultural operations in Southside and Southwest Virginia have access/funding for energy audits and renewable feasibility studies, a cost-share program for retrofit and/or

renewable systems, and over 13 educational programs on energy efficiency practices and technologies. Each operation received a $5,000 energy account. During 2014, 17 of the 51 operations have completed an energy audit, and 11 farms have used $47,500 in grant funding along with over $110,000 in individual funds to implement energy retrofits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The US Energy Information Administration published its forecast on woody biomass energy usage into 2015. This report estimates the use of biomass for energy purposes across the electric power, industrial, commercial and residential sectors. In nearly all sectors, the use of biomass for energy purposes is anticipated to increase. New air quality regulations have been drafted that could affect the viability of certain types of combustion-based bioenergy projects (i.e., Boiler MACT, CISWI, NSPS). These regulations affect projects from residential units to centralized power plants. Bioenergy projects often face significant hurdles to their development and

successful implementation. These hurdles can prevent good projects from happening as the developers lack the capital to invest in exploring the feasibility of a project let alone its development. This is too often the case with smaller projects which lack grant, corporate, or government support to assist in weathering the costs of project feasibility work, and many good fuel-switching opportunities go unexplored, and undeveloped. The collective effect leaves Virginia farmers and small businesses at a disadvantage to others that have successfully switched to less costly, and less volatile, renewable sources of energy. A common hurdle to project development is costly emission testing data, which has become more critical given the growing popularity of biomass utilization and the new air quality regulations.

What has been done
In collaboration with the Virginia Department of Environmental Quality, and the Virginia Department of Mines, Minerals and Energy, a pilot program was launched to assist Virginians interested in utilizing bioenergy with initial stack emission testing. This pilot program was designed for smaller projects that could not pay the initial cost of third party emission testing as a component to assessing the overall feasibility of the project.

Results
In 2014 this program focused primarily on support of the Chesapeake Bay Manure to Energy Initiative. Previous stack test data was used by technology providers to optimize their combustion practices and configure emission control technologies. Program efforts included preliminary stack data collection on a poultry-litter fired combustion unit at a demonstration farm in Port Republic, VA, a 500k BTU wood chip boiler, and a poultry-litter fired gasifier at North Carolina State University under consideration for an on-farm project on the Eastern Shore.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

Outcome #4

1. Outcome Measures

Vaccine developed against porcine reproductive and respiratory syndrome

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Porcine reproductive and respiratory syndrome (PRRS) is a highly transmissible disease characterized by reproductive disorders in sows, and respiratory distress and mortality in young pigs. In the US alone the economic losses caused by PRRS amount to more than 560 million US dollars every year. Vaccination is the most effective method of preventing infectious diseases. Currently, killed-virus and modified-live PRRSV vaccines are used clinically to control PRRS. However, both types of vaccines have inherent drawbacks. The unsatisfactory efficacy and safety of current PRRS vaccines drives the development of novel vaccines against PRRSV. Subunit vaccines, which eliminate the safety concern on virulent reversion of modified-live vaccines and allow the immune system to be focused on protective B cell or/and T cell epitopes in a particular viral protein, are the major focus.

What has been done

Virus-like particle (VLP) based vaccines are gaining increasing acceptance compared to subunit vaccines, as they present the antigens in more veritable conformation and are readily recognized by the immune system. We propose to use Hepatitis B core antigen as a carrier protein to display selected immunogenic epitopes from various viral proteins. E. coli was selected as the expression host due to its low cost of production and high level of protein expression. The protein was successfully expressed, and a process to purify the protein from the inclusion bodies was developed. The purified protein was test to block the infection of PRRSV of susceptible cells.

Results

In this study, hybrid HBcAg VLPs were generated by fusion of the conserved protective epitopes of PRRSV and expressed in E. coli. An optimized purification protocol was developed to obtain hybrid HBcAg VLP protein from the inclusion bodies. This hybrid HBcAg VLP protein self-assembled to 23 nm VLPs that were shown to block virus infection of susceptible cells when tested on MARC 145 cells. Together with the safety of non-infectious and non-replicable VLPs and the low cost of production through E. coli fermentation, this hybrid VLP could be a promising vaccine candidate for PRRS.

4. Associated Knowledge Areas

KA Code	Knowledge Area
206	Basic Plant Biology

Outcome #5

1. Outcome Measures

research on energy signaling in plants has potential to increase plant biomass and lengevity

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
During photosynthesis, plants use light energy to synthesize food for growth from carbon dioxide and water. As the key process in plant productivity, photosynthesis plays a vital role in every aspect of agricultural production. However, researchers and farmers do not fully understand how photosynthesis is affected by environmental, molecular, and genetic constraints. Alleviating some or all of these constraints could lead to substantial increases in plant productivity.

What has been done
To address these limitations a protein complex that contains a plant energy sensor has been identified and characterized. When this sensor is overexpressed, plants live longer and accumulate more biomass. We have examined regulation of this energy sensor and are investigating other novel proteins that are important for maintaining energy sensor levels, and hence, biomass and longevity in plants.

Results
One aspect of this work is to utilize these genes in cotton to regulate senescence and decrease use of chemicals used by farmers to regulate cotton senescence before harvest.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants

Outcome #6

1. Outcome Measures

The Bioenergy Engineering Education Program (BEEP)

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Whether due to worries of rising energy prices, climate change, or energy security issues, many citizens are concerned that our nation has become too dependent on foreign sources of petroleum and are troubled by the impacts that this dependence has created. The federal government signed into law the Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007 which seeks greater energy independence and security and promote the production of renewable fuels. Additionally, the commonwealth announced in the 2010 Virginia Energy Plan a target of making Virginia the energy capital of the east coast by increasing in-state production of energy by 20 percent over the next 10 years. These policies are indicative of a broader interest to sustainably increase our energy independence while spurring economic growth. The 2007 Energy Act received considerable attention in June 2014 when gasoline was well over $3.27/gallon and livestock/poultry industries were challenged by high feed prices. Policy makers, farmers, and citizens of Virginia are facing new economic development opportunities and making difficult decisions related to bioenergy project and policy development. However, it is often difficult for the citizenry to fully understand the complex terminology, and energy conversion processes, related to bioenergy. As a result, decision making and opinion forming often occurs with incomplete, misunderstood, or inaccurate information.

What has been done

The primary goal of this extension program is to increase participant's knowledge and awareness of the basics of bioenergy. Specifically, the program seeks to inform participants on the many different forms of bioenergy, discuss the feedstocks typically used for the generation of bioenergy, and explain how the bioenergy conversion technologies actually work.

Results

Work to help clientele better understand solar energy conversion technologies was begun, focusing on the educational trailer, and project development of four solar energy demonstrations: 1) 360W skid-mounted mobile solar water pumping unit for livestock stream exclusion programming in response to Chesapeake Bay TMDL/WIP II targets; 2) 1.08 kW utility-interactive net metered remote monitored, with local viewer, solar photovoltaic array to offset a small portion of the facility energy usage and use as an educational display among the 3,500 annual visitors at the Northern Virginia 4-H Educational Center; 3) system performance monitor for a 10-panel Inphase Energy micro-inverters installed at a tobacco curing farm in Chase City, VA used by Dr. David Reed, Southern Piedmont Agricultural Research and Extension Center for on-farm evaluations; 4) 96k BTU North Carolina manufactured SunQest Fresource SRCC-rated solar collectors, and two unrated Do-It-Yourself solar collectors manufactured by Sustainable Technology Institute in Richmond, VA installed at the Randolph Farm to use as working demonstrations for the 5,000 annual visitors and to offset a portion of the fossil-fuel based energy usage for the aquaponic facility.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
605	Natural Resource and Environmental Economics

Outcome #7

1. Outcome Measures

Research in arsenic transport in purslane may impact soil remediation

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Arsenic is an extremely toxic metal that causes serious health problems to people worldwide. High levels of arsenic in soils can potentially lead to water and food contamination. Arsenic is carcinogenic, and exposure through drinking water, foods, or other sources can lead to various types of cancer, including cancer of the skin, lung, bladder and prostate. Although low concentrations of arsenic exist naturally in soil, its widespread uses as an herbicide, as an insecticide and in wood preservation have led to dangerous concentrations in many areas in the U.S. The Environmental Protection Agency reports that about 25% of wells in the U.S. contain amounts of arsenic that are higher than the levels allowed by that agency. Arsenic contamination is a local issue, too, occurring throughout Virginia, including in populated areas like Richmond. Removal of arsenic-contaminated soil from the environment will help clear the contaminant from our food supply, thus benefiting human health.

What has been done
Researchers at VSU have identified a novel gene responsible for arsenic transport in purslane.

Results
In previous work, they identified two purslane accessions with tolerance to arsenic and two accessions that show sensitivity to arsenic. Building on that, the VSU team has found that tolerant

accessions have a significantly reduced ability to transport arsenic to their shoots. Using the genomic approach, scientists have identified a multidrug-resistant gene, ABCC2, the expression of which is highly inducible by arsenic in the roots of arsenic-sensitive purslane accessions, but not in the roots of arsenic-tolerant accessions, indicating that ABCC2 acts to control arsenic transport in plants. Understanding how arsenic is transported to shoots may lead to genetic engineering that will improve arsenic accumulation in purslane, and thus the plant?s potential for use in cleaning arsenic-contaminated soil. Cost-effective removal of arsenic from contaminated soil will benefit farmers and agriculture on local and international levels by making more clean and arable land available for agricultural production, especially in urban areas.

4. Associated Knowledge Areas

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

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 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

None where developed

Key Items of Evaluation

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	5%	0%	0%	0%
603	Market Economics	2%	0%	0%	0%
605	Natural Resource and Environmental Economics	10%	0%	15%	0%
607	Consumer Economics	5%	0%	10%	0%
608	Community Resource Planning and Development	70%	100%	75%	0%
610	Domestic Policy Analysis	3%	0%	0%	0%
801	Individual and Family Resource Management	5%	0%	0%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	1.8	1.0	0.0	0.0
Actual Paid	35.4	0.5	0.0	0.0
Actual Volunteer	270.0	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**
719177	133461	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1039813	181000	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1994793	0	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

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10635	13019	1907	141

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	21	27	48

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of education programs planned in public policy education

Year	Actual
2014	4

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
2014	132

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

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
9	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.
10	Economic and Community Planning- Increase in self-reported preparedness among communities receiving economic development and community planning education

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.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Focusing on helping families understand good credit, how to work with mortgage companies and home maintenance enables families to become eligible as homeowners and develop individual spending plans. Establishing a spending plan to save towards homeownership was accomplished through educational outreach with 90% of audiences served with families able to purchase homes after a two year period of savings and limited spending. In addition bank partners are recognizing the need to have a hands-on approach for potential homeowners and have donated homes that will be awarded to successful participants enrolled in a six-month course.

