



Virginia's Strategic Plan *for* Virginia Cooperative Extension

2011-2016



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Virginia's Land, People,
and Communities**

Virginia Cooperative Extension



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Letter from Virginia Tech and Virginia State University

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The faculty, staff, and volunteers of Virginia Cooperative Extension at Virginia Tech and Virginia State University are pleased to present our 2011-2016 Virginia Cooperative Extension Strategic Plan. This plan reflects the needs of Virginians and sets Virginia Cooperative Extension's course for the next five years.

Over the past year and a half, Virginians identified issues, defined priorities, and offered suggestions to Extension. Extension listened to every comment, criticism, and accolade.

From this broad-based input, the strategic planning committee and writing teams developed long-range plans for identified focus areas, creating the foundation for Extension's strategic plan. This document was vetted with internal and external audiences and the input was incorporated into the final plan, which will serve as a blueprint for delivering relevant and science-based programming to the Commonwealth of Virginia.

This strategic plan is a system-wide plan to guide Extension as it serves the commonwealth. Furthermore, Virginia Cooperative Extension will engage communities to identify the specific strategies that are relevant to their local region and area.

Extension is grateful to everyone who took part in this process. Your interest, input, and time have been invaluable. Because of this collaborative effort, Virginia Cooperative Extension will continue to serve as a catalyst for healthy, productive, and profitable communities.

Sincerely,

Alan Grant

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Interim Director of Virginia Cooperative Extension
Virginia Tech

Wondi Mersie

Associate Dean and Director of Research
Interim Extension Administrator
Virginia State University

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Preamble

Virginia Cooperative Extension: Its History and Culture

The land-grant mission of Virginia Tech, as established by the Morrill Act of 1862, called for land-grant colleges “to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.” In 1890, Virginia State University became part of the land-grant system.

The Hatch Act of 1887 provided for necessary basic and applied agricultural research to be conducted by the state colleges of agriculture in cooperation with the U.S. Department of Agriculture (USDA). Agricultural experiment stations were established in 16 states between 1875 and 1885 and are currently established in all 50 states.

Early in the 20th century, Virginia communities recognized the need to better educate their agrarian population in agricultural production management and home economics. “Corn clubs” for boys were established in Amelia County in 1909 and expanded to Dinwiddie and Chesterfield counties the same year. Girls’ clubs started in Nottoway and Halifax counties in 1910.

On May 14, 1914, President Woodrow Wilson signed into law the Smith-Lever Act that established the Cooperative Extension System and significantly broadened the mission of the nation’s developing land-grant institutions. It marked the beginning of a partnership among the federal government, state governments, and higher education, working cooperatively toward solutions for social and economic problems.

With Virginia communities engaged in Extension work and a national Cooperative Extension System newly established, the Virginia General Assembly enacted laws in 1914 providing for Extension work in cooperation with the USDA, as provided by the Smith-Lever Act (Acts of the General Assembly of Virginia, 1914, chapter 353, page 710). Few amendments were made to the original act until passage of the 1966 act by the Virginia General Assembly that established the V.P.I. Extension Division. Charlottesville and Louisa County hosted Virginia’s first demonstration agents, with Bedford County and Culpeper quickly employing agents.

In 1994, the Virginia Cooperative Extension and Agricultural Experiment Station Division was established by the Virginia General Assembly. The Code of Virginia also recognized the “Cooperative Extension Service” and directed that Extension “shall be operated cooperatively by Virginia Polytechnic Institute and State University and Virginia State University.” Overall, the General Assembly “modernized the law relating to the Cooperative Extension Service by consolidating statutes relating to the Extension and agricultural services of Virginia Polytechnic Institute and State University, placing appropriate references in Virginia State University’s establishing laws, appropriately noting the unified nature of the services provided by the two institutions” (Code 23-132.1).

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State and local partners of Virginia Cooperative Extension have asked Extension to remain focused on its “historic mission.” This mission is grounded in the Code of Virginia’s directive that states that Extension shall:

- ▶ Provide the people of the commonwealth with information and knowledge on subjects related to agriculture, including horticulture and silviculture, agribusiness, home economics, community resource development, 4-H clubs, and subjects relating thereto, through instruction and the dissemination of useful and practical information through demonstrations, conferences, courses, workshops, publications, meetings, and mass media.
- ▶ Conduct educational programs and disseminate useful and practical information to the people of the commonwealth.

The Code of Virginia requires the Agricultural Experiment Station to “conduct research and investigations and establish, publish, and distribute results in such forms as will tend to increase the economy, efficiency, and safety of the various enterprises and activities of interest to the Commonwealth and the nation, and promote the conservation and economic utilization of its natural and human resources” (1994, c. 433. § 23-132.3. Duties of Division; how work to be performed).

Cooperative Extension’s work in the United States and in Virginia has been conducted in six major areas.

1. **4-H Youth Development** — Cultivates important life skills in youth that build character and assist youth in making appropriate life and career choices. At-risk youth participate in school retention and enrichment programs. Youth learn science, math, social skills, and much more, through hands-on projects and activities.
2. **Agriculture** — Offers research and educational programs to help individuals learn new ways to produce income through alternative enterprises, improved marketing strategies, and management skills and to help farmers and ranchers improve productivity through resource management, controlling crop pests, soil testing, livestock production practices, and marketing.
3. **Leadership Development** — Trains Extension professionals and volunteers to deliver programs and serve in leadership roles in the community.
4. **Natural Resources** — Teaches landowners and homeowners how to use natural resources wisely and protect the environment with educational programs in water quality, timber management, composting, lawn waste management, and recycling.
5. **Family and Consumer Sciences** — Helps families become resilient and healthy by teaching nutrition, food preparation skills, positive child care, family communication, financial management, and health care strategies.
6. **Community and Economic Development** — Helps local governments investigate and create viable options for economic and community development, such as improved job creation and retention, small- and medium-size business development, effective and coordinated emergency response, solid waste disposal, tourism development, workforce education, and land-use planning.

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Mission Statement

Over the last century, Virginia Cooperative Extension has adapted to changing times and landscapes while continuing to address a wide range of human, plant, and animal needs in both urban and rural areas. Extension reviewed its mission as part of the 2009-2010 strategic planning process and adopted the following statement to guide its work as it enters its second century of service:

Virginia Cooperative Extension helps lead the engagement mission of Virginia Tech and Virginia State University, the commonwealth's land-grant universities. Building local relationships and collaborative partnerships, we help people put scientific knowledge to work through learning experiences that improve economic, environmental, and social well-being.

Adopted 2009

The 2010 mission statement is based on the core values of:

- ▶ **Inclusion of all stakeholders and partners** in programming and discussions related to issues that affect agricultural enterprises, the family, and the local community.
- ▶ **Integrity of information** is maintained through unbiased and relevant research.
- ▶ **Science-based knowledge** is gathered from the research of highly respected scientists.
- ▶ **Engagement** of each partner in developing solutions for the challenges faced by the family, on the land, or in the community.
- ▶ **Partnerships** with all universities, state and federal agencies, community organizations, local and state governmental representatives, and other groups that provide access to vital resources.
- ▶ **Individual relationships** between Extension educators and specialists with farmers, families, and local community representatives.
- ▶ **Good stewardship of public trust** where investments of time, money, and intellectual resources are effectively applied to responding to local issues.

Extension is committed to providing access to unbiased, scientific information related to locally defined issues; a presence in local communities; the establishment of strong partnerships and collaborative coalitions; and innovative service to the commonwealth.

Executive Summary

Virginia Cooperative Extension is launching its second century of service with a well-defined path. Virginians value research-based knowledge delivered through Extension educators and specialists directly to individuals and community leaders. Extension is committed to the core values of access to unbiased, scientific information related to locally defined issues; a presence in local communities; the establishment of strong partnerships and collaborative coalitions; and innovative service to the commonwealth.

Equipped with guiding values, progressive research, exceptional educators, and the support of its partners, Virginia Cooperative Extension will deliver innovative solutions to community-based issues related to:

- ▶ The land that support plants, animals, water, and air.
- ▶ The people who care for the land and all that it supports as well as those who create the complex environments in which all want to thrive.
- ▶ The community where decisions are made affecting the land and the people.

Virginia's Community-Based Issues

In the fall of 2009, citizens, agency representatives, and elected officials engaged in a comprehensive review of Extension's programs and structure. This review resulted in the identification of community-based issues requiring Extension's service and a realignment of goals for the creation of its five-year strategic plan. Virginians charged Extension with examining its scope of work, mobilizing its resources, and delivering science-based information to the users. These critical issues have been captured and categorized into six focus areas:

Focus Area I: **Enhancing the Value of Virginia's Agriculture**

Focus Area II: **Sustaining Virginia's Natural Resources and the Environment**

Focus Area III: **Creating a Positive Future Through 4-H Youth Development**

Focus Area IV: **Strengthening Virginia Families and Communities**

Focus Area V: **Cultivating Community Resiliency and Capacity**

Focus Area VI: **Organizational Effectiveness**

These focus areas align with the key initiatives of the College of Agriculture and Life Sciences and the central themes of the College of Natural Resources and Environment at Virginia Tech, the goals of the School of Agriculture at Virginia State University, and USDA National Institute of Food and Agriculture (NIFA) priorities. To support these six areas, the dean of the College of Agriculture and Life Sciences appointed a task force to recommend a structure that would support the development and delivery of high quality programs. From these recommendations a plan to restructure VCE was adopted in October 2010.

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Virginia Cooperative Extension's Response

The 2011-2016 Virginia Cooperative Extension strategic plan is innovative, proactive, and responsive, focusing on delivering relevant, research-based programming to Virginia residents and communities. This dynamic plan positions Extension to address existing state and local issues and allows for flexibility in responding to emerging issues. Extension is committed to investing in the discovery of knowledge and the transfer of that knowledge to the commonwealth.

Faculty members, specialists, and Extension educators in various fields of study will work on multidisciplinary teams addressing issues to enhance the economic position of Virginians. These teams will implement plans addressing the following area goals:

Focus Area I: **Enhancing the Value of Virginia's Agriculture**

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

Focus Area II: **Sustaining Virginia's Natural Resources and the Environment**

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

Focus Area III: **Creating a Positive Future Through 4-H Youth Development**

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

Focus Area IV: **Strengthening Virginia Families and Communities**

- ▶ Improve the health of Virginians through access to adequate, safe, and nutritious food.
- ▶ Develop and deliver educational programs to increase the understanding and development of the social, cognitive, and physical capacities of Virginians.

