2008 Virginia Polytechnic Inst. & State University and Virginia State University Combined Research and Extension Plan of Work

I. Plan Overview

1. Brief Summary about Plan Of Work

INTRODUCTIONVirginia Cooperative Extension (VCE), a partnership between Virginia Tech and Virginia State University, and the Virginia Agricultural Experiment Station (VAES) enable people to improve their lives through research and education using scientific knowledge focused on the issues and needs of the Citizens of Virginia.Recognizing that knowledge is power, we serve people where they live and work. Audiences are involved in designing, implementing, and evaluating needs-driven programs. We are 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.Our goals are:• To develop and transfer new knowledge in applied and basic life sciences.• To perform research, which is relevant, objective, and timely.• To improve the quality of life of communities and citizens in the Commonwealth.• To use a systems approach to programming, with task-oriented work teams that respond to the needs of individuals, groups, and organizations.• To work with disenfranchised, at-risk, and underserved audiences who need focused and specialized attention.• To fully integrate a culturally diverse paid and volunteer staff in planning, implementing, and evaluating programs.• To recruit and collaborate with public and private partners to better utilize our resources, heighten our impact, and reach a more diverse audience.PLANNNG AND REPORTINGProgram Development. VAES and VCE address a broad range of problems and issues facing citizens of the Commonwealth through focused research and educational programming. This is accomplished and reported in VAES through CRIS and the College of Agricultural and Life Sciences planning and reporting system, which includes long-range goals made operational by annual program plans and reports. Data from the new college electronic Faculty Annual Reporting System (eFARS) helps provide more accurate FTEs, contacts, and outputs than in 2007 for each planned program. The foundation upon which research and Extension program plans are built is the identification of strategic issues through situation analysis, accomplished with the help of local Extension Leadership Councils. Situation analysis is a process of collaboratively determining what problems exist at local, regional, and state levels, and then deciding which ones are issues of major public concern. The situation analysis becomes the background and rationale for deciding which problems and issues can be addressed with VAES and VCE time, energy, and resources.The VAES/VCE program planning and reporting system is web-based and includes goals, educational programs, objectives, strategies, and data and information required for reporting.The Agricultural Research Station (ARS) at Virginia State University (VSU) addresses stakeholder driven problems in food, agriculture, and natural resources with consideration for environmental soundness, sustainability, diversity, and food safety. The station performs basic and applied research, using an interdisciplinary approach where possible to provide information relevant to Virginia, national, and world agriculture. The research provides knowledge and technology to small-scale and limited-resource farmers and rural communities to enable them to produce abundant and safe food, while enhancing their economic well-being and quality of life. These programs further assist in the training of students in the food and agricultural sciences and the strengthening of the overall research expertise of the University.
VAES/VCE Goals. Strategic goals form the foundation upon which research and educational programs are developed. Goals are determined with the involvement of Extension Leadership Councils, cooperating agencies, local governments, and other stakeholders and partners.VAES Research Objectives. Our primary goal is to develop relevant basic and applied research information that will help form the basis for Extension programming. A wide range of long- and short-term research projects are undertaken to provide a continuous flow of new knowledge and seamlessly provide science-based information to enhance the quality of life for our citizens.VCE Educational Programs. VCE educational program plans serve as a communication and planning tool for developing, delivering, and reporting VCE programs. They are used to communicate information about VCE client-focused programs within the system and to external audiences such as the state and federal government officials.Once approved, the educational programs are available on the VCE Intranet so all staff may review and respond. Personnel respond ("buy in") to the appropriate educational programs by indicating the programs they plan to deliver. At the end of the programming year, an annual report is prepared for each educational program. In addition, staff is able to amend or update their buy-in annually, or as often as needed.VCE Educational Objectives. Objectives describe the level of change expected in the target audience and/or the problem as a result of implementing the program. The following categories represent four types of change that may occur:• Reactions - Changes in peoples' awareness and response to educational programming and information related to the problem.• Knowledge or skill (K/S) change - Changes in peoples' knowledge, understanding, or abilities related to the problem.• Practice change - Changes in peoples' behavior related to the problem.• End results - Broader changes in peoples' situation related to prevention, reduction, or solution of the problem itself.Reactions, knowledge/skill (K/S), and practice changes focus on people. End results can focus on people or problem solution. An objective expecting an end-result is often difficult to achieve in only one year of programming.Research Strategies. VAES has identified six key areas as a focus for development and investment:• Agricultural and Environmental Sustainability• Food, Nutrition and Health• Biodesign and Bioprocessing• Green Industry and Specialty Crops--including nursery and turf• Infectious Diseases• Community ViabilityThese areas address local, regional, and national problems through relevant basic and applied research. Research-based information and solutions to specific issues are then taken to the

people through the educational programs of Virginia Cooperative Extension.Educational Strategies. Educational strategies are the methods used with the target audience(s) to achieve the objective and address the problem. Some examples of strategies include: panels, group discussions, tours, lectures, workshops, seminars, and demonstrations. Educational strategies also include any programming efforts aimed at racial/ethnic groups, women, and/or other previously under-served or under-represented groups specifically targeted for special attention in the program.PLANNED PROGRAMS FOR 2008-12The integrated research and Extension plan of work for 2008-12 will be focused on the following 10 planned programs:• Agricultural and Food Biosecurity• Agricultural Systems• Animals and Animal Products• Biotechnology and Genomics• Economics and Commerce• Families, Youth, and Communities• Food, Nutrition, and Health• Natural Resources and Environment• Pest Management• Plants and Plant ProductsThe ultimate goals of each planned program are provided below.Agricultural and Food Biosecurity - The goals of this program are: 1) educate ornamental horticulture industry personnel and the gardening public on the many and dynamic issues of invasive non-indigenous plant species (NIS), 2) reduce the sale and planting of invasive NIS, 3) improve food biosecurity and hazard management to increase the safety of foods currently at risk for intentional contamination, 4) reduce the risk of intentional or non-intentional disease spread between groups of livestock and poultry, 5) increase the ability to track and confine livestock and poultry operations and animal movement.Agricultural Systems - Profitability of large and small farms in Virginia will increase and the quality of soil, water, and air associated with crop and livestock systems will improve.Animals and Animal Products – The goal is to encourage continuation of existing animal production systems and/or development of new animal production systems that produce ample supplies of high quality products in an environmentally and socially responsible manner while supporting quality lifestyles. By doing so, animal agriculture in Virginia will remain competitive, profitable, and sustainable while producing products and services that meet consumer expectations.Biotechnology and Genomics – The goal is to discover, apply, and disseminate knowledge promoting the sustainability of living natural resources and agricultural systems, particularly as impacted by bioinformatics, genomics and biotechnological approaches. To expand public understanding of the applications and implications of genetics, genomics, and biotechnology.Economics and Commerce – The goal is to improve the financial and economic well being of Virginians and Virginia's farm and business managers through targeted research and educational programs.Families, Youth, and Communities - The goal is to improve youth, family, and community functioning through the use of collaborative, integrative, educational programming and research in the areas of parenting, child development, child care, youth development, aging, and community development.

Food, Nutrition, and Health – The goal is to improve health as a result of better eating behaviors, increased physical activity, and fewer foodborne illnesses and outbreaks.Natural Resources and Environment – The goal is to provide for improved environmental quality, while also providing for economic vitality of families and communities.Pest Management – The goal is to introduce the most efficient pest management procedures to encourage a greater adoption rate. Adoption of IPM practices and pesticide safety education will reduce the amount of pesticides released into the environment and reduce worker exposure. Overall cost benefits must consider what, if any, additional costs are associated with implementing the IPM alternative (scouting costs, time, etc.).Plants and Plant Products - By focusing on plant improvement, genetic modification, and discovery of new uses for underutilized plant resources coupled with new or improved environmentally friendly ways of producing, handling, processing and refining, we will deliver higher value plant and plant products and educational programs to plant producers that meet or exceed end-user requirements, protect environmental quality, and ensure agricultural profitability and a safe, secure food supply.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2008	350.5	11.8	197.0	10.3
2009	350.5	11.8	197.0	10.3
2010	350.5	11.8	197.0	10.3
2011	350.5	11.8	197.0	10.3
2012	350.5	11.8	197.0	10.3

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

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

2. Brief Explanation

Review Process for Research

VirginiaAgricultural Experiment Station

Virginia Polytechnic Institute and State University

Rationale and Review Committee Structure

Research under the Hatch, McIntire-Stennis, and Animal Health and Disease Acts is 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
3. Virginia-Maryland Regional College of Veterinary Medicine.

For each VAES project proposal submitted, the assistant or associate VAES director in the project leader's college will chair the review (hereafter referred to as the chair). The chair is responsible for selecting the project review committee consisting of three or more members who are proficient in the subject of the proposed project. These 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. Such research would have to be reviewed by this policy, fit within the mission of VAES, and approved by the director. The VAES director or College of Agriculture and Life Sciences assistant director or associate director will chair the project review committee.

Proposal Development

The project leader will prepare 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 using the USDA/CSREES Current Research Information System (CRIS) - http://cris.csrees.usda.gov/Welcome.html

The proposed research project should be reviewed by a statistician to assure the experimental design and statistical analyses are adequate. The project leader may meet with a member of the Statistics Consulting Center or the department/unit head may designate someone with statistical expertise to serve as a departmental reviewer. The project leader will then submit the proposal to his/her department/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 will not be forwarded to USDA/CSREES without required approvals.

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III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

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 our 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.The formalized means through which Virginia Cooperative Extension (VCE) establishes connectivity with the grassroots of the state is 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 Community Sciences, and Agriculture and Natural Resources), community leaders, and other organized community entities that are natural partners for VCE. Extension staff and Leadership Council members work as equal partners to determine needs, establish program priorities, plan and implement solutions, identity 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 is composed of volunteer leaders representing the 22 planning districts of Virginia, at-large members appointed by the director and administrator, all VCE District Directors, all chairpersons (or designees) of the VCE program leadership councils, (FCS, 4-H, ANR), the VCE Director (Virginia Tech), the VCE Administrator (Virginia State University), designated VCE staff from both Virginia Tech and Virginia State University, the 1862 director of the agricultural experiment stations, the 1890 director of research, and the director of governmental relations at Virginia Tech. Extension provides an important formalized mechanism by which both Virginia State University and Virginia Tech receive stakeholder input for Extension and research programs.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

The stakeholder input process utilized by research and Extension includes opportunities to collect relevant issues and problems from under-served and under-represented populations. Campus-based faculty are sensitive to these populations and specifically include input from a broad representation of stakeholder groups to enhance their ability to be inclusive of under-served and under-represented audiences and their needs. Field faculty, as well, are being challenged to grow and document their efforts to address the needs of under-served and under-represented populations. In some cases, programs are specifically designed to address the needs of under-served and under-represented audiences. For example, parenting and bankruptcy education programs specifically target under-served and under-represented populations. And a number of our 4-H programs are focused on incarcerated teens and military families. In all others, faculty are sensitive to this issue and indicate that their process for developing their projects and programs are open to incorporating input and needs from under-served and under-represented audiences. In addition, many of the faculty indicate that their projects and programs are developed to address all levels and types of audiences, which would include under-served and under-represented populations.

3. How will the planned programs describe the expected outcomes and impacts?

All planned programs developed specific outcomes that they anticipate occurring over a period of five years. These outcomes range from short-term (knowledge, attitude, skills and aspiration changes), to medium-term (practice or behavior changes), to long-term (broader impacts and situation change for individuals, communities, and systems). For each planned program, these outcomes will be monitored, evaluated, and documented for each year of the plan.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

Virginia's integrated research and Extension planned programs have a historic and strong connection that increases the effectiveness of both efforts. The results of the research agenda provide the basis for relevant and effective Extension programs. The outcomes of Extension programs work to further inform the research agenda. This integrated approach embodies the land grant philosophy and results in improved effectiveness and efficiency of research and Extension educational programs for the benefit of the citizens of Virginia.

IV. Stakeholder Input

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

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

Brief explanation.

A variety of actions will be taken to seek stakeholder input and can include issues forums, focus groups, community surveys, key informant interviews, and listening sessions.

2(A). A brief statement of the process that will be 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 Surveys
- Use Advisory Committees
- Use External Focus Groups
- Other (Extension Leadership Councils)
- Open Listening Sessions

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 our 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.The formalized means through which Virginia Cooperative Extension (VCE) establishes connectivity with the grassroots of the state is 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 Community Sciences, and Agriculture and Natural Resources), community leaders, and other organized community entities that are natural partners for VCE. Extension staff and Leadership Council members work as equal partners to determine needs, establish program priorities, plan and implement solutions, identity 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 is composed of volunteer leaders representing the 22 planning districts of Virginia, at-large members appointed by the director and administrator, all VCE District Directors, all chairpersons (or designees) of the VCE program leadership councils, (FCS, 4-H, ANR), the VCE Director (Virginia Tech), the VCE Administrator (Virginia State University), designated VCE staff from both Virginia Tech and Virginia State University, the 1862 director of the agricultural experiment stations, the 1890 director of research, and the director of governmental relations at Virginia Tech. Extension provides an important formalized mechanism by which both Virginia State University and Virginia Tech receive stakeholder input for Extension and research programs.

2(B). A brief statement of the process that will be 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 the general public
- Survey of traditional Stakeholder groups
- Meeting with the general public (open meeting advertised to all)

Brief explanation

A variety of methods will be used to collect stakeholder input and can include issues forums, focus groups, community surveys, key informant interviews, and listening sessions.

3. A statement of how the input will be considered

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

Brief explanation.