What has been done
Virginia Cooperative Extension reached over 6000 residents with financial information directly and another 1500 reaching indirectly through displays and public information distribution Changing practices in financial management is not easy. Thus the educational outreach must be more intense and longer in duration. One example in Virginia Beach, called ?Bank-on? applies a ten-month program which has resulted in 100% of clientele establishing bank accounts, writing long term goals and beginning to accrue an emergency fund. Ninety-six percent of participants developed debt pay down plans and review their annual credit reports with regularity. Through basic financial awareness programs clients are reporting the ability to save even $46 per month and paying down credit card debt. Clients are improving by an average of 50% their desire to save first before spending their weekly income.
Using ?Money Smarts? many adults in the northern Virginia area are learning in English and Spanish and celebrating a 100% group participation in on time bill paying and an increased by 70% of those who have initiated a savings program.

Results
Addressing budgeting, credit/debt management and savings, many educational programs are using trained volunteers to multiply the ability to reach more families with financial literacy programs. Receiving a total of 20 hours of training, Master Financial Education Volunteers give back 40 hours each. Collectively, in 2014, 5851 hours of financial counseling were delivered by Extension personnel and volunteers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
607	Consumer Economics
801	Individual and Family Resource Management

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	65

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The New River Valley Agriculture and Tourism Consortium is a tri-county effort working to enhance opportunities to improve producer knowledge of how to add value to products, as well as possible product diversification. The goal of this group is to promote agriculture viability, as well as the overall rural character & heritage of the NRV region. Montgomery County has the potential to become a food-hub for our region expanding rural enterprises, marketability of the region, and tourism.

What has been done

An Educational Series was developed focused on Agritourism and Agribusiness across the region. Funding for this consortium is made possible by grants from the Governor's Agriculture and Forestry Industry Development Fund (AFID) and the Virginia Department of Housing and Community Development. The state Agritourism team consisting of experts from Extension, VA Tourism, and the Virginia Department of Agriculture and Consumer Services led a day long workshop focused on Agritourism in a Creative Economy hosted in Riner, VA.

Results

A post evaluation was implemented at the end of the workshop. The results indicated that:
? The workshop topic was timely, relevant, and practical for this group. 32% Agreed 68% Strongly Agreed
? Met Expectations. 44% Agreed 56% Strongly Agreed
? 24% of the respondents stated their knowledge was LOW prior to the workshop (60% = moderate, 16% high)
? 80% of the respondents stated their knowledge was HIGH as a result of the workshop. (20% = moderate)
? 92% of the respondents said the overall assessment of the workshop was HELPFUL.
? 96% of respondents said the workshop included high value of information and resources
? 100% would recommend this to others interested in this topic.

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

2014 132

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Planning commissioners are everyday citizens that are charged, as local appointed officials, with developing local comprehensive land use plans, and making land use permitting determinations at the local governmental level. Their effectiveness and awareness of best planning practices has profound impacts on the ability of Virginia's communities to meet the tripartite goals of economic development, environmental stewardship, and social capacity development.

What has been done

The Land Use Education Program (LUEP) is a partnership between Virginia Cooperative Extension and Virginia Tech's Center for Public Administration and Policy. LUEP offers the Planning Commissioner's Certification Program, Board of Zoning Appeals Certification Program, as well as an annual legal seminar and conference. Serving hundreds of community planners each year, these programs provide local appointed and elected officials, and the public, the prerequisite knowledge to make informed community planning decisions.

Results

In 2014, a total of 374 individuals received training from the program (up 50 individuals from 2013); 132 of which completed the Certified Planning Commissioner or Certified Board of Zoning Appeals programs. In addition, LUEP drew more volunteer support than in 2013. A total of 47 volunteers (up from 10) contributed nearly 100 hours of service as speakers and program liaisons. A six-month post-completion evaluation of LUEP graduates found examples of trainees feeling more confident in their duties because they became ?conversant with planning issues and [are] more enthusiastic about initiating action?. Continued monitoring of program graduates is expected to show behavioral benefits to communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
605	Natural Resource and Environmental Economics
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.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Youth comprise the next generation of consumers. This is an economic impact issue.

What has been done
Addressing over 9000 youth between the ages of 15 and 21 with financial preparedness awareness programs outreach programs were facilitated across the state using youth-centric, evidenced based programs such as Reality Store, Kids Marketplace, and Real Money, Real World, and Financial Football.

Results
Youth who participate in simulated learning programs are grasping the importance of good credit ratings and are leaning to manage monthly spending plans. Offering over 10,000 hours of volunteer time, teacher and parent volunteers are noting the benefits of these programs and encouraging broader usage. Collectively nearly 500 youth have completed the Reality Store program with over 90% reporting an increased awareness of financial planning needs and having a greater awareness of the types of jobs that bear the largest incomes.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
801	Individual and Family Resource Management

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.

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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Community, local and regional food systems continue to evolve as more people realize that local food systems encompass everything from farmers markets to food policy. Extension agents and specialists continue to see an increase in the number of farmers, consumers, school nutrition personnel, youth and community organizations participating in food and farm initiatives. Vogt and Kaiser (2008) reported that more institutional food buyers continue to be interested in sourcing and purchasing local regional foods. Institutional food buyers include public K-12 schools, colleges, universities, hospitals, retirement communities, and other public entities. According to the Virginia Department of Agriculture and Consumer Services, K-12 schools currently spend more than $6 million annually on fresh produce. As of 2010 -2011, the food purchasing budgets of five Virginia universities and colleges exceeded $18.1 million, but their local food purchases were only a small percentage of the total amount.

What has been done
There continue to be barriers to institutional as well as wholesale markets that include the convenience of the current ordering method and system, more complex logistics and additional negotiations, potentially inconsistent supply, limited on-time delivery due to seasonality, variability of farm size and weather, additional planning needs, and information about local and regional growers. Virginia Cooperative Extension has been actively engaged in providing educational programs and workshops to address the barriers for more farm-to-institution connections with schools, colleges, hospitals, correctional facilities, retirement communities and nursing home facilities to encourage local purchases and to engage the broader community in market and food

system development for stronger more diverse economies. Extension has used a multi-pronged approach. The approach has included the formation of a fresh produce food safety team to provide education about good agricultural practices and food handling from the farm to the plate; webinars on the formation of local and regional food policy councils and food hubs; coordination of beginning and emerging farmers through the Virginia Beginning Farmer and Rancher Coalition; panel discussions of mitigating and better utilizing food waste; and food value-chain facilitation so producers and buyers can communicate better and understand their products and needs better.

Results

Virginia Cooperative Extension continues to support established community food enterprises and initiatives like the Southside Produce Auction, Shenandoah Valley Produce Auction, Shenandoah Food, Local Food Hub, Appalachian Sustainable Development, Rockbridge Area Food Hub and other alliances and efforts to aggregate farmers and facilitate the distribution of local foods to schools, universities, colleges, hospitals and other institutions across Virginia. According to the USDA-Economic Research Service, small farms (i.e., with less than $50,000) account for 81% of all farms reporting local food sales with an average of $7,800 per farm. Similarly, medium-sized farms (those with gross annual sales between $50,000 and $250,000) accounted for 17 percent of all farms reporting local food sales in 2008. These farms averaged $70,000 in local food sales per farm. In Virginia, there are 39,379 farms in the small farm category and 3,839 medium sized farms, and 2,812 large farms. Large farms rely predominantly on commodity markets, but those who participate in local food sales have an average of over $770,000 per farm. Therefore, even an incremental or small percentage bump in sales to grocery stores, schools, colleges, universities, and institutions at the local level can have a profound effect on many of Virginia farmers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
608	Community Resource Planning and Development
801	Individual and Family Resource Management

Outcome #7

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual

2014	146

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Addressing budgeting, credit/debt management and savings, many educational programs are using trained volunteers to multiply the ability to reach more families with financial literacy programs.

What has been done
Receiving a total of 20 hours of training, Master Financial Education Volunteers give back 40 hours each.

Results
Collectively, in 2014, 5851 hours of financial counseling were delivered by Extension personnel and volunteers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

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
2014	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Virginia Cooperative Extension agents and community leaders have indicated a lack of knowledge and experience in effectively managing and facilitating meetings and community discussions as reported by local
Extension offices and Extension Leadership Councils. The 2009/2010 strategic planning listening

sessions indicated community leaders needed assistance in creating change through individual and community leadership development, facilitation, and conflict resolution skills development.

What has been done

Community Viability specialists researched and selected a curriculum for enhancing facilitation skills developed by the University of Maine. Strengthening Your Facilitation Skills (SYFS) addresses VCE focus area, Cultivating Community Resiliency and Capacity, and provides a strategy to achieve Goal 2: Develop and deliver educational programming to improve capacity among community members to engage in community planning, decision-making, and community leadership.

Results

Extension has become a resource for training community leaders in conducting and facilitating effective meetings and dialogues. During 2014, 86 community leaders participated in trainings held in across the state. Evaluation results from the trainings indicated that 100 percent of respondents gained new skills as a result of their participation. Pre and post surveys also indicted that the participants increased their ability to create and sustain an environment of participation, to guide the group to useful outcomes, and to plan appropriate group processes as a result of participating in the training. Since 2008, 112 Extension educators have completed the Strengthening Your Facilitation Skills training. From this group, 51 were certified as Master Trainers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #9

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.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for a leadership program that develops adults in agriculture has been established, reinforced, and supported. Additionally, rural regions are challenged to reinvent their economies from within by developing a new generation of civic leaders beginning at the grassroots level and including elected officials. Communities cannot wait for exceptional leaders to appear but must ?help ordinary people become leaders? (Southern Rural Development Center). Listening sessions underscore the need for leadership training at both levels.

What has been done
Various leadership development trainings have been held. The Virginia Association of Counties Certified Supervisor program trains locally-elected officials through 5 core courses and is a joint effort with the Virginia Association of Counties. The fourth annual Innovative Leadership conference was also held with 75 participants. And the 2-year long VALOR program (Virginia Agriculture Leaders Obtaining Results) continues to train in the agriculture field on developing communication, problem solving, and critical thinking skills.