- ▶ Increase economic stability and decrease reliance on public services by improving youth and family financial literacy and security.

Focus Area V: **Cultivating Community Resiliency and Capacity**

- ▶ Assist communities in developing and strengthening local economies through entrepreneurship and small-business development.
- ▶ Develop and deliver educational programming to improve capacity among community members to engage in community planning, decision making, and community leadership.

Focus Area VI: **Organizational Effectiveness**

- ▶ Implement the programming, local structure, and organizational structure from the 2010 Restructuring Plan.
- ▶ Invest in the recruitment and development of a diverse group of VCE educators, specialists, and staff to ensure exceptional programming, services, and leadership that address Virginia's needs.
- ▶ Develop an effective internal and external communication system to inform and engage citizens, stakeholders, and partners.
- ▶ Identify and secure public and private resources that support quality programming in the focus areas.

The 2011-2016 Virginia Cooperative Extension strategic plan is the map for continuing Extension's journey to deliver exceptional educational programs that exceed the expectations of Virginians and transform Virginia communities into great environments for families and business enterprises. The plan is also strategically designed to provide flexibility that allows Extension to respond rapidly as internal or external factors create new demand, uncover emerging issues, or leverage funding and resources.

Implementation

The 2011-2016 strategic plan is designed to be program-centered and responsive to local needs. Each focus areas' goals and objectives were crafted based on the current situation within Virginia communities.

Goals and objectives within the focus areas will be assigned to issue-based program teams composed of specialists and Extension educators who will design comprehensive and detailed action plans to deliver science-based information and programs to individuals and groups seeking guidance and solutions for pressing issues. The action plans — containing specific strategies, timelines, accountability roles, funding sources, success measurements, and federal and state reporting requirements — will be submitted to the VCE director and associate directors for review and funding allocations. State issue teams will develop programming to effectively respond to local needs and positively impact individuals, economic enterprises, and/or communities. Local Extension educators will interact with area citizens and groups delivering timely programming in local and/or regional settings.

Appropriate technology and communications tools will be employed to provide Virginians with multiple points of access to program information. Teaching appropriate for the target audience will be used to deliver the needed information and tools to enhance individual skills.

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Effective Extension programs possess a common set of characteristics identified as program expectations. These expectations are framed around five components:

1. **A sound philosophy:**

- ▶ Embraces the land-grant concept that universities contribute directly to the improvement of life within the state by addressing the problems of its citizens.
- ▶ Links research, science, and technology to the needs of people through planned educational programming.
- ▶ Maintains consistency with the mission of Virginia Cooperative Extension.
- ▶ Results from the use of the Extension programming model, which serves as a guide to the planning, implementation, and evaluation of a comprehensive educational program.
- ▶ Relies on organized Extension Leadership Councils (ELCs), an integral component of all facets of Extension programming.

2. **Appropriate approaches to programming:**

- ▶ Demonstrates an awareness of social, economic, and environmental considerations in development and delivery.
- ▶ Reflects the critical needs and problems of residents within local communities, while also considering state and national priorities.

3. **Audience:**

- ▶ Includes all populations.
- ▶ Targets youth and adult audiences and utilizes appropriate educational methods.
- ▶ Reaches a substantial number of clientele that is consistent with the resources committed.
- ▶ Reflects an outreach plan that increases involvement of under-represented audiences.

4. **Program methodology:**

- ▶ Utilizes diverse delivery methods targeted to need and audience.
- ▶ Includes a system of volunteer recruitment, training, management, and recognition as a means of aiding program effectiveness.
- ▶ Includes the use of available communication tools to provide information to the general public.

5. **Program support:**

- ▶ Demonstrates current knowledge of faculty in subject matter related to educational programming while giving particular emphasis to areas of specialization.
- ▶ Develops faculty who are recognized authorities in assigned areas of subject matter responsibility.

- ▶ Fosters cooperative relationships with public and private partners as a means of addressing residents' needs.
- ▶ Includes teamwork that promotes local, regional, state, national, and international priorities within Extension.
- ▶ Involves specialists and local and regional Extension educators in the programming process, from problem identification through evaluation.
- ▶ Attracts funding and support from local and state governments and other sources to enhance programming efforts.

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2011-2016 Focus Areas and Goals

Focus Area I: **Enhancing the Value of Virginia's Agriculture**

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

Focus Area II: **Sustaining Virginia's Natural Resources and the Environment**

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

Focus Area III: **Creating a Positive Future Through 4-H Youth Development**

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

Focus Area IV: **Strengthening Virginia Families and Communities**

- ▶ Improve the health of Virginians through access to adequate, safe, and nutritious food.
- ▶ Develop and deliver educational programs to increase the understanding and development of the social, cognitive, and physical capacities of Virginians.
- ▶ Increase economics stability and decrease reliance on public services by improving youth and family financial literacy and security.

Focus Area V: **Cultivating Community Resiliency and Capacity**

- ▶ Assist communities in developing and strengthening local economies through entrepreneurship and small-business development.
- ▶ Develop and deliver educational programming to improve capacity among community members to engage in community planning, decision making, and community leadership.

Focus Area VI: **Organizational Effectiveness**

- ▶ Implement the programming, local structure, and organizational structure from the 2010 Restructuring Plan.
- ▶ Invest in the recruitment and development of a diverse group of VCE educators, specialists, and staff to ensure exceptional programming, services, and leadership that address Virginia's needs.
- ▶ Develop an effective internal and external communication system to inform and engage citizens, stakeholders, and partners.
- ▶ Identify and secure public and private resources that support quality programming in the focus areas.

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Focus Area I: Enhancing the Value of Virginia's Agriculture

Virginia's food, fiber, and green industries play a vital role in the economy of Virginia and are a highly visible part of the landscape. Cropland, pasture, and range cover 8.1 million acres, or 32 percent of Virginia's total land area (U.S. Department of Agriculture 2009). As a \$55 billion industry, agriculture has strong linkages with other industries in the state, particularly processing and distribution, that reverberate throughout almost every sector of the economy (Rephann 2008). Virginia's agriculture is robustly diverse and includes livestock, equine, poultry, milk, field crops, seafood, tobacco, peanuts, fruits and vegetables, greenhouse and nursery, plus a variety of specialty products.

Despite declining employment and available land, Virginia's highly skilled agricultural producers have been able to maintain output at a steady level. However, the most current economic impact study reveals that in order for the farm sector to maintain or increase its position in the economy, it must meet the opportunities and challenges presented by six major categories of factors: production technology, consumer demand, energy prices, urban population growth, government policy, and the global economy (Rephann 2008).

According to Virginia Department of Agriculture statistics, agriculture is Virginia's largest industry by far. Together, agriculture and forestry have a total economic impact of \$79 billion and provide more than 501,000 jobs in the commonwealth, which represents more than 10 percent of employment in the state. Every job in agriculture and forestry also supports 1.5 jobs elsewhere in the Virginia economy. Stability of the 47,000 farms located in the commonwealth has a tremendous impact on the economy and is important to all Virginia citizens from an economic perspective (Rephann 2008).

Relevance of Work to People of the Commonwealth of Virginia

As part of a strategic planning process, Virginia Cooperative Extension conducted 48 listening sessions across the state in 2009 for both internal and external stakeholders. Issues affecting the lives of Virginians — and VCE's role in addressing them — were discussed. The VCE strategic planning leadership team grouped issues relevant to Virginia's agriculture industry under the title, Enhancing the Value of Virginia's Agriculture. Interestingly, the major themes revealed by these independently collected comments bear close resemblance to the opportunities and challenges identified by Rephann (2008). In summary, listening session participants communicated the following as issues, concerns, and/or problems:

- ▶ Concerns over the future of farming due to decreased profitability and sustainability.
- ▶ Need to prepare the next or new generation of farmers for the continuation of the farm business.
- ▶ Lack of public support and understanding of agriculture.
- ▶ Conflicts over land use along the rural/urban interface.
- ▶ Concerns over food safety, supply, and security.

- ▶ Increasing government regulations that impact farm profitability.
- ▶ Continued need for sustainable, environmentally friendly production, nutrient management, and waste management practices.
- ▶ Need for continuing education and marketing of alternative crops and niche markets.
- ▶ Need for comprehensive local food system development.
- ▶ Need for additional resources to address global issues and compete in the international market.

While current VCE programming is designed to address a number of these issues, this focus area strengthens the case for VCE to emphasize issues such as:

- ▶ The uncertainties involved in transitioning farm operations to the next generation.
- ▶ The disconnect in the relationship between producers and their consumers and vice versa.
- ▶ The potential for exploiting vulnerabilities in the food supply chain.
- ▶ The need for producers to diversify their operations, add value to their commodities, develop markets for their products, manage their workforces, and implement improved/ alternative production practices for sustainability and profitability.
- ▶ The need to respond to the increased public interest in local foods, home food production and preservation, and community gardens.

The issues and concerns discussed above highlight the need for increased linkages between Extension program areas when developing and implementing educational programs. For example, consumer education, home food production and preservation, community gardening, and agricultural awareness education for youth and adults require cross-disciplinary approaches to be addressed. The expertise and resources of all Extension program areas, Virginia Tech and Virginia State, and various partnering state and federal agencies such as the Virginia Department of Environmental Quality, the Virginia Department of Conservation and Recreation, the Virginia Department of Agriculture and Consumer Services, local soil and water conservation districts, the Farm Service Agency, and the Natural Resources Conservation Service will be necessary to assist Virginia's agricultural producers and positively impact its citizens. These relationships and partnerships strengthen VCE programs and ensure success for our collaborators. Enhancing the Value of Virginia's Agriculture also links to three USDA National Institute of Food and Agriculture focuses: keeping American agriculture competitive, food safety for all Americans, and improving nutrition.

Virginia Cooperative Extension operates under two mandates from the General Assembly that fall under our "Enhancing the Value of Virginia's Agriculture" mission: (1) providing pesticide certification and recertification to Virginia's private pesticide applicators (Code of Virginia, § 3.2-3932, Section B); and (2) providing damage assessment after a natural disaster (Code of Virginia, § 3.2-503).