Input from stakeholder groups is considered in identifying current and emerging issues, setting priorities for programs, and developing implementation plans. This ultimately influences the budgeting process.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural and Food Biosecurity

2. Brief summary about Planned Program

An effective agricultural and plant biosecurity Extension and research strategy will encompass potential chemical and biological threats involving livestock and poultry, plants, and almost any food and food source. Maintaining efficient and safe agricultural and plant production systems in Virginia requires attention to invasive and non-invasive threats that have potential to result in damage to animal and plant production, processing, distribution to consumers, and consumption. This program must have the flexibility to adapt to changing threat profiles of intentional or non-intentional causes. The programs in this plan will involve faculty on crosscutting projects from multidisciplinary areas to provide guidance on policy issues for state and federal regulatory agencies and to deliver biosecurity educational components to a diverse audience. Concerns with plant biosecurity involve invasive non-indigenous plant species (NIS) that have serious negative economic and environmental affects. They can become weeds in natural areas and decrease biodiversity. They can become weeds in agricultural areas and decrease yield and increase herbicide use, expenditures, and pollution. The origin of approximately half of the invasive NIS is from ornamental horticulture, the nursery, and landscape industries. The benefits of this program are educated industry personnel and public who then can make well informed decisions on selling and buying invasive and potentially invasive NIS. Protection of livestock and poultry must include preventative measures to decrease the risk of non-invasive and invasive risks and tracking measures for implementation in the event of a threat. This program will address research and educational approaches to decrease risk and increase containment opportunities for implementation in livestock and poultry production systems in the event of biological threats or infectious disease outbreaks. Biosecurity measures related to food and food sources will be based on threats to food production practices, food supply, and food marketing.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 136 15% Conservation of Biological Diversity
- 307 15% Animal Management Systems
- 311 10% Animal Diseases
- 314 5% Toxic Chemicals, Poisonous Plants, Naturally Occuring Toxins, and Other Hazards Affecting Animals
- 315 10% Animal Welfare/Well-Being and Protection
- 711 10% Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 712 15% Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins
- 902 5% Administration of Projects and Programs
- 903 15% Communication, Education, and Information Delivery

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Live animals, processed animal products, other foods, and food products may be intentionally contaminated for malicious, criminal, and/or terrorist objectives. Preventive management practices, identification, monitoring, control, and reporting of contamination is essential to prevent or restrict morbidity and mortality from such an event. Recent attention by animal production industries, government agencies, scientists, media, and consumers highlights the importance of being able to prevent and track outbreaks from intentional or non-intentional sources. Preventive biosecurity practices are critical to decreasing the spread of infectious disease that would otherwise result in decreased efficiency of animal production and wide spread, rapid outbreaks such as that of Avian Influenza in Virginia in 2002 that resulted in destruction of over 4.6 million commercial poultry at an economic cost of more than $130 million. While Avian Influenza did not present human health or food safety concerns and was unrelated to the highly pathogenic avian flu in Asia, it can be devastating economically to farmers, poultry companies, and businesses that provide

goods and services to the industry. Animal producers from small farms to integrated operations must be aware of risk factors and be able to implement feasible management practices and animal identification programs to control threats that may impair animal or human health. Likewise, food processors need to be equipped with the ability to identify preventive measures to minimize the risk that products under their control will be subject to intentional contamination. It is ultimately the protection of humans from biological and chemical risks from exposure to animals, plants, and their products that will result in benefits to consumers, growers, independent producers, and companies in Virginia and nationwide. From the plant perspective of invasive species, the ornamental industry (nursery and landscape) sells and plants hundreds of NIS for landscape use. A small percentage of these species are invasive with environmental impacts that range from minor to major. The impact is species and region dependent. Some invasive NIS cause significant environmental damage by reducing biodiversity, and some become problematic agricultural weeds. Both can result in costly control measures. Thus, the ornamental horticultural industry and gardening public need to be educated on the fundamentals of invasive NIS and have access to a data base which shows which NIS are invasive, regions in which plants are most likely to be invasive, and species which can be used as alternatives. Stakeholders are nursery/landscape personnel, gardening public, natural area mangers, environmental groups, legislators, and the general citizenry. A sizable amount of literature, scientific and non-scientific, exists but is not well targeted at industry personnel and gardening public, the two main perpetuators of the invasive NIS problem. The most effective strategy to reduce the invasive NIS problem is to educate the industry personnel and gardening public so that they will make informed decisions on which plants to sell and plant.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension
- Multistate Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Producers, processors, and handlers recognize the importance of animal, food, and plant biosecurity at a level that is greater than anytime in the history of the U.S. Therefore, the target audiences will be receptive to training in risk management. Increased knowledge of potential hazards, management strategies, and preventative measures will improve the safety and biosecurity of animals and foods nationwide. Increased awareness and implementation of animal tracking programs will provide facilitation in efforts to confine and control potential risks. Funding for this program will increase and will support research, Extension specialists, and agents. For the invasive plants program, the main assumptions are that nursery/landscape personnel and the gardening public will embrace and follow recommendations of an invasive NIS educational program, and following the recommendations of the educational program will result in less invasive NIS being sold and planted. There is evidence that industry groups endorse invasive NIS control measures. There is also evidence that the gardening public will respond to invasive NIS information by buying and planting alternative species.

2. Ultimate goal(s) of this Program

The goals of this program are: 1) to educate ornamental horticulture industry personnel and the gardening public on the many and dynamic issues of invasive NIS, 2) to reduce the sale and planting of invasive NIS, 3) improve food biosecurity and hazard management to increase the safety of foods currently at risk for intentional contamination, 4) reduce the risk of intentional or non-intentional disease spread between groups of livestock and poultry, 5) increase the ability to track and confine livestock and poultry operations and animal movement.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	4.5	0.6	4.2	0.0
2009	4.5	0.6	4.2	0.0
2010	4.5	0.6	4.2	0.0
2011	4.5	0.6	4.2	0.0
2012	4.5	0.6	4.2	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conduct research studies Conduct presentations, workshops, meetings, trainings Conduct biosecurity audits Develop publications, curriculum, resources Partner with other states to develop multistate cooperation Provide consultation, leadership, facilitation Partner with the livestock, poultry, food, and horticulture industries

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Demonstrations • Education Class • Group Discussion • One-on-One Intervention • Workshop	• Web sites • Newsletters • TV Media Programs

3. Description of targeted audience

Nursery/landscape personnel Master Gardeners Gardening Public Food Processors Food Producers Food Handlers Consumers Livestock and Poultry Producers Integrated Poultry Operation Personnel and Management Extension Educators Policy Makers

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	15000	12000	50	0
2009	18000	13000	50	0
2010	18000	13000	50	0
2011	18000	13000	50	0
2012	18000	14000	50	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

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

2008 :60 **2009 :**60 **2010 :** 60 **2011 :**60 **2012 :**60

- Number of commercial poultry operations audited for adherence to the Virginia Poultry Federation Biosecurity Guidelines

2008 :7 **2009 :**7 **2010 :** 7 **2011 :**7 **2012 :**7

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

2008 :20 **2009 :**20 **2010 :** 20 **2011 :**20 **2012 :**20

- Number of websites

2008 :2 **2009 :**2 **2010 :** 2 **2011 :**2 **2012 :**2

- Number of research studies conducted

2008 :4 **2009 :**4 **2010 :** 4 **2011 :**4 **2012 :**4

V(I). State Defined Outcome

1. Outcome Target

Number of animal premises registered in conjunction with the National Animal Identification System

2. Outcome Type : Change in Action Outcome Measure

2008 :2000 **2009 :** 2000 **2010 :** 2000 **2011 :**2000 **2012 :** 2000

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems
- 902 - Administration of Projects and Programs

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
150	200	200	200	250

3. Associated Knowledge Area(s)

- 315 - Animal Welfare/Well-Being and Protection

1. Outcome Target

Number of food companies who register with FDA and prepare a food biosecurity plan

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
50	60	70	60	50

3. Associated Knowledge Area(s)

- 314 - Toxic Chemicals, Poisonous Plants, Naturally Occuring Toxins, and Other Hazards Affecting Animals
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Percent reduction in the number of invasive NIS sold

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1	2	5	5	5

3. Associated Knowledge Area(s)

- 136 - Conservation of Biological Diversity

1. Outcome Target

Number of participants gaining knowledge on the invasive NIS

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
300	400	400	400	400

3. Associated Knowledge Area(s)

- 136 - Conservation of Biological Diversity

1. Outcome Target

Number of VCE agents offering biosecurity trainings

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
2	4	6	8	8

3. Associated Knowledge Area(s)

- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection
- 902 - Administration of Projects and Programs
- 903 - Communication, Education, and Information Delivery

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

A large number of factors may influence the outcomes in the Agriculture and Food Biosecurity Program. Factors such as global disease situations, terrorist threat, government regulations, public perceptions, global economies, personnel changes, and industry economic situations can have short and long term impacts on the outcomes. Interest in biosecurity programs is relatively high right now, however federal money to fund these programs, political changes, and competing priorities (such as Home Land Security) can decrease or increase the amount of attention to and funding of these projects.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- Time series (multiple points before and after program)
- Before-After (before and after program)

Description

{NO DATA ENTERED}

2. Data Collection Methods

- Observation
- Mail
- On-Site

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural Systems

2. Brief summary about Planned Program

Crop and livestock production may be optimized if the agricultural components are studied and managed as a system rather than as discrete operations. The interactions among system components often respond differently to management decisions than do the individual components. Treating production operations holistically offers greater management flexibility, provides more environmentally and economically sound options, and creates safer and healthier conditions for workers and for farm animals. Virginia Cooperative Extension and Agricultural Experiment Station faculty provide leadership in research, education, and Extension programming associated with Agricultural Systems. Integrated, sustainable approaches, such as organic farming, precision agriculture, integrated pest management, nutrient management, and other soil and water conservation-oriented best management practices, will be incorporated into agronomic and vegetable crop and livestock production systems appropriate for both large and small producers.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 102 10% Soil, Plant, Water, Nutrient Relationships
- 111 10% Conservation and Efficient Use of Water
- 112 10% Watershed Protection and Management
- 131 10% Alternative Uses of Land
- 205 10% Plant Management Systems
- 307 10% Animal Management Systems
- 402 10% Engineering Systems and Equipment
- 403 10% Waste Disposal, Recycling, and Reuse
- 601 10% Economics of Agricultural Production and Farm Management
- 605 10% Natural Resource and Environmental Economics

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The viability of both large and small producers of crop and livestock food, fiber, and energy products is limited by economic and environmental factors. Such constraints can be alleviated through research and educational programs that address production efficiency, environmental controls, and business management. Increasing the production efficiency can increase profit to producers and decrease cost to consumers; reducing environmental (soil, water, and air) degradation will benefit producers and society; and improving business management will increase profitability and, thus, viability of producers. Integrated research and educational programs for both educators and producers on the technical (including nutrient management and soil testing, integrated pest management, tillage, cover cropping and other soil conservation practices, crop rotations, selection of appropriate plant cultivars, and other crop management practices) and business (including budgets, marketing, etc.) aspects of organic and sustainable production systems, precision agriculture, and environmental best management practices will enable farmers to produce food, fiber, and energy profitably while minimizing environmental degradation and optimizing consumer health. Personnel employed by the Virginia Cooperative Extension and the Virginia Agricultural Experiment Station possess the expertise and experience to conduct research and research-based education programs to achieve these goals.

2. Scope of the Program

- Integrated Research and Extension
- Multistate Extension
- In-State Extension
- Multistate Research
- Multistate Integrated Research and Extension
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Implementing efficient economically-feasible and environmentally sound integrated crop and/or livestock systems requires additional investigation (i.e., research) and extension of both established and developing knowledge of production systems that include pest (weeds, insects, disease) control and soil (cover cropping, tillage, organic matter management, nutrient management), crop (selection of appropriate species and cultivars; planting timing, row spacing, and geometries; crop rotations; etc.), and livestock (dietary management, grazing rotations, fencing, etc.), and business (purchase/use of external inputs, marketing of outputs, value-added products, cost-return ratios, etc.) management. There exist many organizations (e.g., Virginia Association for Biological Farming, Virginia commodity boards, Chesapeake Bay Foundation) and local (soil and water conservation districts), state (Virginia Departments of: Agriculture and Consumer Services, Conservation and Recreation, Environmental Quality, and Health), and federal (Natural Resource Conservation Service) agencies whose personnel are providers of education, cost-share funding, marketing assistance, or permitters and inspectors of potentially environmentally-impacting practices. The Virginia Cooperative Extension (VCE) and Virginia Agricultural Experiment (VAES) Station comprise personnel who are able to provide multi-disciplinary expertise to address research and education needs employing an integrated approach. Furthermore, on-going established collaborations between VCE/VAES and other research and extension faculty throughout the mid Atlantic region enable Virginia to draw upon expertise for cooperation where gaps exist in our capabilities. VCE and VAES personnel will work both directly with farmers and staff from various organizations and agencies to impart knowledge and implement change among agricultural producers via a multiplier effect. Funding to implement such research and educational programs is available from state organizations (e.g., commodity boards), state agencies (e.g., Water Quality Improvement Funds and other conservation-promoting cost share funds), federal agencies (e.g., USDA), local and regional governments (e.g., sanitation districts), and regional organizations (e.g., Chesapeake Bay Foundation, National Fish and Wildlife Foundation).