Results
The VALOR program offers a pre-post assessment related to specific
leadership competencies and learning outcomes. Among the items assessed, statistically significant improvement was noted along 34 different competencies/outcomes. Some of items include:
I am familiar with common leadership approaches; I appreciate cultural differences; I can recognize leadership strengths in others; I seek diverse perspectives when making decisions; I make an effort to improve the quality of decisions on public problems and issues; I understand the complexity of manufacturing, agricultural, and quality of life issues as they relate to the environment and natural resources; I understand how to use a variety of techniques to resolve conflict
among others

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #10

1. Outcome Measures

Economic and Community Planning- Increase in self-reported preparedness among communities receiving economic development and community planning education

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	374

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Planning commissioners are everyday citizens that are charged, as local appointed officials, with developing local comprehensive land use plans and making determinations at the local governmental level. Their effectiveness and awareness of best planning practices has profound impacts on the ability to meet the goals of economic development, environmental stewardship, and social capacity development. A 2010 VCE survey of planning commissioner's training needs and preferences showed only about 25% of localities use an outside organization for the training of planning commissioners.

What has been done
The Land Use Education Program offers the Planning Commissioner's Certification Program, Board of Zoning Appeals Certification Program, an annual legal seminar and conference. Serving hundreds of community planners each year, these programs provide local appointed and elected officials, and the public, the knowledge to make informed community planning decisions. LUEP's relationships with state-level partners like the Virginia Chapter of the American Planning Association and PlanVirginia ensure good communication and coordination organizations.

Results
In 2014, a total of 374 individuals received training from the program (up 50 individuals from 2013); 132 of which completed the Certified Planning Commissioner or Certified Board of Zoning Appeals programs. In addition, LUEP drew more volunteer support than in 2013. A total of 47 volunteers (up from 10) contributed nearly 100 hours of service as speakers and program liaisons. A six-month post-completion evaluation of LUEP graduates found examples of trainees feeling more confident in their duties because they became ?conversant with planning issues and [are] more enthusiastic about initiating action?. Continued monitoring of program graduates is expected to show behavioral benefits to communities.

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 (Loss of county educators)

Brief Explanation

In 2014, the Community Viability program continued to operate without county level educators. During the year, a full-time specialist also vacated the position to take on another role at the university. 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

Virginia Cooperative Extension led a study the financial feasibility of agritourism operations and the economic impact these enterprises have on the local regions. The study began in the late fall 2013, data analysis completed in the spring 2014, and the final report presented as a Master's Thesis in August. The 2013-2014 agritourism economic impact study provided a foundation for understanding the financial possibilities for agritourism and offered the agritourism entrepreneurs baseline data for assessing their operation. The study found 47.8% of respondents reporting that they were somewhat profitable. Over 10% identified themselves as very profitable while 8.6% said that they were not profitable at all. Forty-two percent of operators surveyed stated that agritourism contributed between 76 and 100% of their farm income. The study also found that in 2013 almost all of the operations surveyed claimed that the average agritourism visitor spent between $31 and $40 on property per visit.

The VALOR leadership development program administers a pre-post assessment related to specific leadership competencies and learning outcomes as part of the two-year fellowship experience. Among the items assessed, statistically significant improvement was noted along 34 different competencies/outcomes. Examples of items include:

1. I am familiar with common leadership approaches
2. I appreciate cultural differences
3. I can recognize leadership strengths in others
4. I seek diverse perspectives when making decisions
5. I make an effort to improve the quality of decisions on public problems and

issues

6. I understand the complexity of manufacturing, agricultural, and quality of life issues as they relate to the environment and natural resources
7. I can adapt to another person's communication style
8. I understand how to use a variety of techniques to resolve conflict among others

Further, a novel approach to program evaluation has been used with VALOR, in which program fellows directly participated in creating a pathway logic model to link program activities with short-, mid-, and long-term outcomes.

Key Items of Evaluation

The VALOR leadership development program administers a pre-post assessment related to specific leadership competencies and learning outcomes as part of the two-year fellowship experience. Among the items assessed, statistically significant improvement was noted along 34 different competencies/outcomes. Examples of items include:

1. I am familiar with common leadership approaches
2. I appreciate cultural differences
3. I can recognize leadership strengths in others
4. I seek diverse perspectives when making decisions
5. I make an effort to improve the quality of decisions on public problems and issues
6. I understand the complexity of manufacturing, agricultural, and quality of life issues as they relate to the environment and natural resources
7. I can adapt to another person's communication style
8. I understand how to use a variety of techniques to resolve conflict among others

Further, a novel approach to program evaluation has been used with VALOR, in which program fellows directly participated in creating a pathway logic model to link program activities with short-, mid-, and long-term outcomes.

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
112	Watershed Protection and Management	2%	0%	0%	0%
305	Animal Physiological Processes	0%	0%	10%	0%
501	New and Improved Food Processing Technologies	3%	0%	10%	0%
502	New and Improved Food Products	5%	0%	10%	0%
604	Marketing and Distribution Practices	5%	0%	5%	0%
701	Nutrient Composition of Food	0%	15%	0%	0%
702	Requirements and Function of Nutrients and Other Food Components	5%	15%	10%	100%
703	Nutrition Education and Behavior	36%	50%	0%	0%
704	Nutrition and Hunger in the Population	2%	20%	0%	0%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	15%	0%
721	Insects and Other Pests Affecting Humans	2%	0%	20%	0%
723	Hazards to Human Health and Safety	10%	0%	15%	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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	8.2	1.5	9.5	2.0
Actual Paid	17.1	3.0	33.2	3.0
Actual Volunteer	2420.0	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**
532724	365828	504905	336706
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
770232	120708	585842	687361
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1477624	224862	6391466	227001

V(D). Planned Program (Activity)

1. Brief description of the Activity

Food, nutrition, and health - 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.

Vector-borne diseases and public health pests - Conduct research to further our understanding of vector-borne diseases caused by insects and pests, and disseminate 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

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	120690	50393	1137312	1070

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

Patent Applications Submitted

Year:	2014
Actual:	1

Patents listed

An ultrafast refolding method for producing cell surface protein ligands and receptors.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	3	182	185

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of adults participating in diabetes educational programs.

Year	Actual
2014	25

Output #2

Output Measure

- Number of adults participating in at least one session on adult nutrition, fitness, worksite wellness, or health.

Year	Actual
2014	72660

Output #3

Output Measure

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

Year	Actual
2014	0

Output #4

Output Measure

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

Year	Actual
2014	2420

Output #5

Output Measure

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

Year	Actual
2014	0

Output #6

Output Measure

- Number of research papers published on vector-borne diseases and public health pests.

Year	Actual
2014	5

Output #7

Output Measure

- Number of workshops/trainings conducted on preventing and treating vector-borne diseases and public health pests.

Year	Actual

2014 20

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	Increase effective safe food handling and effective marketing and business practices in food industry.
6	Safe Food Preservation to prevent food borne illness.
7	Inflammatory Regulation Of Skeletal Muscle Lipid Accumulation With Obesity
8	Research demonstrates potential value-added benefits of grape pomace

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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Fighting diabetes for healthier communities and reduced health care costs targets veterans and other senior audiences.

What has been done
Living Well with Diabetes and Balanced Living with Diabetes educational and tracking initiatives

Results
Tracking hemoglobin weight changes resulted in decreased averages in A1c tests for participants. In addition participants reported changes in behaviors resulting in healthier lifestyles. In Southwest Virginia, 63% of (the 70) participants made lifestyle changes after a series of four lessons focusing on prepare healthy foods at home. Balanced Living with Diabetes is another program that enrolled 60 participants in Emporia, VA who are tracking their steps and preparing healthy recipes.

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.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Preparing the next generation to make healthy choices will influence their development and decrease health related illness while addressing obesity. Many programs that Cooperative Extension offers are designed to appeal to the children and youth and delivered using a variety of methods. One of the secondary effects of offering programs to children is the anticipated outcome of children sharing newly learned healthy practices with their families.

What has been done
Increase in social media messages.
Youth programs offered in 2014 include the following:
Healthy Kids Day
4-H Food Challenge
Ag Day at School
Teen Cuisine
Jr. Master Volunteers
Food, Fun & Families
Virginia Supplemental Nutrition Assistance Program (SNAP-Ed)
Read for Health
Stafford Junction Summer Day Camp
Cooking Matters for Teens
Chef Clubs
Chef at Market
Kids in the kitchen summer camp
Summer intern program

4-H Camp staff training
Healthy Weight for Healthy Kids

Results

In one location, 17 college students worked with 4728 youth through camps to teach nutrition. Across the state an additional 1171 youth learned to try new foods, eat healthier snacks and consumer more fruits and vegetables through the multiple curriculum listed above. Many improved hand washing behaviors, learned to use kitchen utensils and appliances, increased physical activity, lowered consumption of sugary drinks, and increased water consumption.

Health & Nutrition social media realized 631 Facebook posts, 519 Tweets, 97 blog posts, and 8 videos were created for use on the Family Nutrition Program?s social media channels. A total of 922 individuals have liked FNH Facebook pages, a 73% increase from 2014. Facebook posts reached a total of 103,226 people (155% increase from 2014), leading to 3,172 users who engaged with the posts (likes, comments, shares, post clicks, and profile clicks), an increase of 6% from 2014 and 3,028 interactions (just likes, shares, and comments), a 6% decrease from 2014. The Family Nutrition Program has 251 followers on Twitter, where 43,488 people were reached in 2014. This led to 565 engagements (retweets, favorites, mentions, and post clicks).

The Cultivating Change program at VSU is a preschool program to raise childhood awareness about benefits of consuming local produce.Cultivating Change program has reached over 140 children, 200 adults comprised of parents and grandparents, and 4 childcare center staff to grow, cook, and eat local farm foods. As a result of an end of year farmers market, the participating children have earned $400 to pay for class parties and activity supplies. The participating parents and center staff have shared that the children are enjoying eating produce and requesting to eat more produce at home and school.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

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.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Obesity is an epidemic and through educational programs with individuals, families and communities we are realizing a difference that relates to personal health, health care costs and reduction of preventable diseases.

What has been done
Master Food Volunteers are reaching more people than a single Extension educator can reach, delivering a 30-hour peer-reviewed curriculum. By partnering with organizations such as Farmer?s Markets, hospitals, libraries, churches, colleges, and universities the message of movement, fitness, and wellness is being delivered. Many outreach programs are being used including Small Steps to Health and Wealth, Walk-a-Weigh, and Cooking for Crowds,Real Food: Beat the Clock, Herbal Flavor, Soup?s On, Holiday Lights, Protein Power, Get Fruity, Veggie Tales, Extraordinary Eggs, Super Salads, Tasty Treats and No-Knead Bread

Results
In 2014, 86 volunteers reached over 11,000 adults and youth contributing 5326 volunteer hours conducting food demonstrations, doing displays in public places, health and wellness fairs and programs as well as physical activity promotion programs. Through the SNAP-Ed program alone, 113, 789 individuals were reached. Programs such as these are encouraging participants to try new foods (86%) and finding that their nutrition decisions have been influenced positively (78%).