Other important programming partnerships include, but are not limited to:

- ▶ Master volunteer programs such as Master Gardeners and Master Naturalists.
- ▶ Extension agent appointments to local soil and water conservation districts in cooperation with the Department of Conservation and Recreation.

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- ▶ State Best-Management Practices Technical Advisory Committee in partnership with the Department of Conservation and Recreation, soil and water conservation districts, Virginia Department of Environmental Quality, Virginia Department of Game and Inland Fisheries, Virginia Department of Forestry, Farm Service Agency, Natural Resources Conservation Service, Virginia Farm Bureau, Virginia Agribusiness Council, and the Chesapeake Bay Foundation.
- ▶ Crops and weather reporting for the National Agricultural Statistics Service via the Virginia Department of Agriculture and Consumer Services (VDACS).
- ▶ Pesticide container recycling and pesticide disposal with VDACS; "Virginia Grown" and other marketing initiatives with VDACS; USDA's "Know Your Farmer, Know Your Food" initiative; livestock and grain marketing support with VDACS and Virginia Farm Bureau; Beef Quality Assurance and Virginia Quality Assured Feeder Cattle carried out in cooperation with the Virginia Cattlemen's Association; and the Piedmont Environmental Council's "Buy Fresh, Buy Local" program.
- ▶ Numerous agricultural commodity and green industry associations (Virginia Cattlemen's Association, Virginia Crop Production Association, Virginia Grain Producers Association, Virginia Nursery and Landscape Association, and many others).

To address the needs of Virginia's agriculture industry, five strategic goals were identified to guide our Extension efforts in coming years. They are:

Goal 1: Increase the profitability and sustainability of Virginia's commercial food, fiber, animal recreation, and green industries.

Goal 2: Prepare the agricultural industry for future opportunities and challenges in urban and rural environments.

Goal 3: Research and disseminate methods and recommendations to ensure that consumers have access to safe, high-quality agricultural products.

Goal 4: Develop and deliver programs to enhance agricultural literacy.

Goal 5: Interpret policy and legislation, identify opportunities, and provide training to comply with regulations that affect farm profitability and environmental quality.

Long-Range Goals and Objectives

Enterprise Profitability

Virginia agriculture is positioned to continue as the state's No. 1 industry. Its fertile soils, adequate rainfall, proximity to consumers, and rich agricultural heritage are all huge advantages that can be emphasized as the challenges of a landscape transformation force changes in the industry. Its 47,400 farms produced \$2.9 billion in products in 2007 (USDA 2009). Increased profitability of this industry can be achieved through increased efficiencies; however, agriculture producers have found that increasing efficiencies alone often only leads to increased supplies of the products they sell, resulting in lower prices. For producers to increase net profits, they will need to look at options to add value to products sold, manage risk with volatile market prices, increase diversification to reduce risk from market fluctuations, implement sustainable production practices, and better market their products in a global market. Virginia Cooperative Extension has the resources and personnel to improve agriculture producers' knowledge in these key areas in order to increase profitability.

Goal I: Increase the profitability and sustainability of Virginia's commercial food, fiber, animal recreation, and green industries.

- Objective 1.1:** Improve agricultural producer knowledge of how to add value to products they produce to increase profitability.
- Objective 1.2:** Improve production efficiencies in farming operations by decreasing input costs and/or increasing production levels.
- Objective 1.3:** Provide training on management strategies that will reduce risk factors caused by environmental and market fluctuations.
- Objective 1.4:** Provide training to identify new markets and to market products through local, regional, and global venues.
- Objective 1.5:** Increase profitability by encouraging diversity in the range of products marketed.
- Objective 1.6:** Promote production methods that include, but are not limited to, lowering production costs and evaluating alternative production methods.

As a result of achieving this goal, Virginia producers will utilize effective science-based tools to lower input costs, identify new and diverse markets for products, manage production methods, and experience higher revenues. Producers will understand the cutting edge technologies that will increase the value of agriculture products marketed, as well as the best practices to reduce negative impacts on the environment.

Agricultural Sustainability

Over the past five years, energy-related input costs for agriculture have risen significantly. The June 2008 edition of *Agriculture Prices* stated that fuel and fertilizer costs increased 60 to 73 percent from late 2007 to early 2008. As a result of increased energy costs, the livestock sector has seen feed costs swell over the same time period, resulting in major financial losses over the past several years, with the most severe losses in the pork and dairy industries. Farmers reported spending 93.3 percent of the value of their products sold on production expenses. In addition to market instability, agriculture is also very susceptible to weather fluctuations that lead to economic losses.

Labor to operate Virginia's farms will be an ongoing challenge that must be addressed. Immigrants, both authorized and illegal, provide much of the farm labor. Hispanics now represent 6.3 percent of the nonurban (essentially rural) population (USDA 2005, using U.S. Census Bureau county population estimates), a significant increase due in part to their employment in agriculture.

The 2007 Census of Agriculture documents that the average age of farm operators has risen to over 58 years (USDA 2009). As these operators retire from activity on farms, major issues of farm transition must be addressed. From 1997 to 2007, the decrease in the number of farms in Virginia was relatively modest, from about 50,000 to 47,700 (USDA 2005). A closer review of census data suggests an interesting pattern. There has been a 150 percent increase in farms smaller than 50 acres in size. This has compensated for losses in farms in the larger acreage categories. These smaller farms are often entry-level producers. To be successful, the new farmers require significant support in what can be a very challenging industry. In the meantime,

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larger farms (larger than 180 acres) decreased by 13 percent. Because these larger farms are often much larger producers (per acre) of agricultural products, this trend is disturbing and must be addressed if economically viable agricultural entities are to continue to prosper in Virginia.

Goal 2: Prepare the agricultural industry for future opportunities and challenges in urban and rural environments.

- Objective 2.1:** Provide professional development opportunities for agricultural personnel in Virginia.
- Objective 2.2:** Assist producers in recruiting and training the workforce requisite to efficient food, fiber, and green production.
- Objective 2.3:** Provide current farm operators with tools to make informed decisions and actions as their production units move to the next generation of producers.
- Objective 2.4:** Equip people entering the agricultural sector with the tools needed to succeed in their production enterprises.
- Objective 2.5:** Provide educational resources to farm owners and decision-makers to develop, maintain, and enhance agricultural operations in Virginia.
- Objective 2.6:** Provide programming that will allow producers to utilize research-based methods to minimize environmental impact in the production and harvesting of agricultural products.

Successfully achieving this goal will provide producers with the knowledge to better manage labor, train the potential agricultural labor force, and develop a transition plan for agricultural operations.

Ensuring Product Quality and Value

Consumers expect both quality and value in food, floriculture, nursery and turf products, and in the forestry and farm products that originate with fiber industries. Quality can be defined in various ways. Considerations for foods include nutritional value, freshness, wholesomeness, flavor, and aroma. Increasingly, freedom from potential pathogens and pesticides also rate high on the consumer ranking of desirable food quality characteristics. The nutraceutical value of certain foods, including genetically modified organisms (GMOs), has also gained attention, with a majority of Americans believing that fruits, vegetables, and unprocessed grains can contribute disease-preventive benefits to diet (Childs and Poryzees 1998). Wine — Virginia ranks fifth nationally in wine production — has also become accepted both by consumers and prominent health specialists as a component of a healthful diet and lifestyle.

“Value” is the perceived worth (including quality) of the product relative to the price paid. Value can be captured or gained (Brees, Parcell, and Giddens 2002). Producers might capture value through competitive advantages in processing and/or marketing, such as offering products of comparable quality to those of competitors at a lower cost due to lower production costs (e.g., nursery stock grown and sold within Virginia versus transported out of state). The average farmer’s share of the food dollar was about \$0.33 in the 1970s, but had fallen to \$0.22 in 2005. The balance of the food dollar is spent on processing, packaging, distribution, and marketing.

Savvy producers are attempting to (re)capture more of the food dollar by engaging in direct marketing (e.g., farmers markets, CSAs, etc.), turning farm products into food products, and through cooperative ventures with other producers on a more local scale.

Value can also be enhanced by appealing to consumer interest in the unique nature of the product or what Brees, Parcell, and Giddens (2002) term “created value” strategy. Means of creating value can be real or perceived and may include organic certification; “branding” to a place, region, or even a specific producer of origin; “green” production methods; and by espousing one’s environmental stewardship philosophy.

“Green industry” products and services — loosely defined as the production and use of floricultural, ornamental and turf plants, and plant products — contributed \$120 billion to the Virginia economy in 2007 (USDA 2010) and positively impact the quality of life. As with foodstuffs, consumers expect a high standard of quality and value, where quality can include true-to-type, healthy, and well-adapted plants. While VDACS has certain regulatory authority in pest and disease prevention at the producer level, production techniques to improve product quality and value and the principles of proper lawn and landscape design, installation, and maintenance are current and future areas where VCE and Virginia State University are actively engaged.

There is great diversity in the units/staff/VCE field agents from the College of Agriculture and Life Sciences and Virginia State University who are engaged in programs to assist producers in ensuring product quality and value.

Goal 3: Research and disseminate methods and recommendations to ensure that consumers have access to safe, high-quality agricultural products.

- Objective 3.1:** Develop and deliver programs for Virginia’s producers to provide consumers with safe, nutritious, and competitively priced foods.
- Objective 3.2:** Provide best-management practices for home food production and preservation.
- Objective 3.3:** Assist producers to actively market their products.
- Objective 3.4:** Educate commercial horticulture industry professionals to produce high-quality products and provide high-quality services that are research-based and environmentally sound.
- Objective 3.5:** Provide best-management practices that will result in the sustainable management of lawns, landscapes, and gardens while minimizing negative environmental impacts.

Through research and the dissemination of the findings, agricultural producers will adopt best management practices suited to Virginia’s market and environmental conditions and provide safe food that protects consumer health and reduces the possibility of foodborne illnesses. Green industry horticultural producers will offer nursery stock that remains healthy through sale to distributors or end-users. The nonfarming public will increasingly recognize agriculture as an asset to community viability through employment, supply of locally produced food and fiber, and preservation of green space.