2. Ultimate goal(s) of this Program

Profitability of large and small farms in Virginia will increase and the quality of soil, water, and air associated with crop and livestock systems will improve. Our projected goal is that farm profitability will increase by 7% annually. We expect agricultural best practices to reduce sediment and nutrient levels in the watershed by 5%. Improved cropping practices and fertilization practices will increase the efficiency of use of applied nutrients by 5% over the period outlined within this plan.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	52.2	1.8	20.0	0.0
2009	52.2	1.8	20.0	0.0
2010	52.2	1.8	20.0	0.0
2011	52.2	1.8	20.0	0.0
2012	52.2	1.8	20.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conduct research experiments that educate and solve applied problems Establish partnerships to identify needs and develop solutionsConduct workshops, both traditional and hands-on, and meetings to provide training for farmers and educatorsOrganize and conduct state and regional conferencesEstablish on-farm demonstrationsDevelop enterprise budgetsDevelop products, curriculum, and resources for use by educators and directly by producersConduct assessments as needed to evaluate progress

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• One-on-One Intervention • Group Discussion • Demonstrations • Workshop • Education Class	• TV Media Programs • Public Service Announcement • Web sites • Newsletters

3. Description of targeted audience

Commercial producers 4-H youth Master Gardeners State and federal agency personnel Extension Educators Policy makers Consumers Supermarket chain store buyers

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	310000	2240000	77000	560000
2009	331700	2396800	82390	599200
2010	354919	2564576	88157	641144
2011	379763	2744096	94328	868024
2012	406347	2936183	100931	734046

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

- Number of educator training workshops

2008 :24 **2009 :**24 **2010 :** 24 **2011 :**24 **2012 :**24

- Number of field research experiments

2008 :14 **2009 :**16 **2010 :** 18 **2011 :**18 **2012 :**20

- Number of on-farm demonstrations

2008 :14 **2009 :**14 **2010 :** 16 **2011 :**16 **2012 :**20

- Number of producer training workshops

2008 :200 **2009 :**210 **2010 :** 220 **2011 :**230 **2012 :**240

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

2008 :400 **2009 :**400 **2010 :** 400 **2011 :**400 **2012 :**400

V(I). State Defined Outcome

1. Outcome Target

Number of certified organic farms

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :130 **2009 :** 150 **2010 :** 180 **2011 :**200 **2012 :** 220

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of acres of certified organic production

2. Outcome Type : Change in Action Outcome Measure

2008 :7000 **2009 :** 85000 **2010 :** 10000 **2011 :**12000 **2012 :** 14000

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships

- 205 - Plant Management Systems

1. Outcome Target

Gross income derived from sales of organic products

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
8000000	10000000	13000000	16000000	20000000

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

1. Outcome Target

Number of hits on Mid Atlantic Water Quality Website to increase awareness of water quality

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
4850	5350	5850	5350	6850

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Increase in the amount of land based on a percent of cropland acres, subject to best management practices (e.g., nutrient management plans, conservation plans, etc.)

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
325000	342000	360000	380000	400000

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 131 - Alternative Uses of Land
- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

1. Outcome Target

Percent reduction in the transport of N, P, and sediment to the Chesapeake Bay and its tributaries.

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
5	5	5	5	5

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 402 - Engineering Systems and Equipment

1. Outcome Target

Percent increase in gross income from non-organic farming agriculture

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
7	7	7	7	7

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 605 - Natural Resource and Environmental Economics

1. Outcome Target

Increase in percent of cropland acres managed with reduced tillage to improve water conservation

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
50	55	60	65	70

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

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 profitablility of production systems. The number of certified organic farms and acres of certified organic farmland and the number of acres of land subject to nutrient management plans/best management practices/conservation plans could be affected by government regulations and changes in the economy. If more emphasis is placed on organic production by a greater number of people, demand for these products and profitability of these operations will increase. If greater emphasis is placed on water and environmental quality then even more widespread implementation of these practices will be encouraged.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Before-After (before and after program)
- Other (VDAC Statistics)
- Case Study

Description

Participants in conferences, workshops and field days will evaluate all of the planned educational programs. Case studies will be conducted among selected vegetable growers, livestock farmers, and grain farmers who have established certified organic farming enterprises to measure their production success and their economic success. The data collected from Agriculture Statistics will provide information about number of organic farms, number of certified organic acres and gross income of certified organic products sold. The annual number of educators and farmers trained in best management practices will be collected and tabulated. The annual amount of land subject to nutrient management and other best management practices will be collected from the Virginia Department of Conservation and Recreation and tabulated. The annual amount of N, P, and sediment transported from Virginia crop and livestock farms into the Chesapeake Bay and its tributaries will be collected from the Virginia Department of Conservation and Recreation and tabulated.

2. Data Collection Methods

- Case Study
- On-Site
- Observation
- Journals
- Other (Chesapeake Bay model)
- Sampling

Description

The primary evaluation studies for the organic farming program will be implementation of written evaluations at all educational programs, case studies, and analysis of the Virginia Census of Agriculture provided by the Department of Agriculture Statistics. Counting and tabulation of nutrient management planners trained will be used to evaluate short-term benefits. Annual data from the Virginia Department of Conservation and Recreation will be collected and tabulated to assess the medium- (i.e., amount of acreage subject to best management plans) and long- (reduction in water quality contaminants) term benefits.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Animals and Animal Products

2. Brief summary about Planned Program

The history of animal production goes back to the earliest settlers at Jamestown and has evolved to a highly diverse industry including beef cattle, dairy, equine, swine, small ruminants, poultry, and aquaculture. Animal production occurs on a high percentage of Virginia farms with impact upon every region of the state, and makes a significant contribution to the economy of Virginia accounting for 70% of the gross revenue generated in the agricultural sector. Additionally, the value added by related processing and service industries and the economic impact of the businesses that support the various animal enterprises is considerable. As a result, research and Extension efforts to improve quantity, quality, profitability, and sustainability of animal production systems have played a significant role in Virginia agriculture for more than a century.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 301 15% Reproductive Performance of Animals
- 302 15% Nutrient Utilization in Animals
- 303 10% Genetic Improvement of Animals
- 305 10% Animal Physiological Processes
- 307 20% Animal Management Systems
- 308 10% Improved Animal Products (Before Harvest)
- 311 15% Animal Diseases
- 315 5% Animal Welfare/Well-Being and Protection

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Animal production is an important stimulus to rural economies throughout the Commonwealth. There is substantial pressure upon the various animal industries to provide consumers with safe, high quality products at competitive prices. Furthermore, farm level producers are challenged to produce products of a quality which meets the needs of the marketplace while adding value to the enterprise. Increasing cost efficiencies in animal agriculture nationally have forced successful producers to intensify management to reduce per-unit costs or to adopt low input, extensive production systems. Animals must be produced and maintained in a manner which provides for the well being of the animal, minimizes environmental effects, and makes wise use of limited resources. Environmental issues are an increasing concern. Animal production systems must evolve to meet increasingly competitive economic circumstances and environmental challenges. Additionally, the quality of life is enhanced for many Virginians through the proper management and maintenance of rural landscapes which host animal production. The health of rural economies depends on successful implementation of improved management strategies, and exploration of new technologies for future adoption. This backdrop of change, competition, and responsibility to future generations drives this program.

2. Scope of the Program

- Multistate Research
- Multistate Integrated Research and Extension
- Integrated Research and Extension
- In-State Research
- In-State Extension
- Multistate Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The Planned program assumes availability of expertise in key scientific areas of animal physiology and nutrition, reproduction and genetics, animal health, environmental issues, food quality, and animal management systems. Such expertise is essential to apply best practices to animal production issues in those areas. Adequate resources to expand the body of knowledge pertinent to the needs of Virginia animal production is assumed. Such resources include existing state owned research herds and flocks, research laboratories, an ample supply of highly trained, motivated, visionary researchers and associated staff. Further, we assume that economic circumstances will be favorable enough to motivate clientele to change and implement new procedures. Virginia animal production systems have survived the competitive agricultural climate for the entire histroy of the country. We have every reason to expect today's producers to continue to adopt best practices that are well tested scientifically and explained fully and clearly by trusted and well informed extension personnel.

2. Ultimate goal(s) of this Program

Our goal is to encourage continued improvement of existing animal production systems and/or development of new animal production systems that produce amply supplies of high quality products in an evironmentally and socially responsible manner while supporting quality lifestyles. By doing so, animal agriculture in Virginia will remain competitive, profitable, and sustainable while producing products and services that meet consumer expectations.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	30.8	4.0	27.0	3.0
2009	30.8	4.0	27.0	3.0
2010	30.8	4.0	27.0	3.0
2011	30.8	4.0	27.0	3.0
2012	30.8	4.0	27.0	3.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conduct research experimentsConduct workshops, meetings, trainingsDevelop publications, curriculum, resourcesProvide consultation, leadership, facilitationPartner with industryConduct needs assessment and impact

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Demonstrations • Education Class • Group Discussion • One-on-One Intervention • Workshop	• Public Service Announcement • Newsletters • TV Media Programs • Web sites

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	125000	470000	30000	60000
2009	123000	465000	30000	60000
2010	121000	460000	30000	60000
2011	119000	455000	30000	60000
2012	117000	450000	30000	60000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

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

  2008 :840 **2009 :**830 **2010 :** 830 **2011 :**830 **2012 :**820

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

  2008 :3000 **2009 :**3000 **2010 :** 3000 **2011 :**3000 **2012 :**3000

- Number of web sites, applications, modules

  2008 :50 **2009 :**50 **2010 :** 40 **2011 :**40 **2012 :**40

V(I). State Defined Outcome

1. Outcome Target

Percent increase in beef cattle marketed through value-added programs

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
20	20	10	10	10

3. Associated Knowledge Area(s)

- 303 - Genetic Improvement of Animals
- 308 - Improved Animal Products (Before Harvest)

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
125	125	125	125	125

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection

1. Outcome Target

Percent of participating farms reducing phosphorus over previous year in dairy animal waste

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	10	10	10

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes

1. Outcome Target

Percent of dairy herds improving milk quality by reducing herd average somatic cell score

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
20	30	20	20	20

3. Associated Knowledge Area(s)

- 303 - Genetic Improvement of Animals
- 305 - Animal Physiological Processes
- 311 - Animal Diseases

1. Outcome Target

Number of swine producers receiving continuing education credit for waste management permit requirements

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	25	25	25

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals

1. Outcome Target

Number of youth gaining knowledge related to animal agriculture through youth animal projects and events

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
33000	33000	33000	33000	33000

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 307 - Animal Management Systems

1. Outcome Target

Percent increase in sheep population in Southwest Virginia as a result of favorable lamb marketing arrangements

2. Outcome Type : Change in Condition Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
10	10	10	10	10

3. Associated Knowledge Area(s)

- 308 - Improved Animal Products (Before Harvest)

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Factors beyond anticipation of this planning process such as weather, global economies, government regulations, and public perceptions impact animal agriculture both short and long-term and may affect outcomes. 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.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention
- Time series (multiple points before and after program)

Description

A long term phosphorus project involves a series of tests of phosphorus in diets of dairy cows. The program includes evaluations of how to reduce surplus phosphorus. Plans are to involve about 200 dairy herds in the Chesapeake Bay watershed.

2. Data Collection Methods

- Mail
- Observation
- Sampling
- Tests
- On-Site

Description

Participating herd submit forage samples for phosphorus (and other nutrient) analysis. Technician visits to the farm verify rations being fed to dairy cows as wel as production. Phosphorus fed is compared to phosphorus requirements of the cows for given levels of production. Management practices to reduce excess phosphorus feeding are shared with feeding to within an allowable range of expected requirements.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Biotechnology and Genomics

2. Brief summary about Planned Program

Advances in molecular genetics continually transforms our understanding of life sciences and, consequently, the methods we utilize to produce food and treat illness. Many pre-college curricula now incorporate concepts in genetics, genomics, and biotechnology. Individuals must make biotechnology-related decisions on a regular basis, from what foods to eat to what heath care to utilize. As biological molecules, cells, and organisms become easier to manipulate and produce, individuals will increasingly need to choose whether and how they use these “products” of life science. Thus, the public needs opportunities, resources, and skills to consider the applications and implications of biotechnologies and scientists need continued and expanded mechanisms for communicating current research to non-technical audiences.
Understanding of the molecular biology of wood formation and ecological adaptation in forest trees will provide the technical basis for improved, sustainable tree production. Characterization of the morphological, physiological and gene expression responses of livestock, poultry, and fish to feeds will lead to development of improved feed formulations. Screening of molecular and life history markers among wild populations will support delineation of evolutionarily significant units, enhancing management and sustainability. The recent sequencing of the genomes of chicken, pig, and cattle allows the identification of known and unknown genes using bioinformatics tools. Similar sequencing of plant genomes (cereals, legumes and model system, Arabidopsis thaliana) as well as genomes of important pathogens, provides a wealth of information for control of disease, as well as understanding basic growth and development and alternative uses of crops.Combining genomics, bioinformatics, and biotechnology tools in an interdisciplinary approach provides us the opportunity to 1) address biological problems, which previously were inaccessible for genetic solutions, and 2) accelerate development of new value-added cultivars with enhanced nutritional characteristics for animal feed, human food and environmentally-friendly and sustainable crop production. Use of rapid diagnostic techniques has become increasingly important for detecting pathogens of agricultural significance. The potential for agro-bioterrorism and accidental introductions of exotic pathogens has increased with increased global movement of agricultural products. Molecular techniques with a high level of sensitivity have become essential for detecting introductions of exotic pathogens. Diagnosing plant diseases, understanding disease mechanisms, studying the epidemiology of disease agents, and developing appropriate control measurements will be impacted by genomics studies of plant pathogens. It will allow the development of sensitive molecular markers for disease diagnosis, provide information on which genes pathogens use to cause disease and how these genes are regulated during disease. Pathogen genomics allows us to find mutations that distinguish closely related isolates to determine the source of new infections.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 123 10% Management and Sustainability of Forest Resources
- 135 5% Aquatic and Terrestrial Wildlife
- 201 20% Plant Genome, Genetics, and Genetic Mechanisms
- 212 20% Pathogens and Nematodes Affecting Plants
- 302 20% Nutrient Utilization in Animals
- 304 15% Animal Genome
- 803 10% Sociological and Technological Change Affecting Individuals, Families and Communities

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Feeds comprise a major cost of livestock, poultry and aquaculture production. The development of feeds is a drawn-out process of trials, measuring the suitability of feeds using measures such as growth and feed efficiency. New technical developments will allow measurement of animal response to feeds at the morphological, physiological, and gene expression levels, thereby greatly

enhancing the development of feeds promoting the survival, growth, and well-being of food animals of agricultural and aquacultural importance. Many of the genes that play important roles in growth and reproduction in livestock and poultry species are unknown. The recent sequencing of the chicken, pig, and cattle genomes provides the raw data for the identification of many of these genes using genomics and bioinformatics approaches. By knowing the function of these genes, basic physiological mechanisms can be better understood, which will lead to improved production of food animals. Developments in molecular genetics, population genetic and phylogenetic inference, and conservation theory support definition of evolutionarily significant units, providing a basis for rational and defensible decision-making for management of imperiled species. Forest plantations will prove more productive when tree genomes and ecological conditions are managed to promote efficient tree growth. High throughput screening is essential in biotechnology applications to crop improvement. Gene discovery is one of the most important objectives in genomics research in agricultural biotechnology. The recent availability of enormous DNA sequence information coupled with the latest developments in engineering applications to biological instrumentation (lasers, robotics), have created a golden opportunity to address limitations of both high throughput screening and gene discovery programs. This opportunity has further come to light with the development of DNA chip or DNA microarray technology. This state-of-the-art technology is a powerful and revolutionary analytical method enabling us to study global gene expression of tens of thousands of genes simultaneously rather than the one gene at a time approach. Learning about biotechnology will give high school students the opportunity to better understand and critically evaluate the issues that are arising as a result of these new agricultural, medical, and environmental technologies. Equally important is the preparation of a future workforce. As of 2003, there were 1,473 biotechnology companies creating agricultural, medical, environmental, and computational products in the U.S., employing 198,000 people (Biotechnology Industry Organization, 2005). The industry reached a market capitalization of $311 billion by spring of 2005. In addition, biotechnology is one of the most research-intensive industries in the world, spending $17.9 billion on research and development in 2003. The demands of our changing economy and workplace require a workforce with a deeper understanding of biotechnology and scientific research.