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 #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

Increase effective safe food handling and effective marketing and business practices in food industry.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Virginia has many small and large food related businesses. As the food industry is a large part of the state economy, Cooperative Extension is heavily involved in teaching practices focused on safe food handling skills coupled with wise management and customer-centric practices to increase the bottom line financially.

What has been done
-Quality customer service training
-ServeSafe training in restaurants, schools, day care, churches, and other formal and informal food serving venues
-Hazard Analysis and Critical Control Points (HACCP) training delivered in English as well as Spanish
-Good Manufacturing Practice sessions
-Food Innovations consultation program to assists food businesses with quality assurance, food safety, developing a competitive edge, and marketing to third parties
-Food Safety Modernization Act (FSMA) awareness
-Good Agricultural Practices (GAP) sessions
-Use of print and social media and new marketing techniques for Farmer's Markets
-Farmers Markets acceptance of Electronic Benefit Transfer (EBT)

Results
One five-county area trained 66 participants who increased their knowledge in quality customer service and effective customer communication for hospitals, hotels and restaurants. Seventeen HACCP and Good Manufacturing Practice sessions were delivered to over 250 participants. Post monitoring revealed improved sanitation practices and reduction of product contaminants for better market quality and bringing organizations into safe food handling

compliance. ServeSafe resulted in a potential annual savings of over $2 million, lifting the burden of foodborne illness.
The Good Agricultural Practices (GAP) sessions reached 158 fruit and vegetable producers. Delivering safe food handling practices to vendors at farmers markets is reaching growers and market managers alike. Evaluation results with 76 participants showed a 58% increase in hand washing and sanitary toileting practices, 77% improved cleansing and packing processes and 64% improved transporting conditions. In Southwest Virginia, twelve new markets (such as rabbit and aquaculture) were developed and launched in 2014.
Farmers markets vendors began to observe repeat customers and increased foot traffic after social marketing techniques were used. Over 2000 new contacts were made through 23 market food cooking demonstrations alone. One vendor noted a 158% increase in sales over the previous year. Families and Vendors educated about use of the EBT to shop Farmer?s Markets. which helped increase business but also increase access to fresh food consumption by low income clients who use EBT cards.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
604	Marketing and Distribution Practices
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
723	Hazards to Human Health and Safety

Outcome #6

1. Outcome Measures

Safe Food Preservation to prevent food borne illness.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As more families gain greater control over what they eat, they are becoming increasingly interested in food preservation. However, preventing food borne illness such as botulism is of concern.

What has been done
Delivered programs through Master Food Volunteers, mobile demonstration kitchens, and food handler trainings. These included consumers preparing foods in their homes, individuals from non-profit organizations such as church, civic groups, and public service organizations preparing food occasionally for the public.

Results
Over 800 Virginia residents feel more confident in safely preserving low and high acid foods and practicing safer hygiene and safer cross food contamination practices. VCE conducted food handler trainings in 50 counties, including: 43 manager food safety certification courses (16 hour nationally recognized certification program) were provided to 541 individuals from the food service industry, schools, senior and day care centers; 45 employee food safety certification courses (6 to 10 hour trainings) were provided to 603 individuals were food handlers preparing foods in non-supervisory roles;20 general safe food handling and preparation courses were provided to 314 individuals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #7

1. Outcome Measures

Inflammatory Regulation Of Skeletal Muscle Lipid Accumulation With Obesity

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Skeletal muscle lipid accumulation occurs with obesity and contributes to the development of insulin resistance. SCD1 activity is elevated in skeletal muscle of obese humans and contributes to dysregulated fatty acid metabolism . Toll-like receptor signaling
and NF-kB activation are involved in fatty acid-induced insulin resistance in skeletal muscle.

What has been done

TLR4 signaling through NF-kB increases SCD1 activity and contributes to free fatty acid-induced skeletal muscle lipid accumulation and insulin resistance in humans. Objective: Use a euglycemic-hyperinsulinemic clamp, in combination with a 6 h lipid/heparin infusion, to determine if the TLR4/NF-kB pathway mediates increased SCD1 activity, skeletal muscle lipid accumulation, and insulin resistance in humans. Rationale: Acute hyperlipidemia causes an increase in intramuscular lipid accumulation and the development of insulin resistance in both animals and humans. This response is
associated with reductions in IkB protein content, a marker of increased NF-kB activity. Specific Aim 3 proposes to expand on
Aim 2 and to apply a model of acute hyperlipidemia to humans. Six hours of lipid infusion induces skeletal muscle lipid
accumulation and insulin resistance in nonobese, healthy humans. This technique, in combination with the hyperinsulinemiceuglycemic
clamp, will be used to assess the role of the TLR4 signaling, NF-kB activation, and increased SCD1 activity in acute lipid-induced insulin resistance.

Results

The highlight of this work is that as little as 5 days of high fat feeding in healthy, human males disrupts the normal metabolic response in skeletal muscle to a meal. Five days of high fat feeding induced metabolic inflexibility in skeletal muscle, which occurs in the absence of insulin resistance. These findings suggest that metabolic inflexibility may be the initiating insult that causes insulin resistance in response to high fat feeding. Metabolic inflexibility occured in concert with activation of proinflammatory
signaling pathways, e.g., p38-MAPK. Interestingly, metabolic inflexibility was not associated with activation of NF-kB.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
724	Healthy Lifestyle

Outcome #8

1. Outcome Measures

Research demonstrates potential value-added benefits of grape pomace

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Grape pomaces are the major by-product of wine production and are generally treated as a low-valued waste. They are rich in phenolic compounds which exhibit strong antioxidants and antimicrobial activities. However, these activities are affected by grape variety.

What has been done
To characterize the phenolic compounds of pomaces of four Virginia-grown grapevine varieties, namely Cabernet Franc (red), Chambourcin (red), Viognier (white) and Vidal Blanc (white). Total phenolic, flavonoid, anthocyanins, tannin contents, phenolic composition profile, and antioxidant activity (2,2?-diphenyl-1-picrylhy- drazyl (DPPH) and 2,2-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) (ABTS) free-radical scavenging capacity assays) were performed. Furthermore, antibacterial activities of the four pomaces extracts were assessed against four microbial pathogens, including two Gram-positive strains (Listeria monocytogenes and Staphylococcus aureus) and two Gram-negative strains (Escherichia coli and Salmonella arizonae).

Results
Significant differences ($p < 0.05$) of the phenolic compounds and their free radical scavenging activity among the four pomaces were observed. Generally, the pomaces from red grapes had the higher phenolic contents and antioxidant activities than their white counterparts. Cabernet Franc exhibited the highest total phenolic, flavonoid and tannin contents and the strongest ABTS free-radical scavenging capacity, while Chambourcin had the highest anthocyannis content and DPPH free-radical scavenging capacity. HPLC study showed that a total of 7 phenolic compounds were determined, and catechin, epicatechin, ellagic acid and ferrulic acid were the major phenolic compounds presented in the samples. All phenolic compounds extracts demonstrated antibacterial effect, however, a different response degree varied with the tested microorganism. Antimicrobial activity was more effective against Gram-positive than Gram-negative. The pomace extracts from two white grape varieties exhibited the most effective against S. arizonae. These results indicated grape varieties had the significant effect on phenolic compounds, free radical scavenging and antimicrobial activities of pomace extracts. Identify antioxidant and antimicrobial properties will lead to potential use of grape pomace extracts as functional ingredients or as natural antimicrobial agents in food packaging, which will add significant value to pomace that could benefit grape producers and the wine industry locally and nationally.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

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

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	22.3	1.5	25.9	0.0
Actual Paid	37.5	1.0	51.5	1.0
Actual Volunteer	3782.0	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**
825722	301487	782603	150853
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1193859	406130	908055	228891
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2290318	672750	9906772	234616

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?

Information is shared and supported by involvement in several COP's. For example: 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. 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. 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. Other COP involvement includes: Climate, Forests and Woodlands, Drinking Water and Human Health, Land Use Planning, Sustainable Marine Fisheries, Urban Forestry and Energy Conservation, Wood Energy, and Wildlife Damage Management.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	266026	329507	115101	5371

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	26	115	141

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational programs offered.

Year	Actual
2014	1309

Output #2

Output Measure

- Number of educational materials and curriculas developed

Year	Actual
2014	26

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
2014	90

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	Landowner Retreats for New Woodland Managers
15	Landowners improve water quality through sustainable forest management

Outcome #1

1. Outcome Measures

Increased number of people adopting at least one 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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Approximately 373,000 people in Virginia have ownership of 80% of the forestland (VDOF State of the Forest Report, 2014. New land ownership abounds each year and inquiring landowners need assistance. Currently less than 15 percent of the 15.8 million acres of forest land in Virginia is being actively managed in some way. Attending to the needs of the remaining 85 percent of forest landowners with this information is the main mission of the Virginia forest Landowner Education Program, and one of the main missions of the field-based Forestry and Natural Resources Extension agents.

What has been done
In 2014, the event was held centrally in the 19,000-acre Appomattox/Buckingham State Forest with 27 participants. For the first time, due to popular demand a second event was added that occurred in the fall of 2013 in Wakefield, Virginia. In the fall of 2014 a third event was added in the Southwest District at Matthews State Forest with 23 participants. A combination of classroom and field exercises comprise this event with topics such as estate planning, timber harvesting, alternative forest income opportunities, forest certification and wildlife management.

Results
A total of 194 participants owning 21,145 acres of land in Virginia and nine other states have attended this event in Central District since 2008. Due to interest in providing the event elsewhere in the state, a second program was planned and conducted by the Southeast District Extension Natural Resources Agent with 17 participants and in the summer of 2014 a third event was added at Matthews State Forest in Galax, Virginia with 23 participants. For the first time this made a spring, summer, and fall event available. One-hundred percent of participants indicated on exit surveys that topics and field events over the weekend would help them accomplish their land management objectives more effectively. Participants ranked the event a 4.9 on a scale of 5.0 for

overall effectiveness, the highest since 1998. The most common actions to take in the next 6 months by participants were: 1) Establish contact with Area DOF Forester, 2) enhance wildlife habitat in fields for quail and insects using wildflowers, and 3) monitor insect pests in woods. Private funding supporting the Central District program to date exceeds $21,500.