Agricultural Literacy

According to the USDA Economic Research Service (2010), 1.38 percent of total employment in Virginia is directly related to farm production. Further, 86 percent of Virginia's citizens live in urban areas, as defined by the U.S. Census Bureau. These numbers are significant given the number of studies that have been conducted since the 1980s that show a general decline in citizen knowledge, attitudes, and perceptions towards agriculture as each successive generation becomes further removed from the agrarian lifestyle. One of the most recent studies, a 2005 survey of 1,521 Pennsylvanians conducted by Penn State University (Willets, Luloff, and James 2007) showed that most participants believed that they knew very little about the impacts of agriculture on the state, farming production practices, or agriculture and the environment. Study analysis revealed that direct personal contact with farming and visiting rural areas were the most important experiences associated with higher levels of agricultural knowledge. Those who were more knowledgeable about agriculture were less likely to support community regulation of farming practices.

The 1988 National Research Council report, *Understanding Agriculture: New Directions for Education*, provided the first major impetus for addressing the issue of agricultural illiteracy in the nation, stating, "Achieving the goal of agricultural literacy will produce informed citizens able to participate in establishing the policies that will support a competitive agricultural industry in this country and abroad."

Frick, Kahler, and Miller (1991) worked with a panel of agricultural educators from land-grant universities across the country to develop the following definition of agricultural literacy that provides a useful guideline for VCE programs directed toward citizen education in agriculture:

Agricultural literacy can be defined as possessing knowledge and understanding of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture. Basic agricultural information includes: the production of plant and animal products, the economic impact of agriculture, its societal significance, agriculture's important relationship with natural resources and the environment, the marketing of agricultural products, the processing of agricultural products, public agricultural policies, the global significance of agriculture, and the distribution of agricultural products.

Rural Virginia, where most of Virginia's agriculture operates, has become a complex area where many forces impact farming. According to the USDA (2005), six major trends are occurring in rural America:

1. **It is becoming harder to define what is "rural."**
2. **Nonurban growth is slowing in many areas.**
3. **The arrival of amenities is spurring rapid population growth in other areas.**
4. **Natural decrease is on the rise in many areas as older farmers are not replaced.**
5. **Diversity is increasing in nonurban America.**
6. **Challenges from an aging population are significant.**

Some stark realities still exist in rural America. Per-capita income is only two-thirds that in urban areas. The poverty rate is nearly 16 percent in rural areas versus 9.3 percent in urban areas. Education levels also differ: in Virginia, 31.7 percent of rural citizens do not complete high school versus 16 percent of urban citizens. In rural areas, 13.1 percent of citizens have completed college versus 32.6 percent in urban areas.

The critical role of the consumer deserves closer inspection. It is consumers who preserve existing markets and create new markets for the products and services of the agriculture industry. Not only do consumers ultimately determine the profitability of agricultural enterprises, they are the 98 percent of the public that is at least one generation removed from farming. Often it is their concerns and limited understanding that drive the public debate over certain aspects of agricultural production and influence government policies. VCE, as an agency of educational outreach, has a tremendous role to play in increasing the agricultural literacy of our citizenry.

Goal 4: Develop and deliver programs to enhance agricultural literacy.

Objective 4.1: Educate the public about recommended agricultural practices.

Objective 4.2: Work with producers to increase awareness of locally produced agricultural products.

Objective 4.3: Develop and deliver programs to educate youth on Virginia's agriculture industry and the diversity of its products.

As a result of achieving this goal, Virginians will have an increased understanding and appreciation of Virginia's agriculture industry and its products, reducing conflict between agricultural and nonagricultural populations and along rural and urban interfaces throughout the state. Virginia residents will be better positioned to make healthy, local food choices; employ safe food handling for home food preservation; and improve watershed protection in both rural and urban areas through the management of home lawns, landscapes, and gardens.

Harmonizing Agriculture with a Changing Regulatory Environment

Because Virginia consumers and American consumers in general receive their food from rural areas and because the major legislative power lies in urban areas, many regulatory initiatives are promulgated which impact rural Virginians. Regulations that impact the use of pesticides in agriculture and farming practices with environmental implications now have a significant impact on farming practices in Virginia. The Virginia legislature has tasked Virginia Cooperative Extension with pesticide training and with the reporting of damage from climatological events. Many issues can and will be important in the many Virginia areas where agricultural interests interact with community interests, such as waste management and how Virginia farmers use and treat their animals.

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Goal 5: Interpret policy and legislation, identify opportunities, and provide training to comply with regulations that affect farm profitability and environmental quality.

- Objective 5.1:** Train producers in the safe and responsible use of pesticides.
- Objective 5.2:** Educate producers on their crucial role in environmental stewardship and regulatory compliance.
- Objective 5.3:** Provide resources and tools for key decision-makers.
- Objective 5.4:** Educate agricultural producers about the opportunities and regulations associated with agricultural waste products.
- Objective 5.5:** Create and maintain cooperative alliances with local, state, and federal agencies in assessing damage, securing funding, and promoting community welfare.
- Objective 5.6:** Educate producers about the responsible use and treatment of animals in agricultural operations.

As a result of achieving this goal, agricultural producers will be equipped to deal more efficiently with required state and federal regulations that affect their livelihood. VCE will provide current information on the safe and efficient use of pesticide products and provide training for pesticide applicators. Agricultural operations in Virginia will utilize wastes to the best benefit of agriculture and the environment. Virginia's food animal operations will utilize practices that are acceptable to a consensus of society in terms of animal well-being and allow animals to produce to their highest capacity.

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Focus Area II: Sustaining Virginia's Natural Resources and the Environment

Sustainable natural resources and environmental issues emerged as a leading concern in the Virginia Cooperative Extension listening sessions. These issues can be summarized generally as (1) problems associated with declining quality and quantity of natural resources in the Commonwealth of Virginia, (2) efforts to educate the public about these issues, and (3) finding viable solutions to protect natural resources. More specifically, the issues included:

- ▶ A lack of appreciation and understanding by youth and adults about the role of natural resource conservation and sustainability in every person's life.
- ▶ The negative impacts on recreation, ecosystem integrity, and natural-resource-based economic opportunities resulting from the urbanization of the state and the accompanying loss of open space and natural areas for wildlife habitat, farmland, and recreation areas.
- ▶ A need to conserve and protect Virginia's surface water and groundwater resources, including the Chesapeake Bay.
- ▶ A need for energy conservation and the development of alternative energy sources.

This focus area expands VCE's programming by including emerging critical issues such as energy conservation, alternative energy sources, and the effects of a growing population and increased development of agricultural land. Sustainable natural resources and environmental issues are relevant across the VCE disciplines, offering many opportunities for interdisciplinary approaches to problem-solving. For example, outdoor environmental education programming for youth addresses risks such as childhood obesity while simultaneously increasing youth environmental awareness. Likewise, energy conservation programming can address both family economic challenges and natural resource conservation.

Relevance of Work to People of the Commonwealth of Virginia

Virginia has a constitutional mandate to protect the quality of its natural resources (Virginia Constitution, Article XI, Section 1):

To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings. Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.

Virginia's wealth of natural resources includes 51,016 miles of streams, more than 15.8 million acres of forestland, and more than one million acres of wetlands. Eighty percent of Virginians rely on groundwater for at least some portion of their daily water use, and groundwater is used extensively for commercial, industrial, and agricultural operations across the state (Groundwater Protection Council 1999).

The threats to these resources are significant. One-fifth of Virginia's streams are considered impaired (Virginia Department of Environmental Quality 2008). Virginia's groundwater supplies are at risk from a variety of human activities that can negatively affect both quality and quantity. Groundwater quantity is vulnerable to overuse. Major threats to groundwater quality include poorly managed on-site wastewater disposal systems, misapplied soil amendments and pesticides, underground storage tanks, and improper waste disposal (Poff 1997). In addition, more than 900 species of wildlife are declining in numbers across the commonwealth (Virginia Department of Game and Inland Fisheries 2005). Virginia has a net loss of 27,000 acres of forestland annually (Virginia Department of Forestry 2009).

Sustaining Virginia's natural resources is important to Virginia citizens from both social and economic perspectives. Virginia's natural resources provide us with "natural capital" that supports all aspects of our economy. From bird watching near the Chesapeake Bay to manufacturing hardwood flooring in Galax, our natural resources support our rural economies. The total economic impact of agriculture and forestry-related industries in Virginia was almost \$79 billion in total industry output in 2006 (Rephann 2008). Approximately 501,500 Virginians are employed in these sectors and account for 10.3 percent of state employment. According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (U.S. departments of Interior and Commerce 2006), contributions to Virginia's economy from fishing (\$734 million), hunting (\$481 million), and wildlife watching (\$960 million) represent significant drivers of local economies.

Issues associated with sustainable natural resources and the environment impact everyone, regardless of whether they live or work in urban or rural settings. Virginia's water resources provide drinking water and other water resources for Virginia's nearly 8 million residents, along with recreation, agricultural production, Virginia's seafood industry, and tourism (Virginia Department of Environmental Quality 2008). Agriculture and forestry activities have significant societal and ecological effects in addition to their economic benefits. Forests provide benefits in the form of carbon sequestration, wildlife habitat and biodiversity, flood mitigation, and improved water quality. Rural scenic amenities may also improve quality of life. Sustainable natural resources and the environment emerged as one of six primary focus areas during the 2009-2010 VCE strategic planning process.

In order to meet the needs of the commonwealth, five strategic goals were identified that will guide Extension efforts in the coming years. They are:

- Goal 1: Support the management, use, and sustainability of Virginia's natural resource capital for the benefit of future generations.**
- Goal 2: Provide natural resource and environmental education.**
- Goal 3: Provide educational resources to address urban/rural interface issues.**
- Goal 4: Provide education to conserve and protect Virginia's surface and groundwater resources, including the Chesapeake Bay.**
- Goal 5: Develop and deliver programs in green energy/bioenergy.**

Long-Range Goals and Objectives

Natural Resource Capital

Virginia's natural resources contribute significantly to the economic, ecologic, and social well-being of its citizens. Virginia's natural resources generate ecosystem service benefits that are secured on an annual basis. For example, Fairfax County government recently determined that

its existing urban tree infrastructure, even in its diminished state, continues to generate more than \$54 million worth of ecosystem services each year through air pollution mitigation, carbon uptake, energy conservation, and stormwater management benefits (Northern Virginia Soil & Water Conservation District 2007). Benefits such as water quality and availability are associated with the protection of wetlands, the establishment of riparian zones along streams, and other forestry best-management practices. Recreation, in its numerous forms, not only supports — and in some cases, sustains — local economies, but it also provides an intrinsic value to our citizens that is difficult to quantify. From birding activities to walking in the woods, natural resources provide numerous venues and activities that improve society's well-being.