2. Scope of the Program

- In-State Research
- Multistate Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Funding will remain constant or increase. Bioinformatics, genomics, and biotechnology approaches can be implemented broadly across disciplines such as plants, animals, microbes, the environment, and human health. Important to the future application of these approaches and knowledge is a basic understanding of the technologies, benefits, and risks. Informing and educating the public should be a critical part of these efforts. Scientifically informed management will promote the sustainability of living natural resources and agricultural production. High school students in Virginia and across the country will continue to take a year-long biology course. End-of-course testing will continue to include assessments of student knowledge about genetics and scientific inquiry.

2. Ultimate goal(s) of this Program

To discover, apply, and disseminate knowledge promoting the sustainability of living natural resources and agricultural systems, particularly as impacted by bioinformatics, genomics and biotechnological approaches. To expand public understanding of the applications and implications of genetics, genomics, and biotechnology.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	1.0	0.0	10.0	1.0
2009	1.0	0.0	10.0	1.0
2010	1.0	0.0	10.0	1.0
2011	1.0	0.0	10.0	1.0
2012	1.0	0.0	10.0	1.0

V(F). Planned Program (Activity)

1. Activity for the Program

Processes of research studies Dissemination of research results Papers and citations Commercialization of techniques and products Development and implementation of educational programs / workshops Dissemination of educational programs / workshops Conduct research experiments Conduct workshops, meetings Develop products, curricula, resources Conduct assessments / evaluation Provide training Work with media Establish and sustain partnerships

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Other 1 (none)	• Other 1 (none)

3. Description of targeted audience

Research scientists

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	250	1250	0	0
2009	250	1250	0	0
2010	250	1250	0	0
2011	250	1250	0	0
2012	250	1250	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	0
2009	10	0
2010	10	0
2011	10	0
2012	10	0

V(H). State Defined Outputs

1. Output Target

- Number of research projects in program areas

2008 :10 **2009 :**15 **2010 :** 20 **2011 :**25 **2012 :**250

- Number of peer reviewed research papers published

2008 :30 **2009 :**40 **2010 :** 50 **2011 :**60 **2012 :**70

- Number of presentations

2008 :40 **2009 :**50 **2010 :** 60 **2011 :**70 **2012 :**80

V(I). State Defined Outcome

1. Outcome Target

Number of samples evaluated by current and improved plant diagnostics methods related to biotechnology and leading to better detection and control procedures by producers

2. Outcome Type : Change in Action Outcome Measure

2008 :200 **2009 :** 225 **2010 :** 250 **2011 :**275 **2012 :** 300

3. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

{NO DATA ENTERED}

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Other (research)

Description

{NO DATA ENTERED}

2. Data Collection Methods

- Other (Research)

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economics and Commerce

2. Brief summary about Planned Program

The well-being of Virginians is dependent on both their individual and family economic well-being. In addition, for Virginia farmers and small business owners the impacts of changing markets and environmental issues affect not only their businesses but also their family well-being. For individuals and families, identify theft, bankruptcy, and more responsibilities for retirement and aging issues are real problems. Identity theft complaints represented 37 percent of the 686,683 Federal complaints filed in 2005. Over 41,000 Chapter 7 bankruptcy petitions, we filed in 2004. Individuals are being given more responsibility for their own retirement planning as companies do away with defined benefit pension plans and institute 401(k), 403(b), and 457 plans. Baby boomers are nearing retirement age. Helping families with estate planning and long-term care planning needs are becoming increasingly important as demand for these services increases faster than the availability of the services. The Virginia state legislature recognized the need for financial education with the passage of Senate Bill 950 in 2005 that requires financial literacy and economic concepts be integrated into the Standards of Learning in k-12 grades. Virginia agriculture and small business are undergoing dramatic change as business integration accelerates, traditional markets disappear, and trade, commodity, and environmental policies provide both new constraints on, and opportunities for business profits. Virginia businesses managers find themselves forced to manage new sources of business risk, and find that known risks are more volatile than ever before. On the agricultural side, abundant commodity supplies and intense competition with other US regions and international competitors have forced prices to unprofitable levels and increased farm business risk. Passage of the 2002 Farm Bill created its own set of constraints and opportunities by supporting farmers, but making them more dependent on commodity payments for financial survival. Increasing environmental concerns force farm operators to consider the effects of farming practices beyond their farm gate. Both large and small farmers face economic challenges that affect their businesses. Many small farmers are exploring high value, local, or niche markets for their products, while large farmers are leveraging assets, adopting technology, and exploring alternative end use markets. Cooperatives and other institutions are playing an increasing role in management decision making. Agricultural producers are attempting to capture a larger share of the consumer food dollar by forming marketing cooperatives, while vertically integrated business arrangements have become ever more widespread in livestock and grain production. On the small business front, rapidly changing consumer demands, high costs of labor, and health care, increased imports of lower costs goods all contribute increased business risk and a cost-price-squeeze, resulting in reduced profitability. Small businesses are looking for products and services to fill niches that both meet consumers' needs and provide for a profitable business plan.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 601 10% Economics of Agricultural Production and Farm Management
- 602 10% Business Management, Finance, and Taxation
- 603 10% Market Economics
- 604 10% Marketing and Distribution Practices
- 605 10% Natural Resource and Environmental Economics
- 607 10% Consumer Economics
- 608 10% Community Resource Planning and Development
- 610 10% Domestic Policy Analysis
- 801 10% Individual and Family Resource Management
- 802 10% Human Development and Family Well-Being

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Improved financial security of individuals, families, agricultural, and small businesses is critical for the long-term economic health of Virginia. Individuals and families, who have set financial goals and understand the importance of planning for future events ease the burden on government at all levels to provide assistance. Understanding business, financial, and risk management are the underlying principles for obtaining long-term financial security for individual entrepreneurs. Profitable and successful farms and small businesses are the cornerstone of robust families and the communities in which they live.

2. Scope of the Program

- Multistate Research
- In-State Research
- Integrated Research and Extension
- Multistate Extension
- In-State Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Lack of, management skills, knowledge of basics economic and financial management and analysis skills, are obstacles to individuals and families' economic well-being and farmers and small business owners striving to remain profitable. It is a priority of Virginia to research problems and opportunities, and then train and assist individuals, families, and business managers in gaining skills to adapt to these critical issues. The combination of research and extension activities will enable Virginia's managers to develop and sustain profitable farms and small business and individuals and families to have financial security.

2. Ultimate goal(s) of this Program

To improve the financial and economic well being of Virginians and Virginia's farm and business managers through targeted research and educational programs.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	30.0	0.0	11.8	0.0
2009	30.0	0.0	11.8	0.0
2010	30.0	0.0	11.8	0.0
2011	30.0	0.0	11.8	0.0
2012	30.0	0.0	11.8	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research and educational programs will be conducted to support the needs of Virginians and Virginia's farm and small business managers. Research in personal finance issues and evaluation of programming will be conducted to improve Virginians' financial literacy. Financial literacy curriculum will be developed using proven delivery methods to improve the financial security of individuals and families. 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. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Group Discussion • Workshop • Education Class • Demonstrations • One-on-One Intervention	• Web sites • Newsletters • Public Service Announcement

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	44000	98000	6900	22000
2009	45000	99000	9900	22000
2010	45000	100000	9900	22000
2011	45000	100000	9900	22000
2012	45000	100000	9900	22000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 : 0 **2009 :** 0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

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

2008 :20 **2009 :**20 **2010 :** 20 **2011 :**20 **2012 :**20

- Number of education programs planned in marketing and direct marketing

2008 :20 **2009 :**20 **2010 :** 20 **2011 :**20 **2012 :**20

- Number of education programs planned in public policy education

2008 :10 **2009 :**10 **2010 :** 10 **2011 :**10 **2012 :**10

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

2008 :100 **2009 :**100 **2010 :** 100 **2011 :**100 **2012 :**100

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

2008 :3000 **2009 :**3000 **2010 :** 3000 **2011 :**3000 **2012 :**3000

- Number of individuals and families creating plans to handle care receiving and care giving as they age such as advance directives, durable powers of attorney and long-term care planning

2008 :100 **2009 :**100 **2010 :** 100 **2011 :**100 **2012 :**100

- Number of individuals and families creating home-based and micro businesses

2008 :50 **2009 :**50 **2010 :** 50 **2011 :**50 **2012 :**50

V(I). State Defined Outcome

1. Outcome Target

Percentage of transitional plans completed by farm family program participants

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :60 **2009 :** 60 **2010 :** 60 **2011 :**60 **2012 :** 60

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

1. Outcome Target

Percentage of farmers, agricultural business managers and leaders, food processors, government agencies, and agribusiness firm program participants making more informed business and economic decisions

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :60 **2009 :** 60 **2010 :** 60 **2011 :**60 **2012 :** 60

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics

- 608 - Community Resource Planning and Development

1. Outcome Target

Percentage of individuals and family program participants completing basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
80	80	80	80	80

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management

1. Outcome Target

Percentage of individuals and family program participants creating plans to handle care receiving and caregiving as they age such as advance directives, durable powers of attorney and long-term care planning.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
50	50	50	50	50

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being

1. Outcome Target

Percentage of individuals and family program participants creating home-based and micro businesses.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
40	40	40	40	40

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 801 - Individual and Family Resource Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

All of items listed above directly affect agriculture, families, and all forms of businesses, i.e., droughts, floods, and changes in government policy can lead to dramatic shifts in the structure of an industry. These changes may be short-lived (flood) or may cause structural changes to an industry, e.g., loss of peanut and tobacco programs.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Retrospective (post program)
- Case Study
- Time series (multiple points before and after program)
- During (during program)
- After Only (post program)

Description

All educational programs will be formally evaluated with a post program questioner. As funds permit additional formal evaluations will be conducted to demonstrate the degree of adoption and behavior change.

2. Data Collection Methods

- Mail
- Observation
- On-Site
- Sampling
- Tests

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

1. Name of the Planned Program

Families, Youth, and Communities

2. Brief summary about Planned Program

The three VCE program areas of 4-H, FCS, and Community Viability comprise the Families, Youth, and Communities planned program. The program is designed to help youth and adults in Virginia confront the multitude of issues that affect their well-being and create a greater capacity for self, family, and community awareness, action, and interaction. Through interaction and increased capacity, a greater sense of community interdependence is realized. Ultimately through these accomplishments family, youth and communities will create lasting changes and improve their lives.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 608 20% Community Resource Planning and Development
- 802 30% Human Development and Family Well-Being
- 806 50% Youth Development

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

All children, families, and communities will grow and develop to realize their full potential. These groups are confronted with a multitude of issues that affect their well-being such as child and school-aged care, at-risk youth behaviors, aging populations, poverty, and transportation. Concerns about how Virginia's youth, families and communities are functioning, adjusting, and adapting to these issues have economic impacts for the Commonwealth as a whole and are backed by VCE's Situation Analysis results. Further, programs for children, youth, adults, and families have been shown to have positive influences on the quality of community life. It is VCE's, VT's, and VSU's responsibility to continue to disseminate research, educate, and provide outreach services to insure best practices that create healthy communities.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- People have a desire and have made a commitment to improve their lives and their communities.- People need a knowledge base, appropriate tools, adequate resources, support, and ongoing evaluation and feedback to improve their lives and their communities.- People need connection with others, opportunities to practice new skills and positive interactions with role models and mentors in a nurturing environment to contribute to community sustainability.- Educational programs must be under girded by a solid research base.
- Through engaging volunteers and program stakeholders, agents can serve as catalysts for change

2. Ultimate goal(s) of this Program

To improve youth, family, and community functioning through the use of collaborative, integrative, educational programming and research in the areas of parenting, child development, child care, youth development, aging, and community development.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	107.0	3.0	0.0	0.0
2009	107.0	3.0	0.0	0.0
2010	107.0	3.0	0.0	0.0
2011	107.0	3.0	0.0	0.0
2012	107.0	3.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Activities include Entrepreneurial Education, Asset-based Economic Development, Leadership, Civic Engagement, 4-H Camping programs, 4-H After-School programs, 4-H In-school programs, 4-H Clubs, 4-H Special Interest groups, 4-H Cloverbud groups, district 4-H trainings, local 4-H trainings, home school education, child care provider education, parent education, online education and distance learning, and specialized trainings and workshops to qualify instructors and to train the trainers.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Group Discussion • Other 2 (service learning projects) • Education Class • Other 1 (Camping, ed. program & events) • Workshop	• Web sites • Newsletters • Other 1 (e-mail, phone, newspaper) • Other 2 (materials and resources)

3. Description of targeted audience

- Youth between the ages of 5 -19 - Parents - Child care providers - Providers of After-school care - Community organizations - Community partners - Community leaders and government officials - Donors - K-12 Educators - Volunteers

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	86000	178000	761000	1600000
2009	87000	179000	761000	1600000
2010	88000	179000	761000	1600000
2011	88000	179000	761000	1650000
2012	89000	179000	761000	1650000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	5
2009	0	5
2010	0	5
2011	0	5
2012	0	5

V(H). State Defined Outputs

1. Output Target

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

  2008 :5000 **2009 :**5500 **2010 :** 6000 **2011 :**6500 **2012 :**6500

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

  2008 :1013 **2009 :**1043 **2010 :** 1073 **2011 :**1103 **2012 :**1115

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

  2008 :104150 **2009 :**107280 **2010 :** 110490 **2011 :**113800 **2012 :**115000