4. Associated Knowledge Areas

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

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The U.S. Environmental Protection Agency estimates that water infrastructure investments of $335 billion will be needed between 2007 and 2027 to protect from contaminants that might create serious health risks and to assure continued compliance with the Safe Drinking Water Act. 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. In the US, municipal 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 (VAHWQP) provides confidential water testing and educates private water supply users through county-based drinking water clinics. With Virginia Cooperative Extension agents, trained through the Virginia Master Well Owner Network (VAMWON), VCE faculty coordinate clinics in up to 60 counties per year. At a clinic kickoff meeting, participants receive water sampling kits and instructions. A day later, participants bring their water samples to a central location in the county. The samples are transported to Virginia Tech for analysis. Samples are analyzed for 12 chemical constituents and for the presence of total coliform and E. coli bacteria. Three weeks later, test results, an explanation of individual results, and possible solutions to water problems, including water treatment options, are discussed with clinic participants at an interpretation meeting. This interpretation meeting is a critical value-added component unique to VAHWQP drinking water clinics.

Results

Thirty-nine drinking water clinics were held serving participants from 60 counties in 2014. About 1,222 private water supply systems were tested, which provide water for almost 3,000 Virginians. Statewide, in 2014, about 33% of all samples did not meet the EPA standard for public systems for total coliform bacteria, and 6% didn?t meet the standards for E. coli. Nearly 20% 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%). These results were encouraging, showing 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.

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.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Virginia's state legislature began enforcing an unfunded mandate in 2013 that requires commercial applicators of fertilizer to turf and ornamental properties to be certified in the proper selection, handling, and application of fertilizer materials. In lieu of attending on-site training and testing programs, it was desirable to develop a web-based training and testing system that was readily available to Virginia's turfgrass industry professionals at reduced or no cost.
Virginia currently has nutrient management Standards and Criteria and corresponding Turf and Landscape Nutrient Management Planner training and certification programs administered by the Virginia Department of Conservation and Recreation (DCR). This program, initiated in 2009, was developed through a collaborative effort between DCR, VCE, and VT. The parties also collaborated in the development of a state/regional training manual to support the certification process in 2010. Standards and Criteria were updated in 2014, so these changes were incorporated into new presentations.

What has been done
Personnel from VCE, CALS-IT, VT Pesticide Programs, Virginia Department of Agriculture and Consumer Services (VADCS), and DCR collaborated on the development of a no-cost, self-paced, web-based training and testing program to provide not only certification, but also testing that meets VDACS (certifying agency) requirements. The program is called FACT and is hosted on the VCE website at www.ext.vt.edu/fact. The program consists of 10 training modules and is also supported by numerous training videos and electronic files. Personnel from VCE, VT, and DCR collaborated on 2-day training sessions for 61 participants in spring and fall training sessions of 2014. The audience included turfgrass and allied green industry professionals, extension agents, and Master Gardener Volunteers desiring to become certified plan writers in 2014.

Results
Reviews of the on-line program continue to be extremely positive and the program has become a mandatory requirement for the new Virginia Turfgrass Certification Program. In 2014, 1,035 participants enrolled in the FACT on-line program and 389 successfully completed the training and have become certified fertilizer applicators.
Of the 61 participants in the urban nutrient management training program, 35 new urban nutrient management planners were certified. An additional 23,893.6 acres of turf under an Urban Nutrient Management Plan was added from these and previously certified trainers that came through this program (113 prior to 2014).

A total of ninety-three Henrico residents had their lawns measured, one hundred and fourteen (114) soil samples were submitted, and ninety-three (93) urban nutrient management plans were written and given to the respective homeowners. A total of 655,930 square feet (15.05 acres) of residential turf were brought under a nutrient management plan that is in full compliance with DCR urban nutrient management planning criteria.

4. Associated Knowledge Areas

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

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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
VCE Master Gardener volunteers provide educational and technical services to homeowners with regard to home lawn management. The "Green" Grass Program brings awareness to local water quality as it is impacted by residential lawn care practices. In 2014, 71 homeowners received customized nutrient management plans.

Results
71 homeowners had their lawns measured, 71 soil tests were submitted, and 71 urban nutrient management plans were written and given to their respective homeowner. In 2012, a total of 40.7 acres of residential turf were brought under a nutrient management plans, which promotes best practices. Since 2009, 362 residences have received customized nutrient management plans for their turf.

4. Associated Knowledge Areas

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

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Soil is a foundational resource to farming, conservation and health in the 21st century. Controlling soil loss and nutrient runoff, non-point source pollution, is an important focus of water quality protection and clean-up efforts throughout Virginia. Additionally, there is growing interest and research on the role and function of soil health and its relevance to environmental sustainability, farm-to-table connections, long-term farm profitability and resilience, human gastrointestinal correlations, and the mitigation and adaptation to climate change by farmers and communities.

What has been done

With growing interest in soil health and its relevance to farm-to-table connections, prevention of diet-related diseases, sustainability and mitigation of climate change, VCE and USDA-Natural Resources Conservation Service (NRCS), in cooperation with 40 community partners, hosted the three-day 2014 Virginia Farm to Table Conference and In-Depth Soil Biology Training at Blue Ridge Community College and Virginia State University. The Virginia Farm-to-Table Conference and In-Depth Soil Biology Training was tailored to farmers production context (i.e., agronomic crops, forages, vegetables, fruits, and/or urban environment) and adaptive soil management to build appreciation of soil ecology and a more holistic understanding of the soil resource. The conference included 6-hours of training during the plenary sessions on nutrition health, soil biology, scale, and community ethics. More in-depth training on the principles and applications of soil biology were then offered as a specific track on days 2 and 3 of the conference at two sites in Virginia. Continuing education credits were offered for dietitians and nutritionists, certified crop advisers, nutrient management planners, and natural resources conservation personnel.

Results

The conference, producer-buyer meet-n-greet, and soil biology training was attended by 863 participants, exhibitors and panelists over the three days. The two 6-hour in-depth soil biology trainings at the two sites reached in total 87 soil conservationists of Virginia's NRCS field staff; 27 employees from soil and water conservation districts; 36 Extension agents and specialists; 61 representatives from non-profit organizations; and 215 farmers. To make the conference a bit greener and to better model what we are teaching, we partnered with A Bowl of Good Café and Black Bear Composting on Days 1 and 2 to divert seven 65-gallon containers of compostable materials (food, plates, glasses, forks, napkins etc.) to be composted and turned into soil rather than material for the landfill.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

Outcome #7

1. Outcome Measures

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

Not Reporting on this Outcome Measure

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.

Not Reporting on this Outcome Measure

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
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Forests and the forest industry provide an economic impact of over $17 Billion to Virginia's economy. Harvesting and transportation is a critical component for providing raw materials for forest industry and providing revenue to forest landowners. Logging can be dangerous and is often listed as one of the most dangerous occupations in the US. Forest harvesting operations have the potential for environmental impacts, primarily related to erosion and sedimentation issues during harvests. Performing harvesting operations safely and sustainably is critical for workers and for the sustainability of forests. Proper training can reduce the safety risk to workers on harvesting operations and can also minimize environmental impacts associated with harvesting.

What has been done

The Virginia SHARP Logger Program (www.SHARPlogger.vt.edu) provides training to landowners, loggers, and others in the forest industry. The program provides training in sustainable forestry, environmental protection, and workplace safety. The SHARP Logger program is a cooperative effort between forest industry, VCE, state agencies, and others in involved in forest operations. The program is operated as an Extension program in the Department of Forest Resources and Environmental Conservation (FREC) in the College of Natural Resources and Environment. Trainings are coordinated through the FREC department and are often hosted locally by district agents. Trainings are offered throughout the Commonwealth and focus on issues related to safety, environmental impacts, and other issues related to harvesting operations.

Results

The vast majority of all logging businesses in Virginia are reached by the SHARP logger program. In 2014, over 30 training events and workshops were offered through the SHARP logger Program and over 1300 individuals attended at least one training to receive SHARP logger credit. Surveys of program participants have shown that trainings are effective and business owners frequently made changes to their operations as a result of attending SHARP logger trainings. The most commonly reported changes reported in their operations included improvements in safety and improvements in implementation of Best Management Practices to protect water quality.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Landowner Retreats for New Woodland Managers

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Forestry is the third largest industry in Virginia. It contributes over $17 billion a year to the economy. Forests also provide clean water and air, plant and wildlife habitat, scenery and recreational opportunities, and soil protection and enhancement. The annual value of these environmental benefits is estimated to be $21.8 billion. Most of our forests (68%) are owned by private families. An aging ownership and rapid turn-over of land results in constantly changing ownership. While most owners claim a conservation ethic, few have knowledge & experience to recognize & practice sustainability. 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
To reach these new landowners, VCE developed the Forest Landowner Weekend Retreat Program. This day-and-a-half program combines classroom, field, and hands-on learning experiences to introduce landowners to basic forest management concepts, skills, and natural resource professionals. From its inception in 2008, through 2012, this program was offered annually in Central Virginia locations. Due to its success, the program was expanded in 2013 to

include a southeast location and expanded again in 2014 to include a southwest location. To date, 9 Retreats have been held.

Results

Over 200 landowners have attended a Retreat. The average ownership size of attendees is 90 acres. As a result of attending a Retreat, exit surveys indicate that 10% intended on contacting a natural resource professional, 9% intended on obtaining a management plan, 5% planned on controlling invasive species on their land, and 5% intended on harvesting timber. However, the interesting story lies in anecdotal evidence. After the Retreats, we hear back from our speakers that they have been contacted by participants, wanting to donate easements, join Tree Farm, obtain a management plan, sell timber, etc. We are in the process of refining our exit survey tool and developing a follow-up survey for early participants in the program, so we can better tell this story. The follow up survey will be sent out this spring, so the 2015 Impact Statements will contain these results.

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
133	Pollution Prevention and Mitigation

Outcome #15

1. Outcome Measures

Landowners improve water quality through sustainable forest management

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Water and forests are vital and interlaced natural resources. The commonwealth has an estimated 100,823 miles of streams and rivers, 117,158 acres of public lakes, 236,900 acres of tidal and coastal wetlands, 808,000 acres of freshwater wetlands, 120 miles of Atlantic Coastline,

and approximately 2,308 square miles of Chesapeake Bay estuarine waters. The highly indented shoreline is estimated at 3,315 miles. Forests are the dominant land cover in Virginia, with over 15.9 million acres. Forests protect water quality by acting as natural filters, absorbing nutrients & other pollutants that would otherwise be washed into nearby waters. In fact, high quality waters are most commonly associated with forested areas.

Non-industrial private individuals and families own 68% of Virginia?s forested acres. As such, Virginia forest landowners have the opportunity, by using sustainable forest management practices, to play a significant role in improving water quality. Research into landowner decision-making highlights the importance of planning, professional assistance, and peer influence to increase stewardship while meeting society?s demands (such as clean water). VFLE Programs present woodland owners with educational programs that outline forest management planning and highlight sustainable management practices. In addition, VFLE Programs provide a forum that fosters interaction with natural resource professionals and provides peer-to-peer learning opportunities.