Virginia's natural resource capital provides countless recreational, economic, and societal benefits. Our resources support an array of businesses that are paramount to Virginia's economic base, including but not limited to: Virginia's forest and forest-based industries' annual contribution exceeds \$25 billion; Virginia's tourism industry was estimated at \$18.7 billion in 2007 (Virginia Tourism Authority 2009); and Virginia's seafood industry, which is valued at \$500 million annually (Virginia.gov 2010). The proper management and sustainability of Virginia's natural resources is essential to stimulate employment and economic growth, while at the same time sustaining the commonwealth's natural and cultural heritage.

Goal 1: Support the management, use, and sustainability of Virginia's natural resource capital for the benefit of future generations.

- Objective 1.1:** Improve the management, conservation, and preservation of Virginia's urban and rural forest-based and associated natural resources (forest, water, air, wildlife).
- Objective 1.2:** Engage citizens and resource professionals in the stewardship of urban forests to promote sustainable communities.
- Objective 1.3:** Equip decision-makers with science-based information and tools to guide local, state, and federal policy related to natural resources and the environment.
- Objective 1.4:** Increase the profitability of Virginia's forest-based industries.

Increased use of best-management practices related to resource conservation and preservation throughout the state should be realized as an impact of Goal 1. In addition, an increase in the commitment of citizens to the stewardship of natural resources in local communities, reflected in sound decisions and responsible policy, is a potential impact of this goal. Finally, this goal should impact the growth of our natural-resources-based industries in the commonwealth.

Natural Resource and Environmental Education

VCE will contribute to the development of a environmentally informed citizenry able to apply an understanding of natural resources to decision-making. This goal dovetails with VCE's other strategic planning focus areas and offers opportunities for research and education that crosses disciplines to address issues such as childhood obesity.

Today's youth are our next generation of environmental stewards, yet studies show that children are increasingly disconnected from nature. In his book *Last Child in the Woods*, author Richard Louv (2005) linked a lack of exposure to nature to disturbing trends such as increased childhood obesity, attention deficit disorder, and depression. Environmental education is one tool for

reversing these trends. Not only can environmental education combat the “nature deficit disorder” that Louv describes, it can also improve student achievement in science and all other subjects and better prepare youth for the workforce (No Child Left Inside Coalition 2010). Environmental education involves not just teaching about the environment; it is a hands-on, inquiry-based process that includes outdoor field experiences and place-based education that builds stewardship and life skills as well as knowledge. Moreover, environmental education need not only happen in a natural area tucked away from daily life. The natural world can be explored in a variety of outdoor settings and be a meaningful experience, no matter the location.

These issues pertain to adults as well as children. Not only are all Virginians benefiting from the ecosystem services our natural resources provide, but citizens also impact those natural resources through their daily activities and decisions. A report on environmental literacy in America by the National Environmental Education and Training Foundation (NEETF) shows that the average American adult consistently performs poorly on environmental literacy tests and does not understand complex environmental issues such as nonpoint source pollution (Coyle 2005). The NEETF report also indicates that American adults support environmental education and want to do more to help the environment but lack the knowledge of what to do. VCE plays an important role in bridging this knowledge gap by providing research-based information on environmental issues relevant to Virginians.

Goal 2: Provide natural resource and environmental education.

- Objective 2.1:** Foster opportunities for youth to gain the health, social, and educational benefits of spending time outdoors in nature.
- Objective 2.2:** Increase environmental awareness and stewardship knowledge of Virginia’s decision-makers.
- Objective 2.3:** Increase environmental awareness and stewardship knowledge and behaviors in youth.
- Objective 2.4:** Increase environmental awareness and stewardship knowledge and behaviors in adults.

Increasing environmental awareness and stewardship knowledge in youth and adults should lead to increased commitment from citizens to conserve and sustain Virginia’s natural resources and environment, an increase in outdoor recreational activities by youth and adults, and an increase in behaviors that will conserve and sustain our natural environment. Delivering science-based information to enhance the knowledge and awareness of Virginia’s decision-makers should lead to environmental policy decisions that enhance our natural environment.

Urban/Rural Interface

The VCE strategic planning process identified urban/rural interface issues as a significant focus area. As a result of forest, agriculture, and open-space land conversion to other uses, the citizens of Virginia face an array of issues and potential conflicts. VCE will assist local, regional, and state efforts to mitigate issues associated with the urban/rural interface by providing educational programming designed to help both citizens and local governments to fully understand the broader implications of land-use policies and to mitigate conflicts associated with various issues.

Virginia has a land area of approximately 42,774 square miles, supports a population density of 193 people per square mile, and is the 14th-most densely populated state in the country. Eighty-eight percent of Virginia's residents live in urban locations. The Southern Forest Resource Assessment estimated that 12 million acres of the South's forests will be destroyed or converted to nonhabitat uses between 1992 and 2020. Furthermore, an additional 19 million acres of forest are forecast to be developed between 2020 and 2040. In Virginia, forest loss through land conversion was estimated at 22,000 acres per year (Wear and Greis 2002). The Virginia Department of Forestry's 2009 State of the Forest Report estimated that land conversion has increased to 27,000 acres per year. Yet, the total economic impact of agriculture and forestry-related industries in Virginia was almost \$79 billion in total industry output in 2006. The total employment attributed to agriculture and forestry is approximately 501,500 jobs, which makes up 10.3 percent of the state's total employment (Rephann 2008). Virginia is growing rapidly but relies heavily on agriculture and forestry for economic progress.

Urban/rural interface challenges also include safety issues for farmers who must drive their tractors on urbanized roadways. Farmers are more likely to lease land, leading to issues about investment in equipment, capital items, long-term soil enrichment, and lease agreements. Neighbors often object to farmers installing alternative energy measures such as wind turbines, solar systems, or biofuels manufacturing facilities, despite the improved profitability that these measures provide. Farmers in the urban/rural fringe are better positioned to take advantage of agritourism opportunities, yet their neighbors may oppose these efforts. Land prices are often so high that it is economically impractical to farm. Methods to control development often have the unintended consequence of promoting sprawl, emphasizing the importance of concentrating not only on what to conserve, but also on what land to develop and how.

According to Downing, Kays, and Finley (2009), 73 percent of Virginia's forest owners maintain ownerships of 10 acres or less. Nationally, the average size of family forest holdings is 25 acres (Butler 2008). The number of private forest landowners continues to increase, the ownership tract acreage continues to decrease, there is a shorter tenure of ownership, and new landowners are demonstrating changing ethics from landowners of the past (e.g., less interest in active management).

Goal 3: Provide educational resources to address urban/rural interface issues.

Objective 3.1: Educate Virginians on the benefits and options for preserving working farms, forests, wetlands and fallow lands, and wildlife habitat.

Objective 3.2: Encourage land-use planning and management measures to address issues related to population growth, such as urban encroachment/suburban sprawl.

Objective 3.3: Develop and deliver programming to address invasive species, plant and animal pests, wildlife damage, and nuisance issues.

Objective 3.4: Assist small-acreage and new landowners with management goals including the production of traditional and alternative products.

Goal 3 should impact community planning and adoption of practices that protect land, water, and air in the commonwealth. Programs related to this goal should lead to a 15 percent increase in carbon sequestered through improved cropping and forest management practices related to urban/rural interface issues. At least 200,000 acres will be preserved by utilizing land-use options such as land-value/use taxation, agriculture and forestal districts, and conservation easements.

Water Resources

Virginia has a constitutional mandate to protect the quality of its natural resources (Virginia Constitution, Article XI, Section 1) and has adopted an anti-degradation policy that requires the protection of existing high-quality surface water and groundwater. Maintaining high-quality water to meet the varied needs of Virginia citizens was a top priority identified during the strategic planning process.

The water supply and wastewater disposal requirements of the vast majority of rural homes and farms throughout Virginia are met by individual water supply and on-site wastewater disposal systems (Ross et al. 2002). George and Gray (1988) have estimated that 15 percent of drilled wells are inadequately constructed, while 50 percent of all dug/bored wells are inadequate. Poor maintenance of these systems also contributes to increased potential for groundwater contamination. More than 2,300 of Virginia's 2,900 public water supply systems obtain water from groundwater supplies, and many of these are small, rural systems with no alternative source of water should they become contaminated (Virginia Department of Environmental Quality 2008). Poor maintenance of on-site wastewater systems is the leading cause of their failure.

The activities of humans on the land impact surface water and groundwater quality and quantity. Many human activities have the potential to adversely impact Virginia's water resources (e.g., home and grounds maintenance, agriculture, pest control, on-site wastewater disposal, urbanization). Virginia has more than 112 miles of coastline, 3,315 miles of shoreline, and 51,016 miles of streams. Eighty percent of Virginians rely on groundwater for at least some portion of their daily water use, and groundwater is used extensively for commercial, industrial, and agricultural operations across the state (Groundwater Protection Council 1999). The Chesapeake Bay is a nationally recognized symbol of water quality challenges.

Goal 4: Provide education to conserve and protect Virginia's surface and groundwater resources, including the Chesapeake Bay.

- Objective 4.1:** Develop and deliver programs that educate Virginia residents on nutrient, sediment, and toxin contaminants and their impact on the Chesapeake Bay.
- Objective 4.2:** Develop and deliver educational programs that inform and influence producer practices that impact water quality and conservation.
- Objective 4.3:** Develop and deliver programs that inform and influence landowner and homeowner behaviors that impact water quality and conservation.
- Objective 4.4:** Develop and deliver programs that increase awareness of water quality and conservation issues to influence future youth behaviors to conserve and protect Virginia's water resources.

The impacts of Goal 4 include an overall increase in the quality of water for Virginians and improved nutrient management practices for urban and rural communities. This goal will work with urban audiences in nutrient management and stormwater management practices to increase the quality of water and contribute to overall human health. An increase in the number of certified private and commercial pesticide applicators should also be realized as an impact of Goal 4.