- Number of citizens receiving entrepreneurial education

  2008 :150000 **2009 :**150000 **2010 :** 200000 **2011 :**210000 **2012 :**230000

- Number of youth and adults engaged in leadership development education

  2008 :2000 **2009 :**2000 **2010 :** 2500 **2011 :**2500 **2012 :**3000

- Number of clubs where youth are involved in structured after school programming

  2008 :600 **2009 :**700 **2010 :** 800 **2011 :**900 **2012 :**950

V(I). State Defined Outcome

1. Outcome Target

Percentage of trained volunteers and citizens participating in leadership development indicating increased knowledge, skills, and attitudes as a result of participation

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :70 **2009 :** 70 **2010 :** 70 **2011 :**70 **2012 :** 70

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

1. Outcome Target

Percentage of 4H volunteers (both youth and adult) that demonstrate an increase in knowledge and use of positive youth development skills and concepts when working with youth

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :50 **2009 :** 55 **2010 :** 60 **2011 :**65 **2012 :** 65

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percentage of youth/adults engaged in the 4H program that demonstrate an increase in knowledge and skills related to specific projects and/or subject matter

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :50 **2009 :** 60 **2010 :** 60 **2011 :**60 **2012 :** 60

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of volunteers completing master training that gain knowledge and skills enabling them to accept leadership roles within the organization

2. Outcome Type : Change in Action Outcome Measure

2008 :150 **2009 :** 175 **2010 :** 200 **2011 :**200 **2012 :** 225

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percentage of 4H campers that demonstrate an increase in specific life skills as a result of camp participation

2. Outcome Type : Change in Action Outcome Measure

2008 :50 **2009 :** 55 **2010 :** 55 **2011 :**60 **2012 :** 60

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percentage of youth involved in the 4H program that indicate an increase in specific life skills

2. Outcome Type : Change in Action Outcome Measure

2008 :20 **2009 :** 25 **2010 :** 25 **2011 :**25 **2012 :** 25

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percent increase in life skill development among senior 4H members as a result of participation in State 4H Congress

2. Outcome Type : Change in Action Outcome Measure

2008 :50 **2009 :** 55 **2010 :** 55 **2011 :**60 **2012 :** 60

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percentage of youth and adults involved in the 4H community club program that indicate increased knowledge and skills related to community involvement and improvement

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
20	25	25	25	25

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percentage of senior 4H members indicating that attendance at State 4H Congress enabled them to perform better at school or work

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
30	35	35	35	35

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Percent of parents increasing knowledge in understanding child development

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
40	40	40	40	40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of parents increasing knowledge of effective parenting practices

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
60	60	60	60	60

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of parents increasing knowledge in nurturing children

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
60	60	60	60	60

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of parents adopting practices in nurturing children

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
40	40	40	40	40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

percent of parents increasing knowledge in guiding children

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
60	60	60	60	60

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of parents adopting practices in guiding children

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
35	35	35	35	35

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of parents using available community resources to meet their needs

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	25	25	25

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of parents adopting practices to reduce family conflict and manage stress

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
40	40	40	40	40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers/teachers able to describe the stages of physical, cognitive, and social development of young children

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
60	60	60	60	60

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers able to state and implement techniques used to observe and record children's behavior

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
40	40	40	40	40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers enrolled in professional associations

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
20	25	30	35	40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers who adopt/include one new physical activity in their program

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
40	40	40	40	40

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers who adopt one or more healthy food practices in their program

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
75	75	75	75	75

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers preparing an emergency plan for home or center

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
65	65	65	65	65

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers increasing knowledge and implementing effective guidelines for program operation

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
65	65	65	65	65

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Percent of childcare providers implementing one strategy to improve relationships with enrolled families

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
60	60	60	60	60

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

{NO DATA ENTERED}

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- After Only (post program)
- Retrospective (post program)
- During (during program)
- Time series (multiple points before and after program)

Description

{NO DATA ENTERED}

2. Data Collection Methods

- Observation
- Other (Electronic surveys, focus groups)
- Sampling
- Structured
- On-Site
- Portfolio Reviews
- Mail

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food, Nutrition, and Health

2. Brief summary about Planned Program

Recent data show that 17% of youth and 66% of adults are overweight, with Virginia demonstrating the fastest growth rate of obesity in the entire country. Overweight and obesity increase the risk for several health conditions as well as chronic diseases, such as heart disease and diabetes. In Virginia alone, these two diseases account for over $4 billion in health care costs. Foodborne illness is another health concern facing Virginia citizens and food processors. Foodborne illnesses account for 76 million illnesses each year in the United States with potentially deadly consequences (particularly for immuno-compromised individuals and the elderly). Further, with over 500 food processing firms headquartered in Virginia, an eight billion dollar industry, it is critical for companies to prevent food production and food processing deficiencies to be competitive and ensure safe products for consumers. Effective research initiatives and educational strategies are warranted to reduce the rate of childhood overweight, prevent chronic disease, and promote safe food handling practices (both at home and in food processing facilities). Virginia Cooperative Extension will aim to develop, implement, and evaluate integrated research-based community programs to improve dietary habits, increase physical activity, promote positive body image, and encourage safe food handling practices. Extension and research initiatives will also take place to improve food safety and handling practices in restaurants and food processing facilities (based on current HACCP standards), and to investigate microbial and chemical contamination of online-procured raw honey, cheese, meats, nuts, and produce. Research into the social contributions of improved health status will also be conducted. Delivery methods will be driven by local needs and socio-demographic characteristics of respective communities, but will include classes, workshops, trainings, one-on-one interventions, demonstrations, PSA's, newsletters, and websites. Future efforts will also build on existing collaborations and programs, including Healthy Weights for Healthy Kids, Virginia Parents Action for Healthy Kids, Suppers Made Simple, Food Friends and Mighty Moves, Dining with Diabetes, Small Steps to Health and Wealth, and ServeSafe for managers, ServeSafe Essentials, So Easy to Preserve, and Cooking for Crowds with outcomes reflecting the goals and objectives of these programs. In addition to the programs noted above, other classes encourage a broad spectrum of behavioral practices that promote nutrition, health, and wellness including nutritional needs across the life cycle, food selection, and portion control in the context of weight management, consumer aspects of food purchasing and label reading, and walking programs for all age groups. Evaluation studies include a wide range of methods, again dependent on local needs, resources, and specific programs.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 501 10% New and Improved Food Processing Technologies
- 502 10% New and Improved Food Products
- 702 25% Requirements and Function of Nutrients and Other Food Components
- 703 25% Nutrition Education and Behavior
- 711 15% Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 712 15% Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Childhood Nutrition & Fitness - Recent data show that 17% of youth are overweight. Overweight is a multi-factorial condition attributed to an energy imbalance, created by consuming too many calories (through food and beverages) and/or not using too many calories (or being active enough). Numerous factors contribute to this energy balance, including consuming large portion sizes, eating out frequently (at fast food restaurants), making poor dietary choices (such as eating few fruits, vegetables, and whole grains and consuming high amounts of fat and sugar), and engaging in excessive sedentary activity (such as television viewing). Childhood overweight has been linked to high blood pressure, high cholesterol, type 2 diabetes, adulthood overweight, low

perceived quality of life, and social marginalization. It is critical to foster healthy behaviors at a young age to promote lifelong health and prevent disease. Chronic Disease Prevention - Chronic diseases—such as heart disease, stroke, cancer, and diabetes—are among the most prevalent, costly, and preventable of all health problems. Seven of ten deaths each year in the US are attributed to chronic disease. The prolonged illness and disability associated with these diseases also decreases the quality of life for millions of Americans and in Virginia alone cardiovascular disease and diabetes account for over $4 billion in health care costs. Much of this burden is preventable, since unhealthy eating and physical inactivity are major contributors to these diseases, along with other conditions, such as high blood pressure, high cholesterol, and overweight. Food Safety - Foodborne illness or food safety presents another major health concern among Virginian citizens. Foodborne disease is caused by ingesting contaminated foods or beverages. Many different disease-causing microbes or pathogens can contaminate foods. There are an estimated 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths each year associated with food microorganisms. From 2000 to 2003 Virginia reported 16 confirmed foodborne outbreaks per year. Long-term, chronic illness may also be attributed to foodborne contaminants as well, although the specific costs and impacts are unknown. Most foodborne outbreaks are linked to improper food handling by either retail outlets or consumers in their homes. Each year, food processors add approximately eight billion dollars to the value of agricultural food products processed in the Commonwealth. Over 500 food processing firms are headquartered and operate within the state. Virginia food producers and processors need to continuously improve their products and processes to remain competitive and maintain high safety standards. The Hazard Analysis and Critical Control Point (HACCP) system has been advocated by the National Academy of Science, the US Food and Drug Administration and USDA to prevent food production and processing deficiencies that could be potentially harmful to the consumer. HACCP is a way that the food processor can assure that final products will meet all safety criteria. The intent of HACCP is to identify those points critical to food safety in the processing flow and adequately control them. It is important to train local, state and federal food inspectors in the HACCP concept and current food safety issues.

2. Scope of the Program

- Multistate Research
- In-State Research
- In-State Extension
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Childhood Nutrition & Fitness - Effective educational strategies to prevent childhood overweight are those that: are age appropriate; address personal characteristics (food preferences, knowledge, attitudes, current behaviors), parenting styles and family characteristics, and community, demographic, cultural, and social characteristics; include simple recommendations and messages for behavior change; embrace the whole family; create supportive and inclusive learning environments for all sizes; incorporate hands-on, experiential-based activities in group settings; support positive body image; promote eating healthfully and choosing nutritious beverages; encourage physical activity; and model healthy choices by offering nutritious and healthy foods and beverages and opportunities to be active. Educational efforts will focus on prevention not treatment of childhood overweight and therefore will not be prescriptive. Chronic Disease - Health promotion and chronic disease reduction is dependent on lifestyle practices that emphasize self care, healthy eating, and regular physical activity. Disease prevention education must provide consumers with tools to assess their current behavior and make changes if needed. Intervention strategies such as the Transtheoretical Stages of Change help consumers assess their risk, consider alternative behaviors, and take action. Small changes over time are more easily implemented and more likely to be continued than drastic changes in food or activity patterns. Existing curriculum appropriate for older adults can be implemented at senior centers and congregate meal sites. Partnerships joining Extension, the Virginia Department of Health, and other health care professionals can provide hands on learning in appropriate food selection and preparation practices to assist persons with diabetes in effectively managing their disease. Food Safety - Virginia consumers and food processors need science-based information and education about efficient, safe processing, handling, and preservation of food to minimize the risk of foodborne illness. Educational programming must provide hands on training in order to maximize retention of material. Food preparation and handling curriculum takes trainees through real world situations and allows them to work through problems associated with a variety of aspects of food preparation. Partnerships bewteen Virginia Cooperative Extension and the Virginia Department of Health allow for maximum coverage of consumers and food service employees across the state.

2. Ultimate goal(s) of this Program

To improve health as a result of better eating behaviors, increased physical activity, and fewer foodborne illinesses and outbreaks. Childhood Nutrition & Fitness: 1. Children, youth, and adolescents will consume less fast food, sweetened beverages, and other discretionary calories 2. Children, youth, and adolescents will increase their intakes of fruit, vegetables, whole grains, and dairy products to reach the recommended numbers of servings each day3. Children, youth, and adolescents will reduce sedentary behavior 4. Children, youth, and adolescents increase physical activity 5. Children, youth, and adolescents will improve their body image 6. Parents, caregivers, and school faculty will take steps to encourage and model positive behaviors 7. Children at or above the 85th percentile for age and gender will decrease in Virginia Chronic Disease: 1. Adults will increase their intakes of fruits, vegetables, whole grains, and dairy products to reach the recommended numbers of servings each day. 2. Adults increase their level of physical activity to 30 minutes of moderate exercise at least three days each week. 3. Adults participate in regular health screenings to support early diagnosis and intervention for chronic disease. 4. Older adults adopt appropriate diet and activity behaviors to increase years of independent living. 5. Individuals with diabetes adopt food and self care practices that lower risk of disease complications and disability. Food Safety: Consumer & Producer Initiative 1. Consumers will increase their knowledge of food safety practices in the home 2. Food handlers will improve food safety and handling practices in restaurants 3. Food processors will improve their knowledge of HACCP practices and current safety standards for food processing 4. Consumers will have more access to locally processed, nutritious, and safe food at reasonable costs 5. Fewer foodborne illnesses and outbreaks will be reported in Virginia 6. Virginia will report increased sales of Virginia processed foods Internet Initiative This project is developed to examine the microbial and chemical contamination of online-procured raw honey, cheese, meats, nuts, and produce. Furthermore, the difference between organic and conventional products will be evaluated. The research sampling will be conducted via Internet sampling of targeted products sold nationwide and all testing activities will be performed at Virginia State University research laboratories. Data generated from this study will provide practical food safety information to stakeholders. It will fill a vital gap in food safety knowledge on the fast-growing Internet and organic food markets. Specific project objectives are: 1. To evaluate the microbiological safety of online-sold raw foods, which includes analysis of various foodborne pathogens in raw honey, meats, nuts and produce and the detection of various microbial toxins in raw nuts; 2. To evaluate the chemical safety of online-sold raw foods, which includes the testing for antibiotic residues in raw honey and meats, honey, and produce; 3. To compare the microbial and chemical safety of organic and conventional raw foods tested in this study as well as summarize, present, and publish research data at national and local meetings.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	40.0	2.0	45.0	2.3
2009	40.0	2.0	45.0	2.3
2010	40.0	2.0	45.0	2.3
2011	40.0	2.0	45.0	2.3
2012	40.0	2.0	45.0	2.3

V(F). Planned Program (Activity)

1. Activity for the Program

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.
Respond to consumer inquiries.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Workshop • Other 1 (e-mail, telephone) • Other 2 (health fairs, events,certificat) • Education Class • Group Discussion • Demonstrations • One-on-One Intervention	• Newsletters • TV Media Programs • Public Service Announcement • Web sites • Other 1 (TV, radio, newspaper)