What has been done

The Fall Forestry & Wildlife Field Tours take forest landowners to private, public and industry owned lands to see, first-hand, what sustainable forest and wildlife management practices look like, and how they can be implemented on private lands. Water quality protection and enhancement is a running theme in these discussions. Participants are provided with information on how to obtain both technical and financial assistance. The day-long experience provides ample time for participants to interact with, and learn from, fellow woodland owners and natural resource professionals. Typically, 3-4 tours are held throughout Virginia each fall. This is the longest continuous running program of its type in Virginia and possibly even in the US. In 2014, VCE and the VFLE Program held three Fall Forestry & Wildlife Field Tours throughout Virginia. In September, the Northern and Eastern Districts co-hosted the first overnight Fall Forestry & Wildlife Bus and Boat Tour, an immersion experience for woodland owners to learn about and see first-hand the relationship between forestry and Bay water quality. In October, the Central District hosted a tour in Halifax County, and the Western District hosted a tour in Grayson-Carroll Counties. In all, 120 woodland owners, who own over 8,057 forested acres, participated in one of the three tours.

Results

As a result of attending the program, 29% of participants either "agreed" or "strongly agreed" that they would obtain a written forest management plan. In addition, 85% either "agreed" or "strongly agreed" that they would adapt the management of their forest to enhance the benefits it provides to society, including protecting and enhancing water quality. 86% "agreed" or "strongly agreed" that they could list three examples of Best Management Practices (BMPs) to protect water quality and explain the importance of using BMPs during forest management activities. All participants who completed the exit evaluations "agreed" or "strongly agreed" that forests can be managed in ways that protect water quality and indicated that they would implement at least one BMP in conjunction with their management practices.

4. Associated Knowledge Areas

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

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 anticipated future growth of this alternative fuel source will likely have major impacts on forest 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

A mail survey was sent to 5,200 households in the Maryland and Virginia suburbs of Washington, D.C. The survey elicited consumer attitudes toward drinking water quality and willingness to pay for three programs aimed at improving drinking water services: 1) water quality improvement, 2) pinhole leak damage insurance and 3) water utility infrastructure upgrade. Results suggest that consumers respond to information about the quality and reliability of their drinking water. Positive information is likely to increase their confidence in their water and reduce their willingness to pay for improvements while negative messages increase their willingness to pay for improvements in some cases. Of perhaps equal importance are the experiences consumers have had with their drinking water. For example, respondents who had personally experienced leaks were more likely to support pinhole leak insurance. Thus, a combination of informational campaigns targeting actual problems experienced by large numbers of drinking water system users is most likely to increase acceptance of water quality improvement programs. The results indicate stronger support for public infrastructure improvements compared to the other two programs, which may indicate heightened public awareness of infrastructure concerns. In addition, this study supports previous findings regarding the link between information, risk perceptions and individuals' valuation decisions.

Key Items of Evaluation

The results indicate stronger support for public infrastructure improvements compared to the other two programs, which may indicate heightened public awareness of infrastructure concerns.

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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	10.4	2.0	12.3	0.0
Actual Paid	42.8	2.7	0.0	0.0
Actual Volunteer	1121.0	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**
1038811	392731	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1501952	381588	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2881367	428112	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, donors, K-12 educators, 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

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	23565	53447	19014	761

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	1	1

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
2014	1298

Output #2

Output Measure

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

Year	Actual
2014	0

Output #3

Output Measure

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

Year	Actual
2014	0

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).

Year	Actual
2014	10

Output #5

Output Measure

- Number of workshops, activities, or programs offered to address emerging issues.

Year	Actual
2014	5

Output #6

Output Measure

- Number of adults engaged in facilitation skills training.

Year	Actual
2014	86

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	Economic and Community Planning- Increase in self-reported preparedness among communities receving economic development and community planning education
8	Increased personal financial understanding and effective practice to manage resources and plan for the future.

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.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Building positive parent-child relationships are cornerstones to children being successful in school and life.

What has been done
Targeting fathers with parenting education, court-ordered parents, families with aggressive children, teen parents with mentoring relationships to build parenting competencies, and military families
Using play groups with parents and children together
Building parent confidence and competence

Results

Reached 399 child care providers working with military families on school readiness. 101 parents claim that they are more confident as parents and more comfortable laying down ground rules for teenagers, 90% young parents have learned age appropriate activities to use with children, 100% are implementing safer practices, and 80% using more appropriate emergency procedures.Teen moms who are assigned mentors are improving their grades, avoiding homelessness, and school drop out.
40% decrease in aggressive behaviors in children and a 57% greater ability to self-calm. All (100%) children demonstrated more positive friendship skills and 83% showed a greater ability to resolve conflict by year?s end.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

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.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Striving for high quality child care and emphasizing positive parent-child relationships are cornerstones to children being successful in school and life.

What has been done
Multi-county professional development conferences

Results

This year 168 individuals in Central Virginia attended an all-day conference with 98% reporting that they will make efforts to increase connections with their children, students, parents or the community. In Southwest Virginia, 101 child care professionals from 15 counties indicated greater understanding of stress, how to raise the quality of care in their classrooms, and how to manage personal relationships more effectively. Partnering with multiple agencies to target military families, agencies such as Prevent Child Abuse, child care providers, Head Start, Pre-K programs and Smart Beginnings led to reaching 27,592 in 16 states with training on school readiness, reaching 399 providers in Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

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

Economic and Community Planning- Increase in self-reported preparedness among communities receving economic development and community planning education

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Increased personal financial understanding and effective practice to manage resources and plan for the future.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Financial literacy includes aspects of homeownership and personal finance including understanding how to manage resources and plan for the future. Similarly, youth must have an emerging grasp of reality as they prepare for independence and adulthood.

What has been done
Bank-On, Money Smarts
Master Financial Education Volunteers
Money Talks, MetroCASH
Bankruptcy courses,Poverty Simulation, small business development seminars
Reality Store, Kids Marketplace, and Real Money, Real World, and Financial Football

Results
Reached over 6000 residents with financial information directly and another 1500 reaching indirectly through displays and public information distribution. 97% of the over 600 participants now understand poverty and empathize with the difficult decisions of impoverished families. Collectively nearly 500 youth are reporting an increased awareness of financial planning needs

and having a greater awareness of the types of jobs that bear the largest incomes. Programs clients are reporting the ability to save $46 per month and paying down credit card debt. Clients are improving by an average of 50% their desire to save first before spending their weekly income. one group in Arlington, VA realize a collective savings of over $60,000 following two 5-week course. Collective reports are that over $900,000 in Earned Income Credit and saving families over $600,000 in tax preparation fees.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

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

{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 # 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	112.0	2.5	0.0	0.0
Actual Paid	93.8	2.3	0.0	0.0
Actual Volunteer	15157.0	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**
2130895	381264	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
3080927	171568	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
5910497	336380	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities include leadership, civic engagement, healthy living, STEM, 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

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	173680	268336	771264	361959

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	24	2	26

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**

2014	15348

Output #2

Output Measure

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

Year	Actual
2014	7012

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
2014	74215

Output #4

Output Measure

- Number of youth involved in structured after school programming.

Year	Actual
2014	8985

Output #5

Output Measure

- Number of youth engaged in Science, Engineering, and Technology

Year	Actual
2014	96431

Output #6

Output Measure

- Number of youth engaged in Citizenship.

Year	Actual
2014	61675

Output #7

Output Measure

- Number of youth engaged in Healthy Lifestyles.

Year	Actual
2014	96396

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
2014	10730

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
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.

What has been done
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 environment and participating in group activities. Communication skills are addressed 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 taking responsibility for their actions, and finally a 15% increase in youth expressing their opinion with others. Out of a total of 1,705 randomly surveyed 4-H Jr. Campers, 97% indicated they would come back next year. What do the campers say? 71% take responsibility for actions; 68% work as a team; 63% make new friends; 60% make decisions for themselves; 71% enjoy learning new skills; 69% enjoy helping others; and 56% express their opinions with others.

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
2014	825

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Publicly elected legislators set requirements and enact legislation that determines the length of the school year, requirements for in-school testing, and acceptable Standards of Learning scores for Virginia Students. While the government plays a critical role in the establishment of these laws and guidelines that affect youth and their families on a daily basis, many children and a lot of adults, know little about the legislative process and how laws are introduced, accepted, and enacted.

What has been done
State 4-H Day at the Capitol provides an outstanding opportunity for youth to view first hand the Virginia Legislature in session and speak one on one with elected officials from their respective districts.

Results
825 youth and adults from 53 units attended State 4-H Day at the Capitol,ranging in age from eight to 19 years old. Youth were able to witness not only the voting, passing, and defeat process of House Bills, but also learned about respectful congressional behavior during an emotional debate of an eventually defeated piece of legislation. Post event discussions with participants revealed an increased appreciation for how state bills are introduced, debated, and eventually passed to become laws. Youth were keenly aware of the respect and demeanor of law makers while on the floor and engaged in discussion between one another. Youth felt very involved with the entire process and received an excellent lesson on the history of the Virginia Legislature.

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	47947

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The state youth livestock shows serve as the culminating activity for youth involved in livestock projects across the Commonwealth of Virginia. Virginia Cooperative Extension, in cooperation with Virginia Farm Bureau, and VDACS, coordinates the youth beef, sheep, swine, and meat goat shows.

What has been done
A state youth livestock show was coordinated with the help of several Extension Specialists, Extension Agents, and VDACS employees. The groups worked together to organize all facets of the competition including nominations, entries, awards, show logistics, judge procurement, animal trucking, animal harvest, carcass data collection, and premier exhibitor programs including species-specific stockmens' contests.

Results
Over 225 youth exhibited over 750 beef cattle, meat goats, sheep and swine. The competition in the show ring allowed the youth to highlight the skills they learned. Judges asked each exhibitor questions, to test the knowledge the youth had of their project animals, teaching them how to handle pressure in a stressful situation. Through owning project animals, youth gain life skills including the responsibility, problem solving, leadership, and critical thinking. Additionally, they develop a work ethic that will be highly valuable in all facets of their life. These opportunities not only allow them to learn about the livestock industry, but also allows them to network with other youth who are interested in the livestock industry; these individuals will be their partners and colleagues in business later in their life; therefore allowing them to be more successful in their

business.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	18331

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Virginia Public School?s Standard of Learning (S.O.L.) objectives address the development of effective oral communication skills, including presenting and listening to presentations and reports. Students are also required to use subject-related information and vocabulary, organize information, and present clear directions to individuals and small groups.