Renewable Energy and Energy Conservation

Governor Bob McDonnell has challenged Virginia to become the energy leader on the East Coast. Therefore, Virginians are seeking knowledge about energy conservation practices and renewable energy. VCE will assist in these efforts through research in alternative energy crops, field trials and demonstration plots of bioenergy feedstocks, educational programming that increases awareness of alternative forms of energy, and programming to change citizens' behaviors by encouraging the reduction of energy consumption.

Goal 5: Develop and deliver programs in green energy/bioenergy.

- Objective 5.1:** Support research for the sustainable development and management of local agriculture, forest crops, and their residues for the development of bioenergy products.
- Objective 5.2:** Increase awareness and use of alternative forms of energy by citizens of the commonwealth.
- Objective 5.3:** Develop and expand on outreach programs in energy conservation, recycling, alternative forms of energy, and wise use of our energy resources.
- Objective 5.4:** Promote energy savings and improved profitability through appropriate green building techniques.

As a result of this goal, the state should realize an increase in green energy/bioenergy use and an economic impact from the growth of the industry, contributing to the economic health of communities throughout the state. It is anticipated that the growth, production, and development of bioenergy feedstock will continue to develop in Virginia.

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Focus Area III: Creating a Positive Future Through 4-H Youth Development

The future of Virginia depends on positive, healthy, skilled, productive youth who can lead the commonwealth's towns, cities, communities, and regions and ensure a strong, vital, and sustainable world economy. A combination of physical, emotional, social, and mental well-being is vital to achieve this future. With approximately 20 percent (1,532,048) of Virginia residents between the ages of 5 and 19 (U.S. Census Bureau 2010), programs that promote healthy lifestyles and positive decision-making are essential for young people to develop habits that will ensure productive and meaningful lives.

Virginia Cooperative Extension is charged by the Code of Virginia to "provide the people of the Commonwealth with information and knowledge on subjects related to ... 4-H clubs" (§23132.3). Virginia 4-H engages more than 150,000 youth in research-based experiential educational programming and adult mentorship aimed at developing life skills, leadership, and citizenship. The 4-H program is delivered through community clubs, after-school clubs, camps, and school enrichment programs in public, private, and home-based schools. Through 4-H, young people become confident, mature adults ready for success in today's challenging world.

4-H offers a variety of educational experiences to 4-H youth, ages 5 to 19, who are engaged in programs for an extended period of time. Research shows that 4-H members do better in school, are more motivated to help others, feel safer to try new things, achieve a sense of self-esteem, and develop lasting relationships. Youth develop leadership, citizenship, and life skills through "hands-on experiences" that encourage experimentation, independent thinking, and effective presentation of ideas. Youth may participate in projects as varied as public speaking, robotics, animal science, nutrition, photography, leadership, and community service.

Members engage in experiential learning experiences. Experiential learning takes place when a youth is involved in an activity, looks back at it critically, determines what was useful or important to remember, and uses this information to perform another activity. 4-H uses this hand-on learning approach to teach new topics and life skills. A five-step experiential learning model guides the process of turning activities into fun learning experiences: experience, share, process, generalize, and apply.

4-H facilitates positive youth development through caring adults. An ongoing national longitudinal study by Lerner at the Institute for Applied Research in Youth Development at Tuft's University provides sound evidence of the ability of 4-H to positively impact the lives of youth. Study findings indicate that youth programs must address both prevention and promotion and that focusing on one does not necessarily affect the other. Other key findings show that youth who participate in 4-H for at least one year by eighth grade are:

- ▶ 25 percent more likely to contribute to their families, themselves, and their communities.
- ▶ More likely to see themselves going to college compared to other youth.
- ▶ 41 percent less likely to engage in risky/problem behavior.
- ▶ More likely to have higher scores on goal setting and goal management.

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4-H is under the auspices of National 4-H Headquarters, which mandates three primary focus areas: (1) science, engineering and technology; (2) healthy living; and (3) citizenship. The three mission mandates align with the research and programming efforts of the USDA National Institute of Food and Agriculture and the land-grant universities and colleges.

As part of the land-grant university system, 4-H has access to experts in a variety of content areas as well as faculty members who are experts in youth development. The curriculum is research-based and proven to be effective. 4-H has a strong history of building community partnerships to address local problems. The delivery system is well-developed and covers the entire state. Virginia 4-H engages more than 20,000 4-H volunteers who are well-trained and have the ability to retain youth in the program.

Relevance of Work to People of the Commonwealth of Virginia

Numerous critical, youth-related issues emerged from the 2009 Virginia Cooperative Extension strategic planning listening sessions held throughout the state. Youth issues found in local communities included:

- ▶ Need for life skill and leadership development.
- ▶ Poor dietary choices, sedentary activity, and lack of physical activity contributing to childhood obesity.
- ▶ Need for prevention of at-risk behaviors (e.g., crime, pregnancy, obesity, substance abuse, gangs, financial at-risk behavior).
- ▶ Lack of mentors/role models for youth.

Youth are Virginia's future. As a result, young people require an immediate intensive investment of educational resources in order to develop into healthy, mature citizens. There are multiple partners across Virginia that focus on youth development and seek the resources of VCE. However, 4-H is the official youth development program of the USDA and has promoted positive youth development since 1902. The three primary focus areas being emphasized nationally are (1) healthy living; (2) science, engineering, and technology; and (3) citizenship.

4-H youth development offers unique opportunities for collaboration, utilization of various delivery modes, and a holistic approach to helping youth reach their potential. To respond to the issues identified during the listening sessions, Virginia Cooperative Extension is committed to delivering quality educational 4-H youth development programs and will focus its 4-H youth development program on the following goals:

Goal 1: Improve competencies of Virginia youth in the following life skills: knowledge, reasoning, creativity, personal, social, vocational, citizenship, health, and physical.

Goal 2: Develop supporting environments for 4-H youth development.

Goal 3: Design volunteer development systems that attract, retain, train, and energize youth and adult volunteers who are progressive and have an enduring commitment to youth.

Long-Range Goals and Objectives

Life Skills

Virginia 4-H youth programs promote the development of knowledge, life skills, attitudes, and behaviors that enable youth to reach their potential of becoming effective, contributing citizens

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who avoid at-risk behaviors, develop positive characters, and utilize decision-making and leadership skills. In every program, positive adult and youth role models interact with youth participants in a safe learning environment.

According to the Tufts University study, 4-H youth contribute more to their families and communities, achieve higher grades in school, and are more likely to go to college than youth who are not in 4-H, or even youth who participate in other out-of-school programs. After years of research, the Tufts study concluded that exposing youth to high levels of positive youth development — like those found in 4-H — will help kids develop competence, confidence, character, and compassion for others. In addition, youth will be more likely to have better and more sustained connections with peers and adults and will be more likely to contribute to their communities, families, and themselves.

4-H uses the Targeting Life Skills Model as a framework for its programming. The model, based on the 4-H Pledge, organizes the delivery of experiences that support the growth and development of youth. This model addresses skills within four competency areas.

1. Increasing knowledge, reasoning, and creativity competencies of youth through thinking and managing. The competency encourages:

- ▶ The use of one's mind for critical thinking to make positive decisions.
- ▶ The use of resources to accomplish a purpose.

2. Increasing personal/social competencies. The competency promotes:

- ▶ Establishing a mutual or reciprocal connection between two people that is wholesome and meaningful to both.
- ▶ Showing understanding, caring, kindness, concern, and affection for others.

3. Increasing vocational/citizenship competencies. The competency supports:

- ▶ Learning social responsibility and the importance of doing your part for the common good.
- ▶ Learning teamwork, self-motivation, workplace skills, and financial responsibility.

4. Improving health/physical competencies. The competency encourages:

- ▶ Improving healthy lifestyle choices for living;
- ▶ Developing one's self by having positive self esteem, self responsibility, and good character.
- ▶ Encouraging youth to create a positive relationship with caring adults.

The United States is falling dangerously behind other nations in developing its future workforce of scientists, engineers, and technology experts. With its direct connection to the research and resources of the Cooperative Extension System's 106 land-grant universities and colleges, the 4-H youth development program is strategically positioned to address the nation's critical challenge by preparing a million new young people to excel in science, engineering, and technology by 2013. Currently, 4-H Science, Engineering, and Technology (SET) programs reach more than 5 million youth with hands-on learning experiences to encourage young minds and fill the pipeline of young leaders proficient in science. Virginia 4-H engaged 32,922 members in SET programming during 2009.

Research reveals that not all youth are engaged in their communities — outside of school — to the degree that will lead to successful contributions as adults. A leading contributor to the lack of engagement is the fact that opportunities for learning about citizenship are highly unequal among youth of different backgrounds, cultures, race, and socio-economic status. In a 2006 report, Lopez et al. found that only 19 percent of young people ages 15 to 25 worked individually or in a group to solve a problem in their community within the last year, and only 10 percent were confident that they could make a difference in their communities. At the same time, these young people did believe that when people worked together, they could make a difference and help their communities.

A core belief of 4-H is health with commitment to the physical, mental, and emotional health of Virginia's youth so they may lead healthy and productive lives into adulthood. 4-H has become a national leader in health-related educational issues, including chemical health, mental and emotional health, foods and nutrition, physical health, and safety.

One of five young people ages 10 to 17 in Virginia is overweight or obese according to a recent report by the Virginia Foundation for Healthy Youth. Overweight, along with poor diet and physical inactivity, increases the risk of chronic diseases such as diabetes, heart disease, and certain cancers. In fact, one in three children born after 2000 is expected to be diagnosed with Type 2 diabetes some time in their lives. Good nutrition and physical activity — foundations of healthy weights — are associated with higher standardized scores, academic achievement, and school attendance rates. Childhood obesity is currently a priority of the USDA National Institute of Food and Agriculture, First Lady Michelle Obama, and the Virginia Foundation for Healthy Youth.

Combined with other risk factors — such as low educational attainment, crime, and drug abuse — weight status and physical fitness level prevent nearly 75 percent of Americans 17 to 24 years old from joining the military. This has a clear impact on Virginia because of its 22 military facilities, including army, navy, marine, air force, and coast guard that employ more than 120,000 people. Other professions in public safety like police, fire, and rescue will no doubt be affected too, because they also require fit and able employees and volunteers.