3. Description of targeted audience

Childhood Nutrition & Fitness -Young Children (2 - 5 years)School-aged ChildrenAdolescentsParents, Caregivers, and School Faculty of Young Children, Youth, and AdolescentsExtension educatorsChronic Disease -Young adults (ages 25 – 59)Older adults (age 60 and older)Caregivers of older adultsAdults with type 2 diabetesParents and caregivers of individuals with type 2 diabetesSenior center and meal site staff and volunteersExtension educatorsFood Safety -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 educatorsCommercial food processors

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	190500	325000	100000	40000
2009	210000	357500	110000	44000
2010	230000	393000	120000	48000
2011	253000	432000	132000	53000
2012	275000	475000	145000	58000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

- Food Safety - Number of ServeSafe classes offered by Extension educators in Virginia

  2008 : 12 **2009 :** 14 **2010 :** 14 **2011 :** 15 **2012 :** 16

- Adult Nutrition and Chronic Disease Prevention - Number of diabetics and family members participating in Dining with Diabetes program offered in cooperation with a local health care provider

  2008 : 80 **2009 :** 95 **2010 :** 120 **2011 :** 145 **2012 :** 175

- Childhood Nutrition & Fitness - Number of pre-school aged youth participating in Food Friends and Mighty Moves program and other Extension educational programs at childcare centers

  2008 : 200 **2009 :** 250 **2010 :** 300 **2011 :** 350 **2012 :** 400

- Childhood Nutrition & Fitness - Number of elementary and middle school-aged youth participating in the Virginia Cooperative Extension Healthy Weights for Healthy Kids program or other nutrition education programs for youth

  2008 : 10000 **2009 :** 11500 **2010 :** 12000 **2011 :** 12500 **2012 :** 13000

- Childhood Nutrition & Fitness - Number of adolescents participating in Virginia Cooperative Extension nutrition education programs

  2008 : 200 **2009 :** 300 **2010 :** 400 **2011 :** 400 **2012 :** 500

- Childhood Nutrition & Fitness - Number of youth participating in Virginia Cooperative Extension school-based wellness initiatives or efforts to address local school wellness policies aimed at improving available foods and physical activity opportunities

  2008 : 200 **2009 :** 300 **2010 :** 400 **2011 :** 400 **2012 :** 500

- Adult Nutrition and Chronic Disease Prevention - Number of adults participating in at least one session on adult nutrition, fitness, or health

  2008 : 2500 **2009 :** 2600 **2010 :** 2700 **2011 :** 2800 **2012 :** 2900

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

  2008 : 5 **2009 :** 10 **2010 :** 10 **2011 :** 10 **2012 :** 11

- Food Safety - Number of shortcourses provided on food safety practices including HACCP training and recall workshops to industry personnel, consumer organizations, Extension Agents and to local, state, and federal health inspectors

  2008 : 5 **2009 :** 5 **2010 :** 5 **2011 :** 5 **2012 :** 5

- Number of Serv Safe Essentials classes offered by Extension educators in Virginia

2008 :6 **2009 :**8 **2010 :** 10 **2011 :**11 **2012 :**12

- Number of So Easy to Preserve classes offered by Extension educators in Virginia

2008 :1 **2009 :**3 **2010 :** 4 **2011 :**5 **2012 :**6

- Number of Cooking for Crowds classes offered by Extension educators in Virginia

2008 :8 **2009 :**9 **2010 :** 11 **2011 :**13 **2012 :**15

- Number of internet products analyzed for microbial and chemical contamination

2008 :15 **2009 :**16 **2010 :** 17 **2011 :**18 **2012 :**19

V(I). State Defined Outcome

1. Outcome Target

Childhood Nutrition & Fitness - Number of select elementary or middle school-aged youth who gain knowledge and awareness of nutrition, physical activity, and positive body image and improve at least one program-related behavior after participation in Healthy Weights for Healthy Kids or other Virginia Cooperative Extension nutrition education programs

2. Outcome Type : Change in Action Outcome Measure

2008 :150 **2009 :** 187 **2010 :** 225 **2011 :**262 **2012 :** 300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Childhood Nutrition & Fitness - Number of pre-school aged youth participating in Food Friends and Mighty Moves program or other Extension educational programs at childcare centers who try more new foods, consume more fruits, vegetables, or wider variety of foods, or increase physical activities after participation in the program

2. Outcome Type : Change in Action Outcome Measure

2008 :150 **2009 :** 187 **2010 :** 225 **2011 :**262 **2012 :** 300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Adult Nutrition and Chronic Disease Prevention - Number of individuals with diabetes who have lowered their Hemoglobin A1c level by at least 0.5, three months after participating in a Dining with Diabetes program offered in cooperation with a local health care provider

2. Outcome Type : Change in Action Outcome Measure

2008 :40 **2009 :** 50 **2010 :** 60 **2011 :**75 **2012 :** 90

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Adult Nutrition and Chronic Disease Prevention - Number of adults participating in at least one class on adult nutrition, fitness, or health who indicate their intent to make one change in their dietary intake, food purchasing behavior, or level of physical activity

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
1600	1900	2300	2750	3300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Food Safety - Number of managers, supervisors, and food handling personnel from restaurants, public school and hospital cafeterias, daycare centers, nursing homes, university foodservice, correctional centers, and other foodservice industries who increase knowledge and skills in safe food handling practices by 30%

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
200	500	400	400	500

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Food Safety - Number of Virginia food producers and processors to implement (pre and post harvest) HACCP, quality assurance programs and processing technology that will provide for increased food safety and processing efficiency

2. Outcome Type : Change in Action Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
100	120	150	100	100

3. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Food Safety - Number of home-based business entrepreneurs who are provided with assistance and training who increase awareness and knowledge in producing safe high acid and acidified foods

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
150	150	150	150	100

3. Associated Knowledge Area(s)

- 502 - New and Improved Food Products
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Food Safety - Number of consumers and at-risk populations, including civic/community groups, senior citizens, child care providers, youth, 4-H youth, Master Food Preservers, and volunteer cooks at fund-raising events, who increase their knowledge of foodborne illness, safe food handling practices, and food preservation

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
150	150	150	150	150

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Childhood Nutrition and Fitness - Number of adolescents or high school students who improve their diet and physical activity after participation in Virginia Cooperative Extension nutrition education programs

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
150	187	225	262	300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Childhood Nutrition and Fitness - Number of children who report eating healthier foods and being more physically active as a result of Virginia Cooperative Extension school-based wellness initiatives or efforts to address local school wellness policies to improve available foods and physical activity opportunities

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
150	187	225	262	300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Adult Nutrition and Chronic Disease Prevention - Number of adults participating in at least one class on adult nutrition, fitness, or health who within three months report one change in their dietary intake (i.e., increase their servings of fruits, vegetables, whole grains, or dairy products or decrease their servings of sweets or fats)

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1200	1450	1725	2075

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior

1. Outcome Target

Adult Nutrition and Chronic Disease Prevention - Number of adults participating in at least one class on adult nutrition, fitness or health who within three months report one change in physical activity (i.e. walking, strength training, using fewer labor-saving devices, incorporating more activity into daily living)

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1200	1450	1725	2075

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Adult Nutrition and Chronic Disease Prevention - Number of adults participating in at least one class on adult nutrition, fitness, or health who within three months report one change in their food purchasing behavior (i.e., reading labels, using unit pricing to stretch food dollars, purchasing whole grains versus enriched grains, choosing products lower in sodium)

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1200	1450	1725	2075

3. Associated Knowledge Area(s)

- 502 - New and Improved Food Products
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Natural disasters have a trickle down effect: If food production facilities and/or agriculture is damaged or disturbed by a natural disaster, less food is available to be processed and consumed. This not only has an impact on local economies and access to food, but how Extension educators respond to local needs. If a natural disaster were to take place in Virginia, Extension educators in affected localities would likely re-direct their attention and programming to assist with disaster relief as it pertains to safe food/water and consumer issues. Other factors that may influence outcomes include economic changes (eg. employment rates, disposable income and purchasing power of consumers for food, food security, purchasing patterns of consumers as they relate to Virginia foods), public policy changes (eg. taxation of "junk foods," restrictions in food advertising toward children, changes in nutrition integrity and physical education guidelines for schools, HACCP guidelines, new regulations imposed on raw food items sold on the Internet markets), and population changes (eg. immigration, new cultural groups, new food processing needs). The mission of Extension is to be the arm of the university that reaches out to the community. If economic, demographic, social, and legal characteristics change at the local and state levels, Extension educators need to respond and tailor educational programs to these changes in order to be competitive with other public priorities and programmatic challenges. There is also "saturation," which may occur related to overweight and obesity given the amount of current press and attention on the topic. Finally, if appropriations of funds declines for FCS programs, it is possible that there would be fewer FCS Extension Agents which would influence what could be accomplished in terms of programs for general and specific audiences.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Retrospective (post program)
- Time series (multiple points before and after program)
- After Only (post program)
- Before-After (before and after program)

Description

The type of evaluation study will depend on the program and activity. For example, the Healthy Weights for Healthy Kids program will be evaluated through before-after studies and after only studies - whereas Dining with Diabetes will likely be evaluated by using before-after, time series, and possibly even a case study in the initial pilot-testing stage, as the program is prepared for statewide implementation.

2. Data Collection Methods

- On-Site
- Tests
- Sampling
- Mail
- Telephone
- Journals
- Other (pedometers, online surveys)
- Observation

Description

The type of data collection method again depends on the program and activity. For most food, nutrition, and health programs, data

are gathered however through on-site surveys whereby participants or programs are requested to fill out the instrument during a scheduled class. Follow-up studies with a postcard or email may also be a strategy to learn about behavior changes that took place following the class and were continued.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Natural Resources and Environment

2. Brief summary about Planned Program

Virginia is a state which relies heavily on its rich natural resource base for both economic and recreational benefits. Virginia's soil, water, forest, and wildlife resources support manufacturing and recreational industries valued at over $25 billion annually. This planned program aims to improve the management of the state's soil and water resources, 15.4 million acres of forest land, 680,000 acres of freshwater lakes, and 5,000 miles of shoreline. The bulk of Virginia's natural resources are in private ownership. Therefore, in the absence of strict regulations, we are reliant upon financial incentives and education/technical assistance to help these private owners make wise decisions regarding the management and use of their natural resources. For example, though the state has ownership rights to the state's fish and wildlife populations, the habitat is owned and managed mostly by private individuals. Without the proper knowledge, private landowners may not make the best decisions regarding the management of wildlife habitat. Virginia Cooperative Extension is the only state agency charged with just providing educational services to owners of Virginia's natural resources. While other agencies also provide some education, they are also regulatory agencies and do not often gain the trust that Extension provides. Additionally, personnel with other agencies are excellent partners in education, but they lack the training and resources to be strong educators. Virginia Cooperative Extension can also assist state regulatory agencies develop technically-sound regulations and best management practices for protecting soil and water resources. As examples, personnel of the Virginia Department of Transportation require training in the environmentally sound management of the sizeable acreage under their control. Wastewater, water, and solid waste utilities must make sound environmental and economic decisions on the treatment and utilization of solid and liquid wastes that they process and generate.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 101 10% Appraisal of Soil Resources
- 102 10% Soil, Plant, Water, Nutrient Relationships
- 104 10% Protect Soil from Harmful Effects of Natural Elements
- 111 5% Conservation and Efficient Use of Water
- 112 10% Watershed Protection and Management
- 123 10% Management and Sustainability of Forest Resources
- 124 10% Urban Forestry
- 131 10% Alternative Uses of Land
- 133 10% Pollution Prevention and Mitigation
- 135 10% Aquatic and Terrestrial Wildlife
- 403 5% Waste Disposal, Recycling, and Reuse

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Natural Resources and Environment is a very broad planned program, with many inherent issues. For example, Virginia's forests provide for a host of multiple benefits, some monetary like the sale of stumpage, and some intrinsic, such as clean water and an aesthetic environment. Yet, there are problems in the forest. Insects, disease, and fire all take their toll. Additionally, our forests are being invaded by a host of exotic plant species, like the tree-of-heaven, Japanese honeysuckle, oriental bittersweet, and autumn-olive. Forest landowners need the latest research information in order to best manage their lands, and extension programs provide just that. In many cases landowners need basic information and assistance in the preparation of management plans, and need help in locating sources of governmental financial assistance. Many farmers and forest owners are concerned about protecting their lands in the long term, and want unbiased information about conservation easements and other protection tools.

Many activities on the land contribute to nonpoint source pollution of our state's waters, and extension can assist with educational programs for a wide variety of issues and audiences. For example, farmers need assistance with nutrient management plans to guide them in fertilizer applications, and in waste application treatments and utilization. In far southwest Virginia landowners and coal mine operators need assistance in correctly applying reclamation practices to insure both prudent bond release and a favorable environment after the reclamation process is completed. Public utilities who are tasked with processing solid and liquid wastes must understand proper land management practices to prevent impairment of soil and water resources, and state regulatory personnel require technical guidance to develop sound environmental regulation.

2. Scope of the Program

- In-State Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension
- Multistate Research
- In-State Research
- Multistate Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

There are many assumptions that are implicit in this planned program. For example, most of the natural resources in Virginia are privately owned, and we assume this will continue. While Virginia has some environmental regulations, it is not known as a heavily regulated state. We are reliant upon governmental financial incentives and education/technical assistance to guide farmers and landowners in land management decisions. Extension is in the strongest position to provide this education. We assume that through education, farmers and landowners will be able to make prudent decisions, and adopt new technologies. We also assume that internet use in the home will increase in the future, as more and more of our educational materials are web-based. Furthermore, we assume that publicly owned utility operators and state regulatory agencies will make wise decisions that affect the public through increased educational efforts.