What has been done
4-H has developed curriculum to help youth improve communication skills by speaking confidently and becoming good listeners. 4-H provides several opportunities for youth to participate in public speaking, presentations, and share-the-fun competitions at the local, district, area, and state levels. Together, these programs meet the S.O.L objectives of the school system and strengthens the partnership between the public schools and Virginia 4-H.

Results
In Scott County of the 302 participants, 79% reported an improvement in their confidence level. 75% reported a significant improvement in their confidence in front of groups. 95% reported that they would be willing to participate again. 100% reported that they liked the variety of project offerings. Of the 217 Bland County participants, 82% stated ?my public speaking skills have improved by giving a speech.? 83% stated ?their self-confidence improved? after completing

their presentation. When asked to name something you learned while preparing your speech, students stated: Looking for information helped me learn new things; Confidence; I was nervous, but I did it; and I learned to be brave. Other remarks include: Responsibility; Hard work develops good work; Don?t be scared. Stay calm; and It?s fun to do.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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
2014	89585

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity is a problem that is facing Virginia and the nation. According the Centers for Disease Control and Prevention (CDC), approximately 17% of youth ages 2-19 are obese in the U.S. and according to the 2011-12 National Survey of Children?s Health, 29.8% of Virginia?s 10 to 17 year olds were overweight or obese and ranks Virginia 23rd highest in the country for percentage of overweight or obese children.

What has been done
A remedy to this epidemic is to educate today?s adolescents on healthy, inexpensive food preparation techniques to use at home. Thus, the Teen Cuisine program was developed by the Virginia Family Nutrition Program for low-income youth in 2011 and revised in 2013. Teen Cuisine is a skill-based curriculum that focuses on food preparation and safety. It includes six lessons, each lasting 90 minutes. It focuses on key components of the Dietary Guidelines for Americans, including MyPlate, the food label, sources of fat, whole grains, and nutritious snacks.

Results

Through interdisciplinary programming (4-H, FCS and FNP)together we reached a diverse group of 6,098 youth between the ages of 12-19. As a result, based on retrospective post-tests, teen participants reported a variety of positive dietary impacts. 70% indicated that as a result of Teen Cuisine they made food choices based on what their body needed. 83% that they made healthy food choices whenever they could. 77%reporting that they ate more fruits and vegetables. 63% more whole grains. 55% less junk food. 61% less saturated fat. 67% indicated they drank less soda, 82% more water. 95% reported that they washed hands before they cooked. 91% reported improved knife skills. 75% reported using recipes when cooking. 79% indicated that they cooked more.

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.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	12681

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Youth are becoming less active outdoors and spending more time with video games, computers, and cell phones. Youth are less knowledgeable of natural resources related information and how it affects their personal lives and the lives of those around them. The term ?nature-deficit disorder? was coined by author Richard Louv to describe what happens to young people who become disconnected from their natural world. Louv links this lack of nature to some disturbing childhood trends, like the rise in obesity, attention disorders, and depression.

What has been done
The 4-H Natural Resources Weekend offered 36 hands-on workshops and demonstrations

primarily conducted in outdoor settings that address topics related to natural resources such as wildlife and fisheries, forestry, shooting education, and outdoor recreation. Youth and adult participants have the opportunity to be active outdoors while learning research-based facts about the environment. This two-day event involved 20 professional instructors who educated over 60 youth and adults about natural resources.

Results

As a result of participation in the State 4-H Natural Resources Weekend, Survey respondents indicated 70 new skills or knowledge learned from participation in the weekend event such as how to identify trees in winter, the importance of eye dominance when shooting, how animals communicate, how to identify animal scat, and how to build a bat box. Participants described the 4-H Natural Resources Weekend as "amazing, but too short"; "it teaches you the importance of nature and how you can help preserve it." Seventy-three percent of evaluation respondents indicated that the Natural Resources Weekend changed the way they think about natural resources.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	19148

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Entomology is a science that generates a great deal of fear and misunderstanding. Most insects and their relatives are beneficial. Yet the public fears them. Pest management, particularly the use of pesticides and biological controls, are methods employed to control the few pests that do exist. Yet the public fears their use or mistrusts those who manage them. Changing attitudes establishes a perspective of life that is inclusionary to species unlike ourselves.

What has been done
Activities in 2014 included tours, school visits, 4-H camps, museum and festival exhibits, demonstrations, and Hokie BugFest. A live arthropod zoo was expanded and maintained to introduce these organisms to the public. Educational PowerPoint modules tailored for each audience were used for classroom presentations. Experiences with holding, touching, collecting, and building insect collections were used to introduce participants to entomology. Exercises and challenges were used to qualify students as junior entomologists and encourage learning.

Results
In 2014, over 15,000 people participated in 4-H entomology activities. Children statewide were challenged to build their own insect collections based on the 4-H entomology workbook. 6,112 youth and adults returned to the 4th annual Hokie BugFest. The event had over 200 volunteer workers. Over 672 children earned junior entomologist certificates. The impact of the events allowed participants to change their attitudes - many reduced their fear of arthropods. Of those attending Hokie BugFest, over 30% came from outside the region. It was the first time attending for 66% - 93% said they would return. The event reduced the fear of arthropods for 45%.

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
2014	96431

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The U.S. faces a future of intense global competition in science, engineering and technology with a startling shortage of scientists (National 4-H 2010). Only 18% of U.S. high school seniors are proficient in science (NAEP 2005) and a mere 5 % of current U.S. college graduates earn

science, engineering, or technology degrees. The 4-H Science, Technology, Engineering,and Math(STEM) Initiative reflects the 4-H program?s work to improve human capacity and workforce ability in these areas.

What has been done

Notably, in Gloucester County a series of STEM day camps were held for youth, 9-13. One of the camps taught basic GPS skills and exposed youth to local wildlife and fauna through use of Leave No Trace curriculum. Youth also planted an Extension Centennial Geocache at the park. During 4-H Rocket Camp, 14 youth learned about aerodynamics and the history of the NASA space program. Youth built model rockets and launched them. 4-H Water Science Camp provided a Meaningful Watershed Educational Experience for 12 youth who put their skills to work onsite.

Results

In post camp evaluations, 95% of participants reported being more excited about science. 100% of youth attending GPS and Geocache Camp were able to use a GPS receiver independently to locate geocache where none had used one previously. 100% of youth enrolled in Water Science Camp were to classify macroinvertebrates and preform a biological assessment with limited adult assistance. In Rocket Camp 100 % of campers had a successful launch. Parents of youth who attended the STEM camps indicated that their children were more interested in both science and outdoor activity, and expressed interest in assisting with additional camps next summer.

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	7385

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many youth are unaware of many career choices. They become somewhat comfortable with seeking careers that they see others in their communities work and those that their families are in. Or even more interesting, to become a celebrity athlete or performer. A great deal of youth are not familiar with assessments to help them understand careers, their abilities and skills, requirements and the educational background needed to be qualified to work in various career fields.

What has been done

Through exposure to professionals in various careers, youth can learn about career opportunities they may not have been aware of. Through the use of the Virginia Educational Wizard students learn about their interests, abilities, skills and what colleges, universities and technical schools provide majors in their field of interest. Speakers tell about their careers, how they became interested, what they studied in school and what it takes to become an entrepreneur. Additionally, students are taught business etiquette and professionalism.

Results

One hundred percent (100%) of the 480 students are able to present a poster based on their participation in the sessions. One hundred percent (100%) of the students dressed professionally for their poster presentation. Students were able to identify and research the colleges that offered the career interests or where they can be trained in technical fields. Some students researched careers other than those that they were initially interested in once they had completed the Virginia Educational Wizard.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	28267

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Four-H is nationally recognized for the leadership skill development process. In Virginia, skills such as public speaking, proper use of parliamentary procedure, and strong group facilitation skills are the positive outcomes that local and state legislators recognize as some of the strong benefits from 4-H participation. However, these traditional skills are often not emphasized and enhanced beyond the local club.

What has been done
Agents in the Southeast District recognized the need for traditional leadership skill development training beyond the local level. In partnership with the State 4-H Cabinet a statewide leadership development event was offered to promote the fundamental skill development for which 4-H is traditionally recognized. Agents trained the Cabinet members, handled the event logistics and collected and distributed associated resource materials. Cabinet members delivered the program content at the event.

Results
80% of the 109 participants said this was ?Definitely True?. 75% of youth noted that their experience taught them teamwork skills in regards to cooperating with others and taking their job seriously. A survey was given to adult participants, too. Nineteen of 20 adults responded that "because of 4-H experiences my child/members can cooperate and work in a group? and 18 of 20 adults responded that "because of 4-H experiences my child/members know how to set goals and use them when leading a group.? In regards to the Cabinet members who delivered the program content, one stated "I have learned so much by teaching these leadership classes over the last two years. I not only saw growth in the participants, but I saw a positive change in how I taught the classes as well."

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	6508

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Report Card of the Ethics of American Youth (2012), measures the self-reported values, attitudes and behaviors of over 23,000 high school students. Results reveal that for the first time in a decade students are cheating, lying and stealing less than in previous years. Even though this is a small ray of hope, it is pertinent that we continue implementation and delivery of a character education program for fostering youth's overall sense of well-being and positive development.

What has been done
The Virginia CHARACTER COUNTS! program helps youth sort right from wrong and encourages them to use universally accepted values to strengthen their character. The national program, developed by the Josephson Institute of Ethics and adopted by Virginia 4-H, teaches trustworthiness, respect, responsibility, fairness, caring and citizenship as the six pillars of character. Age appropriate games, role playing, discussion, reflections, and real world examples make these character values understandable.

Results
A statewide CHARACTER COUNTS! training was conducted for 15 participants. Evaluation results indicated that out of a scale of one to five, one being little/none and five being complete, 93% of participants ranked their understanding of the six pillars as a four or higher and 89% indicated their preparedness of implementing CHARACTER COUNTS! as a four or higher. According to the payback surveys of 12 past training participants, of the 2,145 youth with whom they have worked with, 82% changed their behavior by resolving disagreements peacefully and treating others more respectfully. 83% of past graduates reported an overall positive difference in the youth, 75% reported that youth are using the language of the six pillars, and 100% reported changing their own behavior as a result of teaching CHARACTER COUNTS!.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	10681

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Current organizational climates require faculty to do more with less, making the contribution of 4-H volunteers? vital. Volunteer support is important in fulfilling programmatic objectives for 4-H, such as providing care, guidance, respect, knowledge, and wisdom to youth participants (Stedman and Rudd, 2006). Trained volunteers are needed to fill these roles and engage youth in activities which help them gain positive outcomes including mastery, generosity, independence and belonging.