4-H is committed to health-related educational issues including chemical health (drugs, alcohol, tobacco, and other substance abuse), mental and emotional health, foods and nutrition, physical health, and safety (National 4-H Healthy Living Task Force 2010). Extension will use an interdisciplinary model to design and deliver food, nutrition, and health research and programming.

Through the 4-H youth development programming model, Extension will develop positive life skills in youth by achieving the following goal:

Goal 1: Improve competencies of Virginia youth in the following life skills: knowledge, reasoning, creativity, personal, social, vocational, citizenship, health, and physical.

- Objective 1.1:** Increase knowledge, skills, competencies, and adoption of healthy behaviors among youth and their families.
- Objective 1.2:** Increase engagement of all youth within the community, utilizing decision-making and problem-solving skills.
- Objective 1.3:** Engage youth in 4-H science, engineering, and technology programming.

This goal is interconnected with other strategic planning focus areas and offers the opportunity for education and research that cross multiple disciplines. Programming to achieve this goal will not only affect youth, but also their families.

The impact of achieving this goal will enable Virginia youth to develop life skill competencies that support productive and rewarding lives. Youth will develop healthy lifestyles and make positive nutritional choices that will guide them in overcoming health issues such as obesity and other chronic diseases. 4H youth development programming will provide the opportunities and support for all young people to become engaged in their communities — working successfully, demonstrating their ability to perform as productive citizens, and making a positive difference. Virginia will also address the nation’s critical challenge by preparing young people to excel in science, engineering, and technology (SET). Youth engaged in 4-H SET projects will learn and develop high-tech skills, providing them with hands-on application of science skills through biotechnology, robotics, computer technology, space and flight, and engineering sciences. Youth will be knowledgeable of career options in aerospace, biotechnology, computers, animal science, plant science, life sciences, electric energy, engineering sciences, robotics, small engines, and science inquiry.

Organizational Strategies and Learning Environments for 4-H Youth Programs

4-H is a community-builder delivering resources for young people. Partnering with young people, families, schools, and communities, 4-H creates and delivers dynamic youth development programs and support structures for all young people. Utilizing a committed field staff and more than 20,000 volunteers, 4-H customizes, develops and facilitates effective local programs. 4-H successfully garners support from individuals, businesses, organizations, social service providers and volunteer groups. Working in partnership with public and private schools, home-school groups, civic organizations, faith-based groups, and other youth development programs, 4-H makes a real difference in the life of young persons, their families and communities.

The 4-H program is delivered through diverse modes including community clubs, after-school clubs, camps, and school enrichment programs in public, private, and home-based schools. In order to ensure that youth are physically and emotionally safe; develop and maintain positive relationships; develop a sense of belonging in an inclusive environment; develop personal competencies of self-reliance, independence, and autonomy; grow and contribute as active citizens through service and leadership; and develop marketable, productive skills and competencies for work and family life, organizational strategies must be developed.

Goal 2: Develop supporting environments for 4-H youth development.

Objective 2.1: Expand delivery options for 4-H programming to impact youth throughout the state with diverse interests.

Objective 2.2: Use research-based methods to promote developmental growth of youth; long-term and sustained involvement; and a progression of learning experiences.

Achievement of this goal will result in 4-H programs that intentionally implement positive youth development approaches that meet the needs of young people and lead them to acquire a sense of belonging, mastery, generosity, and independence.

Strengthening Volunteer Base

Virginia youth require interaction with positive role models in their lives. Youth are susceptible to certain risk factors (drugs, alcohol, teen pregnancy). However, these risks can be significantly reduced when they are exposed to positive 4-H experiences where adult volunteers serve as nurturing mentors (Jones 2007). Connecting a caring adult with a 4-H member can change risky behavior into positive energy. While some 4-Hers develop a sense of guidance, value, stability, and love that may not have previously been evident, the vast majority of youth will develop the desire to emulate the positive behaviors they witnessed from their adult mentor, which is critical to them becoming contributing, motivated, and responsible adults (Kress 2005).

Preparing volunteers for their jobs is just like providing training in the workplace. For people to be successful in any role, they need to know what the job entails and the expectations for performance. In addition, 4-H volunteers need youth development and leadership training to assume the role. They need to be able to work with a diverse group of youth and parents, develop partnerships with organizations and businesses, manage many tasks at one time, and secure financial resources to support the 4-H club programs. Serving as a 4-H club volunteer is no small task. The person needs to be prepared to ensure the youth have a positive learning experience.

Volunteers value quality training to make their contributions effective and efficient. Those who receive ongoing training are more confident in their abilities and function better, reducing the number of problems for the organization in the long run (Cook, Kiernan, and Ott 1986; Sigler and Leenhouts 1985; Van Horn, Flanagan, and Thomson 1999). Training also provides volunteers with an opportunity for personal growth and enrichment. Knowledge, skills, and experience gained as a result of voluntary training can be transferred to other parts of volunteers' personal and professional lives (Fisher and Cole 1993).

Goal 3: Design volunteer development systems that attract, retain, train, and energize youth and adult volunteers who are progressive and have an enduring commitment to youth.

Objective 3.1: Design a volunteer development system for Virginia Cooperative Extension.

Objective 3.2: Increase the engagement of teen and adult volunteers in leading local, district, and state 4-H experiences, including camping programs.

Objective 3.3: Conduct relevant volunteer development research.

Achievement of this goal will result in individuals who are well-trained and prepared to work directly with VCE educators. These trained volunteers will be used as members of advisory committees, as programming team members, and in direct service with 4H youth leveraging Extension resources to deliver more services to Virginia communities. The roles for trained volunteers will include planning, implementing, and evaluating programs; managing events; developing financial resources; and developing partnerships and relationships with other organizations.

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Focus Area IV: Strengthening Virginia Families and Communities

With the establishment of the Virginia Cooperative Extension Service, the Virginia General Assembly directed Virginia's land-grant universities to "provide the people of the Commonwealth with information and knowledge on subjects related to agriculture, including horticulture and silviculture, agribusiness, home economics." For decades, Extension agents worked with homemakers to develop skills in food preservation and preparation, nutrition, home management, financial management, and child development. Agents hosted demonstrations, educational programs, and club meetings for women working to solve problems and create a home environment where science-based, safe, and effective practices were applied.

The American Association of Family & Consumer Sciences believes in "the family as a fundamental unit of society" (2008). Strong, healthy families are the foundation of American communities, and family well-being is a shared priority for all Americans. The National Institute of Food and Agriculture's (NIFA) Family and Consumer Sciences Program strengthens families through effective and widespread collaborations among federal, state, and local agencies throughout the nation. NIFA and the land-grant partnership promote family strengthening from the perspective that strong families raise children to become responsible, productive, caring adults. Ensuring the well-being of families is the cornerstone of a healthy society, requiring universal access to supportive educational programs and services through strategic planning and partnerships.

Extension's work with Virginia families has transitioned as the needs of families have developed. Today, Extension utilizes an integrated system that incorporates science-based resources to guide families in addressing nutritional and lifestyle issues, early childhood learning, financial literacy and management, appropriate food safety practices, and numerous family issues. Programming to support family needs is directly linked to the research conducted in food and agriculture and its effect on community development.

It is crucial to connect families to the land that supports them as consumers and to expand their understanding of the impact family decisions have on the environment. According to Lyson (2004), civic agriculture, sometimes referred to as sustainable agriculture, provides the groundwork to transform the prevailing model of food and agriculture into a more civically organized system that "brings together production and consumption activities within communities." While the concept of civic agriculture has been applied in various contexts as a development paradigm, it also provides the appropriate groundwork for developing food system research and Extension programming that strengthens agent and clientele understanding of the connections among food, agriculture, and community, which is essential for building viable communities through an enhanced level of personal and community wellness.

Relevance of Work to People of the Commonwealth of Virginia

The Virginia Cooperative Extension 2009 listening sessions uncovered numerous issues related to the health and well-being of Virginia families and the ultimate impact of struggling families on local communities. Identified issues focused on emerging deficiencies in human, social, and economic capital within many communities and the diminishing resources to address the growing needs.

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Specifically, the issues included:

- ▶ Increase in job losses and rising unemployment.
- ▶ Increase in obesity, chronic diseases, and health care costs and a lack of wellness education and disease prevention programs.
- ▶ Need for youth and family financial literacy.
- ▶ Lack of food stability and acceptable food safety practices.
- ▶ Decrease in economic opportunities, including entrepreneurship and workforce preparation for youth and adults.
- ▶ Increase in the aging population, resulting in greater caregiving needs, health care costs, and financial planning (including the aging farm base and farm transition plans).
- ▶ Need for quality care practices throughout the individual's lifespan, including child care, parenting, and elder care.

VCE is well-positioned to apply research-based practices to individual, family, and community challenges. For example, VCE and university faculty from across the disciplines will implement comprehensive nutrition education that addresses food access by promoting community food systems. Food systems relate to the production, processing, distribution, and consumption of foods within a region and can influence diet, health, and community and economic development; therefore, a cross-disciplinary approach is mandated. It is this integrated approach that will be the catalyst for transferring knowledge between rural and urban environments and between the farm and the consumer.

Programs for children, youth, adults, and families have shown positive influences on the quality of community life. This focus area targets a diverse audience across the life span of all economic income levels within the Commonwealth of Virginia. Children, families, and communities are confronted with a multitude of issues that affect their well-being. Concerns about how Virginia's youth, families, and communities are functioning, adjusting, and adapting to these issues have economic impacts for the commonwealth and are supported by the 2009 VCE Community Situation Analysis Results (Virginia Cooperative Extension 2009). A holistic approach to address the family as a unit is essential in creating a self-sustaining commonwealth.

To meet the identified needs of Virginia families and communities, Extension will:

Goal 1: Improve the health of Virginians through access to adequate, safe, and nutritious food.

Goal 2: Develop and deliver educational programs to increase the understanding and development of the social, cognitive, and physical capacities of Virginians.

Goal 3: Increase economic stability and decrease reliance on public services by improving youth and family financial literacy and security.