2. Ultimate goal(s) of this Program

To provide for improved environmental quality, while also providing for economic vitality of families and communities.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	25.0	0.5	50.0	0.9
2009	25.0	0.5	50.0	0.9
2010	25.0	0.5	50.0	0.9
2011	25.0	0.5	50.0	0.9
2012	25.0	0.5	50.0	0.9

V(F). Planned Program (Activity)

1. Activity for the Program

Primary outputs from this program include the following: -- Develop and deliver educational programs such as short courses, workshops, field days and tours, seminars, etc. -- Conduct applied research and link with extension -- Develop and maintain demonstration areas -- Develop collaborative partnerships with government officials, state agencies, non-governmental organizations, etc. -- Develop and disseminate educational materials such as extension bulletins, journal articles, conference proceedings, trade journal articles, DVD's, etc. -- Develop and maintain web-based educational materials such as short courses,

web sites, discussion boards, etc.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	**Indirect Methods**
• Other 1 (Web-based applications) • One-on-One Intervention • Education Class • Demonstrations • Workshop • Group Discussion	• TV Media Programs • Newsletters • Web sites

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	170000	2000000	5000	5000
2009	171000	2000000	5000	5000
2010	172000	2000000	5000	5000
2011	173000	2000000	5000	5000
2012	174000	2000000	5000	5000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :**0 **2012 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

- Number of educational programs offered

2008 :2000 **2009 :**2000 **2010 :** 2000 **2011 :**2000 **2012 :**2000

- Number of educational materials and curriculas developed

2008 :25 **2009 :**25 **2010 :** 25 **2011 :**25 **2012 :**25

- Number of applied research projects

2008 :15 **2009 :**15 **2010 :** 15 **2011 :**15 **2012 :**15

- Acres of land exposed to educational programming efforts.

2008 :100000 **2009 :**100000 **2010 :** 100000 **2011 :**100000 **2012 :**100000

- Identifiable impacts reported by agents/specialists

2008 :40 **2009 :**40 **2010 :** 40 **2011 :**40 **2012 :**40

V(I). State Defined Outcome

1. Outcome Target

Number of individuals with increased knowledge of best management practices in forestry, agriculture, and other potential soil and water-impacting land management industries.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :500 **2009 :** 500 **2010 :** 500 **2011 :**500 **2012 :** 500

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 135 - Aquatic and Terrestrial Wildlife
- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of individuals with increased knowledge of sustainable landscape practices

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :250000 **2009 :** 250000 **2010 :** 250000 **2011 :**250000 **2012 :** 250000

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water

- 124 - Urban Forestry
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation

1. Outcome Target

Number of individuals adopting at least one improved management practice toward achieving sustainability

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
250	250	250	250	250

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of individuals adopting one or more sustainable landscape management practices

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
200000	200000	200000	200000	200000

3. Associated Knowledge Area(s)

- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 124 - Urban Forestry
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife

1. Outcome Target

Number of mills reporting increased profitability, improved safety indicators, or improved efficiency

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10	10	10	10	10

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 133 - Pollution Prevention and Mitigation
- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of agricultural, forest, or disturbed land acres with improved management practices

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
50000	50000	50000	50000	50000

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Many external factors affect both the outcomes and the ability to support the educational programs behind the outcomes. Natural disasters can not only siphon off funds, but create a whole set of new issues related to natural resources and the environment. For example, hurricane blowdown can flood the market with low cost wood, and create fuel buildup and insect and disease problems. Floods and droughts have their own unique problems, and both greatly affect natural resources issues. Certainly, funding for extension programs, particularly state funds control our ability to develop and deliver new programs. Finally, new laws and regulations may both create new issues and opportunities, and also cause other issues to fade away. In most cases new regulations result in a need for more education for those affected by the regulations.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Comparison between locales where the program operates and sites without program intervention
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Case Study
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Time series (multiple points before and after program)
- Retrospective (post program)
- During (during program)
- After Only (post program)

Description

Evaluation of a broad array of programs, such as those represented by the Natural Resources and Environment planned program, require a multitude of varying procedures. In general, Extension educators are responsible for determining their evaluation procedure that best fits their program, time, and money resources. For example, in 2006 and 2007 the Virginia Forest Landowner Education Program is undergoing a complete evaluation covering the past eight years of the program. An extensive survey of program participants is planned, and research will be done to compare adoption rates with a test population that did not participate in the program. Adoption models will be developed for a host of forestry practices associated with differing shortcourses.

2. Data Collection Methods

- On-Site
- Whole population
- Sampling
- Tests
- Journals
- Mail
- Portfolio Reviews
- Telephone
- Unstructured
- Case Study
- Observation
- Structured

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

1. Name of the Planned Program

Pest Management

2. Brief summary about Planned Program

Since its inception Virginia Cooperative Extension has played a major role in conducting a wide range of programs addressing human health, environmental and economic issues related to the management of pest populations through a wide variety of science based technologies. Citizens demand safe, pest and disease free homes, schools, recreational areas and a safe and affordable supply of food products and a wholesome environment with minimal risks. Infestations of insects, diseases, weeds, and nematodes result in significant crop and commodity losses every year. Growers, foresters, nurserymen, homeowners and commercial applicators apply large amounts of pesticides to control these pests. Practices such as spraying broad-spectrum pesticides on a frequent or calendar schedule can threaten farm-worker health, and affect water quality and the integrity of ecosystems. Management practices used for pests of structures, schools and other public settings also constitute a major health concern. Virginia's pest management program strives to address this wide variety of pest problems with programs that reduce commodity losses to pests and the reliance on chemical pest controls. Citizens use pesticides frequently as the method of choice for managing pests because of cost, effectiveness, availability, and convenience. Pesticides have contributed impressively to our present day agricultural productivity but have also triggered issues and concerns such as pest resistance, water contamination, and public exposure. The appropriate and safe use of pesticides is a vital part of pest management education. Pesticide safety education in Virginia is multiple disciplinary and results in the training and certification of pesticide applicators to enable them to comply with state and federal pesticide laws and regulations. Virginia Cooperative Extension (VCE) conducts statewide educational programs to protect the environment and the public health from improper pesticide use through applicator and public education. The primary target audience includes certified and non-certified pesticide applicators of all kinds, farm workers, and the general public. Most of the program activity involves training support for a group of approximately 21,000 pesticide applicators who seek training in order to comply with federal and state pesticide laws. VCE is positioned to fill these educational needs and is the primary pest management educator through the efforts of its agents and specialists. This program reaches every Virginia locality through organized educational programs, demonstrations, consultations, publications, audio/visual media, and Internet resources.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 112 10% Watershed Protection and Management
- 211 10% Insects, Mites, and Other Arthropods Affecting Plants
- 212 10% Pathogens and Nematodes Affecting Plants
- 213 10% Weeds Affecting Plants
- 216 20% Integrated Pest Management Systems
- 403 10% Waste Disposal, Recycling, and Reuse
- 711 10% Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 10% Hazards to Human Health and Safety
- 804 10% Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Infestations of insects, diseases, weeds, and nematodes result in significant crop and commodity losses every year. Pesticide misuse can have a significant impact on successful pest control, public safety, and the environment. Pest management and pesticide safety education are essential and viable solutions to addressing these issues. Education on integrated pest management (IPM) and pesticide safety saves thousands of dollars in resources and fines for both government and the public as they reduce the number of potential violations due to ignorance of the law and promotes the best management practices that are

key to compliance and effective pest management. A significant number of Virginia clientele have incorporated IPM practices into their annual routines. However, there are still many pests and crops for which specific strategies have not been developed, and many existing strategies that have not been fully adopted. In soybeans, the onset of new invasive species (Asian soybean rust, soybean aphid) has increased grower awareness of the importance of pest alerts and field monitoring. There is great potential for improvements in management practices. Pesticide applicators apply fewer pesticides, with more care and with a wider awareness for safety. Many potentially harmful pesticides are replaced with alternatives, both chemical and non-chemical. Pesticide use has been the focus of much public debate and controversy. The public's perception of pesticides changed American agriculture and our daily lives. Complex environmental, health and safety regulations are in place, however citizens are less likely to be impacted by hazardous pesticides in food, water, environment, and the workplace. Excessive and complex regulations make it harder for growers and businesses to compete in a world market and to remain profitable. Sound science and public education are needed to allow society to function in a balanced, productive, and healthy manner.

2. Scope of the Program

- In-State Extension
- Multistate Integrated Research and Extension
- Multistate Extension
- Integrated Research and Extension
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

New pest management programs will be developed via the initiative and grantsmanship of faculty in pest management disciplines (entomology, weed science, plant pathology). Federal 3-d funds will support three staff positions in CALS that work directly with these faculty. The program will emphasize effective methods of information delivery such as grower meetings, in-service training for Extension agents, on-farm plots and demonstrations, publications and news articles. IPM programs will emphasize the following areas: soybean, cotton, peanut, potato, forages, turf, apples, and schools. To improve electronic delivery, the Virginia IPM web page will be completely revised to become a one-stop shopping site for pests of agriculture, community and natural areas. It will include new pages on soybean rust surveillance and management, urban IPM, and links to the Plant Diagnostic Clinic, Virginia Tech Pesticide Program, biological control references, and the new email-delivered Virginia Ag Pest Advisory which provides weekly updates on pests of cotton, peanut, soybean, wheat and vegetables. An estimated 13 Ag and Natural Resources Extension agents will also support the IPM program with activities targeting their local clientele. Typically each year more than 100 volunteers contribute more than 1000 hours in this program. Pesticide safety education will continue to be critical in keeping the public knowledgeable of how to protect themselves from pesticides and to maintain a viable agricultural system. Funding will continue to be available from the Virginia Pesticide Control Board, the Virginia Department of Agriculture and Consumer Services, the USDA, and the USEPA. An established PSE professional development network will continue to offer opportunities in the states, regions and nationally for trainer education and sustainability of the program curriculum.

2. Ultimate goal(s) of this Program

VCE and its stakeholders will sustain their partnerships to support a viable and active education program to reduce enforcement costs, maintain viable pest management options to protect agriculture, specialty areas, public health, and the environment, and to protect the public and occupational health and the environment from the misuse of pesticides. The pest management program will have positive impact on cost benefit ratios, human health, and the environment. The goal is to introduce the most efficient pest management procedures to encourage a greater adoption rate. Adoption of IPM practices and pesticide safety education will reduce the amount of pesticide released into the environment and reduce worker exposure. Overall cost benefits must consider what, if any, additional costs are associated with implementing the IPM alternative (scouting costs, time, etc.). Other goals are to teach stakeholders to utilize and rely on the new web-based delivery system for information so that they will acquire a habit of referencing web-based materials. This should result in more preemptive pest management practices and targeted recommendations for a broad range of pests in the future. Timely access to decision-making information should prevent needless or inappropriate applications of pesticides. product selection, application timing and application when a pest problem is encountered. Adoption of improved pest monitoring practices, especially in newer rotation systems where new or unusual pest species may be encountered will be a priority. Another goal is to initiate a cultural change in how pest control is approached in schools. The thrust of the training program will be directed at the elimination of "preventive" pesticide applications, and the replacement of these applications with pest monitoring, prevention, and documentation. In other words, scout for pests but apply no pesticide unless there is a documented pest problem, then use only the least toxic, most effective methods available. Pesticide applicators will meet the competency requirements of state and federal pesticide laws in order to be certified private and

commercial applicators in the Commonwealth. Non-certified pesticide users, the public, news media, and decision-makers will gain the knowledge and skills necessary to understand where pesticides fit within our society, to use pesticides (if they choose to use them) safely and legally, to avoid exposure to pesticides during occupational and non-occupational activities, and to make sound decisions when choosing proper pest controls.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	30.0	0.0	5.0	1.7
2009	30.0	0.0	5.0	1.7
2010	30.0	0.0	5.0	1.7
2011	30.0	0.0	5.0	1.7
2012	30.0	0.0	5.0	1.7

V(F). Planned Program (Activity)

1. Activity for the Program

- 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. - Asian Soybean Rust/Soybean Aphid website - Ag Pest Advisory - Phone Assisted Hotlines

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• One-on-One Intervention • Group Discussion • Workshop • Education Class • Other 1 (Web based training courses) • Demonstrations	• Newsletters • Public Service Announcement • Web sites • Other 1 (VCE Pest Management Guides) • Other 2 (Publications and manuals) • TV Media Programs

3. Description of targeted 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.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	20000	100000	625	2300
2009	20000	100000	650	2400
2010	20000	100000	675	2500
2011	20000	100000	700	2600
2012	20000	100000	725	2700

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 **2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

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

  2008 :125 **2009 :**125 **2010 :** 125 **2011 :**125 **2012 :**125

- Number of private applicators trained for certification

  2008 :750 **2009 :**750 **2010 :** 750 **2011 :**750 **2012 :**750

- Number of commercial applicators trained for certification

  2008 :750 **2009 :**750 **2010 :** 750 **2011 :**750 **2012 :**750

- Number of private applicators trained for recertification

  2008 :2000 **2009 :**2000 **2010 :** 2000 **2011 :**2000 **2012 :**2000

- Number of commercial applicators trained for recertification

2008 : 1000 **2009 :** 1000 **2010 :** 1000 **2011 :** 1000 **2012 :** 1000

- Number of non-certified applicators trained

2008 : 2000 **2009 :** 2000 **2010 :** 2000 **2011 :** 2000 **2012 :** 2000

- Number of stakeholders enrolled in the IPM Stakeholder Network

2008 : 100 **2009 :** 100 **2010 :** 100 **2011 :** 100 **2012 :** 100

- Number of trainers and regulatory officials trained

2008 : 300 **2009 :** 300 **2010 :** 300 **2011 :** 300 **2012 :** 300

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

2008 : 1000000 **2009 :** 1000000 **2010 :** 1000000 **2011 :** 1000000 **2012 :** 1000000

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

2008 : 250 **2009 :** 250 **2010 :** 250 **2011 :** 250 **2012 :** 250

- Number of presentations on IPM related topics.