What has been done
In Accomack County, volunteers were supported through eleven group training sessions and numerous individual sessions. Topics included camp counselor training, club account management, civil rights compliance, risk management, VCE policies and procedures and youth development basics. Volunteer opportunities ranged from one time occasional volunteers and teen counselors to community club volunteers and teachers who contribute their time throughout the year. Most volunteers work directly with enrolled 4-H youth.

Results
In Accomack alone, 95 volunteers contributed 7,180 hours to support 1,354 4-H youth. The current value placed on volunteer service is $24.49 per hour, that translates to $175,838. Statewide, 10,681 volunteers contributed 532,785 hours of service, translating to $13,047,904.65. Adult volunteers served as role models by accepting responsibility for the organizational

management of club operations, recruiting, encouraging participation, and contributing to community well being.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Appropriation changes: We have had quite a bit of turnover with 4-H Agents. Fortunately, we have been able to hire new replacements but are still in the process of training them.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Teen Cuisine is a skill-based curriculum that focuses on food preparation and safety. It includes six lessons, each lasting 90 minutes. It focuses on key components of the Dietary Guidelines for Americans, including MyPlate, the food label, sources of fat, whole grains, and nutritious snacks. In 2013, Virginia 4-H received a $65,000 Youth Voice: Youth Choice 4-H Healthy Living grant (funded originally by Wal-Mart) to provide training and resources to 4-H and Family and Consumer Science Extension Agents throughout Virginia who serve low-income audiences. As a result, through interdisciplinary programming (4-H, FCS and FNP) together we reached a diverse group of 6,098 youth between the ages of 12-19. Based on retrospective post-tests, teen participants reported a variety of positive dietary impacts.
•70% indicated that as a result of Teen Cuisine they made food choices based on what their body needed,
•83% that they made healthy food choices whenever they could.
This translated into:
•77% reporting that they ate more fruits and vegetables
•63% more whole grains
•55% less junk food
•61% less saturated fat
•67% indicated they drank less soda
•82% more water
In terms of food preparation and cooking skills:
•95% reported that they washed hands before they cooked
•91% reported improved knife skills
•75% reported using recipes when cooking

•79% indicated that they cooked more

Key Items of Evaluation

Based on 6,098 retrospective post-tests, teen participants reported a variety of positive dietary impacts.
•70% indicated that as a result of Teen Cuisine they made food choices based on what their body needed,
•83% that they made healthy food choices whenever they could.
This translated into:
•77% reporting that they ate more fruits and vegetables
•63% more whole grains
•55% less junk food
•61% less saturated fat
•67% indicated they drank less soda
•82% more water
In terms of food preparation and cooking skills:
•95% reported that they washed hands before they cooked
•91% reported improved knife skills
•75% reported using recipes when cooking
•79% indicated that they cooked more

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Childhood Obesity

☐ Reporting on this Program

Reason for not reporting

Childhood Obesity Planned Program was combined for ease of reporting purposes with our Foods, 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.5	4.7	0.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	8	8	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
2014	0

Output #2

Output Measure

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

Year	Actual
2014	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
2014	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
2014	0

Output #5

Output Measure

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

Year	Actual
2014	0

Output #6

Output Measure

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

Year	Actual
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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

The Food Safety Planned Program has been combined under the Food, Nutrition, and Health Planned Program to ease the reporting process.

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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.5	16.3	1.0
Actual Paid	{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,** commercial food processors, and fresh produce producers.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	0

Output #2

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
2014	0

Output #3

Output Measure

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

Year	Actual
2014	0

Output #4

Output Measure

- 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
2014	0

Output #5

Output Measure

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

Year	Actual
2014	0

Output #6

Output Measure

- Number of Virginia fresh produce growers learning about food safety principles and practices during farm and farmers market operations to enhance safety(taught through GAPs and "Enhancing the safety of locally grown produce)

Year	Actual
2014	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 as a result of safe food handling programs thought Virginia Cooperative Extension.
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 gain knowledge and practice safe preservation of foods at home as a result of participating in home food preservation programs offered through Virginia Cooperative Extension.
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.
6	Increase in the number of Virginia fresh produce growers and farm market managers knowledgeable in using food safety principles and practices during farm and market operations (taught through GAPs and "Enhancing the safety of locally grown produce")

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 as a result of safe food handling programs thought Virginia Cooperative Extension.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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
2014	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
2014	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 gain knowledge and practice safe preservation of foods at home as a result of participating in home food preservation programs offered through Virginia Cooperative Extension.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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
2014	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 in the number of Virginia fresh produce growers and farm market managers knowledgeable in using food safety principles and practices during farm and market operations (taught through GAPs and "Enhancing the safety of locally grown produce")

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	26.1	3.0	30.1	0.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	0

Output #2

Output Measure

- Number of agriculture systems field research experiments

Year	Actual
2014	0

Output #3

Output Measure

- Number of agriculture systems on-farm demonstrations

Year	Actual
2014	0

Output #4

Output Measure

- Number of agriculture systems producer training workshops

Year	Actual
2014	0

Output #5

Output Measure

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

Year	Actual
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	29.3	3.0	33.8	5.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	0

Output #2

Output Measure

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

Year	Actual
2014	0

Output #3

Output Measure

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

Year	Actual
2014	0

Output #4

Output Measure

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

Year	Actual
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	6.9	1.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	0

Output #2

Output Measure

- Number of peer reviewed biotechnology and genomics research papers published

Year	Actual
2014	0

Output #3

Output Measure

- Number of biotechnology and genomics presentations

Year	Actual
2014	0

Output #4

Output Measure

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

Year	Actual
2014	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 and fiber 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
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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 and fiber crop plants through genetic and metabolomic research

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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
2014	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
2014	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

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	10.7	1.0	12.3	0.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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**

2014	0

Output #2

Output Measure

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

Year	Actual
2014	0

Output #3

Output Measure

- Number of education programs conducted in marketing and direct marketing

Year	Actual
2014	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
2014	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
2014	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

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	2.0	6.9	0.0
Actual Paid	{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 Virginia's Supplemental Nutrition Assistance Program (SNAP)participants and those eligible for SNAP. Participants completing the comprehensive programs will be assessed to determine that behavior change has been attained as well as increasing their food security

levels.

Nutrition education will be provided to EFNEP youth and adults and those who are up to 185% of the Federal Poverty guidelines. Participants completing the comprensive programs will be assessed to determine that behavior change has been attained as well as increasing their food security levels.

Youth participants will receive either SNAP-Ed or EFNEP lessons according to policy and procedures across Virginia.

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 (>50% Free and Reduced lunch schools) participating in the Free and Reduced Lunch program. People who have income levels more than 185% 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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	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.
2	Youth through self-report will improve their consumption of fruits and vegetables.
3	Adults will more frequently consume two kinds of fruits daily.
4	Adults will more frequently consume two kinds of vegetables daily.
5	Research will show the cost/benefit analysis of the Virginia SNAP-ED 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
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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

Youth through self-report will improve their consumption of fruits and vegetables.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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

Adults will more frequently consume two kinds of fruits daily.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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

Adults will more frequently consume two kinds of vegetables daily.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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

Research will show the cost/benefit analysis of the Virginia SNAP-ED program.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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
- Government Regulations

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

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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	11.4	1.0	13.1	0.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed
{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	0

Output #2

Output Measure

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

Year	Actual
2014	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
2014	0

Output #4

Output Measure

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

Year	Actual

2014	0

Output #5

Output Measure

- Increase in the number of local food and farm enterprises partnering with Virginia Cooperative Extension to improve and strengthen their profitability and viability.

Year	Actual
2014	0

Output #6

Output Measure

- Increase in the knowledge of local food and farm enterprises partnering with Virginia Cooperative Extension about market development, business planning, and conservation of natural resources.

Year	Actual
2014	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.
3	Increase in the number of local food and farm enterprises partnering with Virginia Cooperative Extension to improve and strengthen their profitability and viability.
4	Increase in the knowledge of local food and farm enterprises partnering with Virginia Cooperative Extension about market development, business planning, and conservation of natural resources.
5	Number of programs offered regarding local foods and community food systems.

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
2014	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
2014	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 number of local food and farm enterprises partnering with Virginia Cooperative Extension to improve and strengthen their profitability and viability.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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 knowledge of local food and farm enterprises partnering with Virginia Cooperative Extension about market development, business planning, and conservation of natural resources.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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 programs offered regarding local foods and community food systems.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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 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 # 16

1. Name of the Planned Program

Global Food Security and Hunger - Pest Management

☐ Reporting on this Program

Reason for not reporting

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	37.9	1.0	43.6	1.5
Actual Paid	{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 management (IPM) 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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	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
2014	0

Output #2

Output Measure

- Number of private applicators trained for certification

Year	Actual
2014	0

Output #3

Output Measure

- Number of commercial applicators trained for certification

Year	Actual
2014	0

Output #4

Output Measure

- Number of private applicators trained for recertification

Year	Actual
2014	0

Output #5

Output Measure

- Number of commercial applicators trained for recertification

Year	Actual
2014	0

Output #6

Output Measure

- Number of non-certified applicators trained

Year	Actual

2014	0

Output #7

Output Measure

- Number of stakeholders enrolled in the IPM Stakeholder Network

Year	Actual
2014	0

Output #8

Output Measure

- Number of trainers and regulatory officials trained

Year	Actual
2014	0

Output #9

Output Measure

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

Year	Actual
2014	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
2014	0

Output #11

Output Measure

- Number of presentations on IPM related topics.

Year	Actual
2014	0

Output #12

Output Measure

- Number of volunteer hours dedicated to pest management programming

Year	Actual
2014	0

Output #13

Output Measure

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

Year	Actual
2014	0

Output #14

Output Measure

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

Year	Actual
2014	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
2014	0

Output #16

Output Measure

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

Year	Actual
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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
2014	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

2014	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
2014	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
2014	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
2014	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
2014	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
2014	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

This Planned Program was combined for ease of reporting purposes with our 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	39.5	3.0	45.6	4.0
Actual Paid	{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

2014	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: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	15	38	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 9

Year	Actual
2014	0

Output #2

Output Measure

- 15

Year	Actual
2014	0

Output #3

Output Measure

- 22

Year	Actual
2014	0

Output #4

Output Measure

- 1640

Year	Actual
2014	0

Output #5

Output Measure

- 6

Year	Actual
2014	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	4
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
2014	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
2014	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

4

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	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
2014	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
2014	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}

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
8245	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
2	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
13750	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
2	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
3	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
35	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
6000000	Tons of feedstocks delivered.