2008 : 500 **2009 :** 500 **2010 :** 500 **2011 :** 500 **2012 :** 500

- Number of volunteer hours dedicated to pest management programming

2008 : 8000 **2009 :** 8000 **2010 :** 8000 **2011 :** 8000 **2012 :** 8000

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

2008 : 5000 **2009 :** 5000 **2010 :** 5000 **2011 :** 5000 **2012 :** 5000

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

2008 : 500000 **2009 :** 500000 **2010 :** 500000 **2011 :** 500000 **2012 :** 500000

V(I). State Defined Outcome

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2008 : 2000 **2009 :** 2000 **2010 :** 2000 **2011 :** 2000 **2012 :** 2000

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1000	1000	1000	1000	1000

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
4000	4000	4000	4000	4000

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
950	950	950	950	950

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 211 - Insects, Mites, and Other Arthropods Affecting Plants

- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2008 : 100 **2009 :** 100 **2010 :** 100 **2011 :** 100 **2012 :** 100

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

Threshold number of pesticide drift violations prosecuted by VDACS

2. Outcome Type : Change in Condition Outcome Measure

2008 : 10 **2009 :** 10 **2010 :** 10 **2011 :** 10 **2012 :** 10

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 216 - Integrated Pest Management Systems
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

Threshold number of personal protective equipment violations prosecuted by VDACS

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
20	20	20	20	20

3. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

Number of applicators successfully maintaining their pesticide applicator certification to legally apply pesticides in the Commonwealth

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
18000	18000	18000	18000	18000

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 723 - Hazards to Human Health and Safety
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

Crop acreage impacted by the continued availability of viable pest management tools as a result of pest management strategic planning activities and the communication of pest management information to policymakers

2. Outcome Type : Change in Condition Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
10000	10000	10000	10000	10000

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

1. Outcome Target

Number of localities participating in a pesticide waste disposal program.

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
25	25	25	25	25

3. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of localities participating in a pesticide container recycling program.

2. Outcome Type : Change in Action Outcome Measure

2008 :	2009 :	2010 :	2011 :	2012 :
10	10	10	10	10

3. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Public Policy changes
- Other (Stakeholder cooperation, violati)
- Appropriations changes
- Populations changes (immigration,new cultural groupings,etc.)
- Competing Programatic Challenges
- Competing Public priorities

Description

Although a wide variety of commodities and/or sites are encompassed in the pest management program, the factors which may affect outcomes are either those which constrain program delivery or those which constrain client adoption of practices. Factors which may affect program delivery include economy, appropriation changes, public policy changes, competing public priorities, and competing programmatic challenges. Factors which may affect client adoption include natural disasters, economy, public policy changes, government regulations, and fluctuations in commodity and/or pesticide prices. The external factors that could affect the outcome of this program include changes in public policy, changes in government regulations, cuts in appropriations for the program, competition in public policies and programs, changes in demographics, and the cooperation of stakeholders. In the past, changing laws and public policy have driven the program content and the availability of funding. Other major challenges have been the cooperation of stakeholders. This has particularly affected our ability to establish stakeholder needs for pest management priorities and pesticide policy. A recent challenge has been the change in demographics in Virginia. There is an increased demand to offer pest management education resources in Spanish. Employers have a desire to employ non-English speaking workers as pesticide applicators. Although it is reasonable to ask for multi-lingual safety training. Many employers seek to certify these employees to use pesticides. The prohibitive factor here, besides the lack of resources to change the training materials and examinations, is that all pesticide products labeled for use in Virginia (and most states) are written in English only. Another challenge is the plans by the USEPA to convert all pesticide labels to comply with their global harmonization policy. When this changes, all training will have to be altered to correspond to the drastic changes in pesticide labeling. This will create a major shift in the user community and education will be a key to avoiding problems with comprehension of these new labels.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- After Only (post program)
- Retrospective (post program)
- During (during program)
- Comparison between locales where the program operates and sites without program intervention
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Description

Evaluation studies planned include determining the benefits of internet delivery of IPM information. Web statistics will also give an indication of the value of information on the website, visitor numbers, and future needs. Data collection methods will vary by local program and variation and innovation in methods used to determine program impact are encouraged. Program successes will be evaluated using clientele surveys, input from key stakeholder groups, and monitoring hotlines and web sites. Schools will be contacted 6 to 12 months after IPM training. Major tools available to the program through state pesticide regulatory partners are the results of pesticide certification exams (pass/fail data) and pesticide enforcement violation data. Monitoring the violations reported by the state pesticide regulatory agency provides for addressing needs based on changes and trends in those violations.

The violations will be used to determine impact of the educational effort and where efforts need to be stepped up or new innovations need to be made to change behavior. violation data will be used as a threshold to measure our outcomes. our work will contribute to holding these violations below these threshold levels. Other tools will include program evaluations with questions measuring changes in attitudes and future behavior, pre- and post-tests and user surveys and stakeholder focus groups will be used to establish needs and improve program quality. These tools will be used to evaluate the impacts and outcomes of the program.

2. Data Collection Methods

- Tests
- Mail
- On-Site
- Other (State regulatory agencies data)
- Unstructured
- Observation
- Whole population
- Sampling

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

1. Name of the Planned Program

Plants and Plant Products

2. Brief summary about Planned Program

Agriculture in Virginia has long been dominated by livestock based industries (66.3% of gross farm receipts in 2004) which rely on agronomic crops and forages to such an extent that we are a grain deficit state, and we import large quantities of plant products from other areas. Agronomic and horticultural crops currently account for 18.3% and 15.4% of, gross farm receipts, and together have a value of $900 million at the farm gate. In recent years, dramatic population increases in northern and eastern Virginia have resulted in substantial growth in the turf, ornamental, and landscape industries, with managed turf areas alone estimated at over 1.7 million acres. Urbanization and population growth has resulted in loss of prime farmland, dramatic increases in land values, and a growing number of lifestyle farmers, gardeners, and others interested in home horticulture. This same population growth offers new opportunities and demands for plants, bio-based products and related educational programs involving topics such as landscape and ornamental plants, sod, bread quality grains, biofuels, organic products, herbs, wine grapes, and other high quality, locally produced plant products. At the same time, loss of farm programs for peanut and tobacco have greatly altered cropping system practices and reduced farm profitability. Environmental pressures may soon force dramatic changes in the animal industry, with consequences on associated plant industries of the state. Many rural areas of the state are facing economic stagnation or decline, but have substantial areas of land suitable for plant or plant-animal production systems. In short, all areas of the state have significant opportunities and challenges to develop new or improved plant based systems than are competitive, profitable, and environmentally friendly.This program deals with plants and their uses, and will focus on plants used for commercial and ornamental horticulture, turf, agronomic crops, and grasslands. Plants provide food, animal feed, fiber, medicines, natural products such as oils and latex, and renewable feed stocks for bioenergy production. Plants enliven and sustain our environments, providing ornamentals and turf for recreation and aesthetic pleasure, and ecosystem services such as soil protection, nutrient cycling, and wildlife habitat.In order to provide plants and plant products for a productive economy and high quality of life, research efforts must focus on improving, evaluating, and tailoring plants for specific uses, finding new ways to use them, and developing production and processing technologies that minimize environmental impacts while increasing producer competitiveness and profitability.
Extension efforts will focus on participatory learning, adaptation, and adoption of new technologies and practices by targeted clientele.
Three areas are targeted in this program: 1) improvement of plants through plant breeding, genetics, and genomics, 2) new and improved uses of plants and plant products (bio-based products), and 3) production, processing, and marketing practices which increase profitability, ensure quality, and are environmentally friendly.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 102 10% Soil, Plant, Water, Nutrient Relationships
- 201 10% Plant Genome, Genetics, and Genetic Mechanisms
- 202 15% Plant Genetic Resources
- 205 25% Plant Management Systems
- 216 5% Integrated Pest Management Systems
- 403 5% Waste Disposal, Recycling, and Reuse
- 511 10% New and Improved Non-Food Products and Processes
- 601 10% Economics of Agricultural Production and Farm Management
- 712 10% Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Virginia's commercial plant producers are facing increases in land values, costs of production, and environmental regulation. Diseases such as head blight and soybean rust threaten to reduce productivity and high value end uses. Undesirable plant components such as alkaloids, tannins, and indigestible carbohydrates are reducing animal performance and limiting usefulness of plants for human consumption. Soils receiving manure from concentrated animal feeding operations are accumulating excess phosphorus levels, and beginning to threaten soil and water quality. Feed grains with reduced phytate-phosphorus, a form which passes through monogastric animals undigested into the manure, are needed to address this imbalance, as are pasture plants with high phosphorus uptake which can be used to extract excess soil nutrients. Our dependence on foreign oil and rising prices are stimulating interest in biomass production for synthesis of biofuels. Opportunities to use plants as a vehicle for manufacture of enzymes, pharmaceuticals, and other essential products require more secure production systems, more efficient extraction, fermentation, and processing methods. Development and vigorous growth in new home construction is stimulating interest in ornamentals and home gardening. While our most efficient producers can currently compete in the global commodity market, profitability must continue to increase. In some cases, this will involve increases in productivity through plant breeding and genomics, and through using better adapted varieties. Plants with specific high quality traits or components will be developed for new markets. New or underutilized plants with market potential will be evaluated and production systems developed. In other cases, more profitable alternatives such as ornamental and horticultural crops, organic production systems, bio-based products must be explored. We will also need to address the growing demands and educational needs of lifestyle farms, homeowners, and small businesses. In all cases, development and adoption of environmentally friendly, sustainable production practices will be stressed.

2. Scope of the Program

- Integrated Research and Extension
- Multistate Integrated Research and Extension
- In-State Extension
- Multistate Extension
- Multistate Research
- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

We assume that world-wide production of essential food, feed grains, and forages will continue to increase at moderate rates to meet world demand. Recent fluctuations in oil prices have stimulated renewed interest in biofuel crops, improved grain prices, and shifted production in favor of corn and small grains for ethanol. It remains to be seen if these prices will be sustained long term, and what the effects will be on farm profitability, food costs, and degradation of essential environmental services. To ensure long term sustainability, we must continue to focus our efforts on significant increases in productivity, quality, and price. Population growth and environmental degradation will continue for the life of this plan, and agricultural and associated non-agricultural land uses will play a vital role in mitigating these problems. Agriculture will remain a major contributor to the state's economy and our food security, and will support open space, deliver scenic beauty for tourism, and provide essential and desirable ecosystem services. These drivers will continue to force reductions in land area devoted to production, and will require remaining productive lands towards growth of higher value plants and plant products. Commercial plant producers desire to be profitable, efficient and good stewards of the environment. Plant producers with no profit motive, such as homeowners and local government agencies, can be motivated to change their behavior and attitudes toward good gardening/production practices with economically viable alternatives and well designed educational programs. While we have the basic science, people, and tools in place to begin the discovery process, new developments and effective educational programs are critical for medium and long term success.

2. Ultimate goal(s) of this Program

By focusing on plant improvement, genetic modification, and discovery of new uses for underutilized plant resources coupled with new or improved environmentally friendly ways of producing, handling, processing and refining, we will deliver higher value plant and plant products and educational programs to plant producers that meet or exceed end-user requirements, protect environmental quality, and ensure agricultural profitability and a safe, secure food supply.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	7.0	1.0	4.9	1.7
2009	7.0	1.0	5.1	1.7
2010	7.0	1.0	5.3	1.7
2011	7.0	1.0	5.4	1.7
2012	7.0	1.0	5.5	1.7

V(F). Planned Program (Activity)

1. Activity for the Program

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. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Demonstrations • Education Class • Workshop	• Other 1 (Extension publications) • Public Service Announcement • Web sites • Newsletters • TV Media Programs

3. Description of targeted audience

Target audience will include 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.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	25000	28000	500	500
2009	25000	28000	500	500
2010	25000	28000	500	500
2011	25000	28000	500	500
2012	25000	28000	500	500

2. (Standard Research Target) Number of Patents

Expected Patents

2008 : 1 **2009 :** 1 **2010 :** 1 **2011 :** 1 **2012 :** 1

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	10	5
2009	10	5
2010	10	5
2011	10	5
2012	10	5

V(H). State Defined Outputs

1. Output Target

- Number of educational presentations conducted

  2008 : 300 **2009 :** 300 **2010 :** 300 **2011 :** 300 **2012 :** 300

- Number of volunteers

  2008 : 4000 **2009 :** 4000 **2010 :** 4000 **2011 :** 4000 **2012 :** 4000

- Number of research studies completed on biofuels or novel biobased products

  2008 : 5 **2009 :** 6 **2010 :** 8 **2011 :** 10 **2012 :** 15

- Number of research publications on biofuels or novel bio-based products

  2008 : 5 **2009 :** 6 **2010 :** 8 **2011 :** 8 **2012 :** 10

- Number of research citations

  2008 : 150 **2009 :** 150 **2010 :** 150 **2011 :** 150 **2012 :** 150

- Number of outreach citations

2008 :150 **2009 :**150 **2010 :** 150 **2011 :**150 **2012 :**150

V(I). State Defined Outcome

1. Outcome Target

Number of commercial producers educated about new plants, cultivated varieties, production techniques or BMPs

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :800 **2009 :** 1000 **2010 :** 1500 **2011 :**2000 **2012 :** 2000

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of commercial producers adopting new plants, cultivated varieties, production techniques, or BMPs

2. Outcome Type : Change in Action Outcome Measure

2008 :80 **2009 :** 100 **2010 :** 150 **2011 :**300 **2012 :** 300

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of noncommercial gardeners/producers educated about new techniques or BMPs

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :500000 **2009 :** 550000 **2010 :** 600000 **2011 :**650000 **2012 :** 700000

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems

- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of noncommercial gardeners adopting new techniques or BMPs

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
5500	6000	6500	6500	6500

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of new cultivated varieties released

2. Outcome Type : Change in Action Outcome Measure

2008 :	**2009 :**	**2010 :**	**2011 :**	**2012 :**
1	2	3	3	3

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 511 - New and Improved Non-Food Products and Processes

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Changes in global food production capacity, energy costs, and epidemic diseases could all have unpredictable effects. All external factors affecting personal discretionary spending will affect the implementation of environmentally sound gardening practices and the number of gardeners. Natural disasters may affect producers directly but also will affect homeowner and commercial landscaping which also impacts producers. 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(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- Before-After (before and after program)
- Case Study
- During (during program)

Description

Program evaluations are conducted for knowledge based programs before and after the program. Behavior or attitude-based programs are evaluated post program on intentions or on follow-up surveys to evaluate implementation. Case studies are used to evaluate implementation of programs.

2. Data Collection Methods

- Mail
- On-Site
- Tests

Description

On-site surveys or tests will be used to evaluate knowledge gained or changes in participant attitudes. Follow-up mail surveys are used to determine changes in behavior or implementation of new practices.