Each of these program areas addresses the National Institute of Food and Agriculture's 2011 planned programs, which include Families and Communities; Global Food Security and Hunger; and Food, Nutrition, and Health. The NIFA mission is to focus on the human dimensions of food and agriculture in addressing priority issues through scientific research and its application, strategic partnerships, Extension education, and the preparation of the next generation of human sciences professionals.

Long-Range Goals and Objectives

Obesity

More than 31 percent of Virginia's children are overweight or obese, and Virginia is ranked as the 25th-heaviest state in the nation. Often the result of poor nutrition and misinformation, obesity brings with it a host of debilitating health problems and a hefty economic price tag. Virginia is committed to promoting a healthy lifestyle, starting in childhood, to help citizens avoid obesity and live long, productive lives. Prevention of obesity is a vital public health issue but one that is very challenging to address. While many intermediate actions such as improving nutrition and physical fitness can be implemented in the near term, reductions in actual obesity rates can take longer to achieve (Virginia Department of Health 2008).

Virginia ranked 14th in healthcare costs, costing approximately \$1.6 billion or about 5.6 percent of the state's 2003 budget (von Kuntzelben 2008). Chronic diseases such as heart disease, stroke, cancer, and diabetes are among the most prevalent, costly, and preventable of all health problems. Seven of 10 deaths each year in the United States are attributed to chronic disease. The prolonged illness and disability associated with these diseases also decreases the quality of life for millions of Americans. In Virginia alone, cardiovascular disease and diabetes account for more than \$4 billion in health care costs. Much of this burden is preventable because unhealthy eating and physical inactivity are major contributors to these diseases, along with other conditions such as high blood pressure, high cholesterol, and overweight. Negative economic impact is realized when obese people, especially women, miss work. Obese adults are more frequently unemployed and experience higher rates of poverty (Finkelstein, Ruhm, and Kosa 2005).

The 2007 National Survey of Children's Health found that 31 percent of Virginia's 10- to 17-year-olds were overweight or obese — a substantial increase since 2003. This figure puts Virginia just under the national average of 31.6 percent and ranks the state 23rd-highest in the country for its percentage of overweight or obese children. It is estimated that Virginia's direct obesity-attributable health care costs reached more than \$1.6 billion in 2003, approximately 5.7 percent of Virginia's total medical expenditures. Virginia has the 14th-highest obesity-related health care costs in the 50 states (National Initiative for Children's Healthcare Quality n.d.).

Virginia is far from being the only state dealing with this pervasive health issue. Within the past three decades, the rate of overweight and obesity among young Virginians (ages 5 to 17) has more than doubled. Not only are sedentary lifestyles and the lack of physical activity at fault, but also poor dietary habits. Overweight and obesity increase the risk for several health conditions as well as chronic diseases such as heart disease and diabetes. In 2001, more than 703,300 adults in Virginia were estimated to have diabetes (Virginia Department of Health 2009). Many Americans do not have access to a registered dietitian who can teach them good nutrition practices. They either have no health insurance or have insurance that does not cover diet therapy (Stern, Kazaks, and Downey 2005).

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 more than 500 food processing firms headquartered in Virginia — an \$8-billion industry — it is critical for companies to prevent food production and food processing deficiencies in order to be competitive and to ensure safe products for consumers.

Feeding America reports that more people than ever depend on food resources from local food pantries. Averaged over the three-year period from 2006 to 2008, 3.3 percent of Virginia families experienced food insecurity (Food Research and Action Center 2009). Food insecurity exists whenever "the availability of nutritionally adequate and safe foods or the ability to acquire foods

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in socially acceptable ways is limited or uncertain” (Oberholser and Tuttle 2004). Virginians also face food security issues, especially our impoverished population. When one experiences food insecurity, it limits one’s ability to perform in school and at work and their home environment is affected. Hunger can adversely affect cognitive development and impair one’s capacities for a lifetime. Hungry children do not perform at the same level as food-secure children, and they miss more days of school due to the effects of hunger.

Goal 1: Improve the health of Virginians through access to adequate, safe, and nutritious food.

Objective 1.1: Educate youth and families on the causes and effects of chronic diseases, including obesity and sedentary lifestyles.

Objective 1.2: Educate families to define dietary quality and select nutritious foods.

Objective 1.3: Train youth and families to develop food resource management skills related to food security and food safety practices.

To achieve the goal, VCE will apply a multidisciplinary approach that utilizes expertise in food systems, nutrition, health, business, finance, agriculture, and gerontology. The collaboration of each discipline and the utilization of trained professionals and volunteers will ensure a holistic approach to healthy families and communities in order to create lasting changes and improve self-sufficiency. Through science-based educational programming, Virginians will have improved health that translates into reduced chronic disease and obesity, thus strengthening families and communities. Further, Virginians will utilize enhanced food systems encompassing food stability and food security.

The impact of achieving this goal will result in an increase in the knowledge and skills of youth and adults who attend these programs by reducing the incidence of food borne illness, decreasing the incidence of Type 2 diabetes and the complications associated with this disease, decrease the level of food insecurity within our limited-income populations, and reduce the risk of chronic disease and obesity through comprehensive nutrition education programs. These educational programs will improve the quality of life for Virginians.

Child Development

One in five of Virginia children (20 percent) enters kindergarten without the basic skills needed to succeed (Smart Beginnings 2010). Research shows that the first five years of life are crucial to children’s long-term cognitive, social, and emotional development.

The quality of a child’s early experiences, nurturing relationships with parents and other caregivers, and a safe and healthy early care environment are crucial factors that provide for optimal brain growth and development during the first three years of a child’s life. A major issue of working families is quality child care. In Virginia, there are approximately 518,410 children under the age of 6, of which approximately 65 percent live in a home where both parents work (Virginia Department of Health 2010).

The training and qualifications of the child care provider or caregiver are key determinants of high-quality care for infants and toddlers. Every dollar invested in high-quality child care and early childhood education returns \$7 to \$8 to society by reducing costs related to crime, special education, and welfare and by increasing revenues from improved employee productivity (Smart Beginnings 2010).

In Virginia, 34 children died from abuse and neglect in fiscal year 2009, and there were 47,571 reported victims of abuse/neglect (Virginia Department of Social Services 2009). Research indicates that effective parenting and positive parent-child relationships aid in young people's successes. Poverty, unemployment, inadequate housing, and conflict between parents are stressors that interfere with the parents' ability to effectively raise their children. Moreover, the way a child is parented has both short- and long-term effects on the child — including socioeconomic outcomes — into adulthood. Parenting education classes can help parents learn effective, positive, and safe ways to rear their children and care for family needs (Smith, Goddard, and Miles 1994).

Dependent Care of Virginia's Aging Population

The percentage of Virginians age 60 years and older will grow to almost 25 percent of the total population by 2025, an increase from 14.7 percent in 1990 (Virginia Department for the Aging n.d.). This "age wave" can be expected to impact all aspects of life for both young and old and will necessarily affect how state agencies serve the commonwealth. The senior population will have vastly different levels of needs, abilities, and resources. Persons who are elderly or who have disabilities account for 54 percent of Medicaid spending because of their intensive use of managed and long-term care services (Virginia Department of Medical Assistance Services 2010).

Goal 2: Develop and deliver educational programs to increase the understanding and development of the social, cognitive, and physical capacities of Virginians.

Objective 2.1: Educate individuals and communities on the best practices for child development.

Objective 2.2: Deliver educational programs that address parenting and dependent care issues.

To achieve the goal, VCE will apply a multidisciplinary tactic using trained professionals and volunteers to ensure a holistic approach to strengthening families and communities to create lasting changes and improve self-sufficiency. Through science-based family and human development educational programming, parents and caregivers will increase knowledge and skills related to employing effective, positive, and safe practices.

The impact of achieving this goal will result in improved quality of child care and an increase in the knowledge and skills of parents/guardians raising children. The implementation of an adult caregiving educational program will increase the capacity of caregivers to provide safe, adequate home-based care.

Financial Literacy

Many Virginia residents lack skills needed to manage their resources, including financial management. The lack of financial education limits their ability to be self-sufficient and minimizes opportunities for their children. A recent study commissioned by Consumer Credit Counseling Service reported that overall consumer debt has increased by 38 percent for households at all income levels over the previous year.

Nationwide, bankruptcy filings in November 2009 exceeded 110,000 — the ninth straight month of surpassing 100,000 and 12 percent more than last November's total. On a national

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basis, 28 percent of all filings to date were under Chapter 13, the procedure most directly related to home-mortgage distress. For example, in the eastern region of Virginia, there were 26,954 bankruptcy filings in 2009 (Virginia Bankruptcies v). One in every 467 housing units in Virginia received a foreclosure filing in April 2010. The average foreclosure sales price in April was \$233,171 (RealtyTrac 2010).

In 2008, more than 967,831 individuals and businesses filed personal bankruptcy or business bankruptcy. That year, Virginia accounted for nearly 1.96 percent of the total bankruptcy filings nationwide, placing it 20th among the 50 states and the District of Columbia. That statistic represents 19,478 Virginia bankruptcy petitions filed with the Virginia bankruptcy court (Bankruptcy Attorney Referral.com 2010).

Improved financial security of individuals, families, and agricultural and small businesses is critical for the long-term 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 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.

Virginia state legislators 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 Living from kindergarten through grade 12. VCE will train teachers and volunteers to address this mandate.

Goal 3: Increase economic stability and decrease reliance on public services by improving youth and family financial literacy and security.

Objective 3.1: Strengthen financial literacy and security of adults, youth, and families through science-based educational programs.

Objective 3.2: Strengthen the capacity of families and communities through science-based educational programs that build and sustain businesses and small farm enterprises.

This goal is interconnected with other focus areas and will raise awareness, knowledge, and skills regarding financial strategies to improve financial stability of families and individuals. The result of applying science-based educational tools in the programming will improve financial decision-making and entrepreneurship among youth and adults.

The impact of achieving this goal will result in improved knowledge and skills of financial strategies; improved financial decision-making abilities and financial stability of families and individuals. Through educational programs (and collaborations), youth and adults will increase their capacity to make both short- and long-term decisions regarding credit, debt, and spending, resulting in savings and improved economic well-being.

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Focus Area V: Cultivating Community Resiliency and Capacity

Virginia Cooperative Extension's historic mission requires that Extension "provide the people of the Commonwealth with information and knowledge on ... community resource development" (Code of Virginia 1994, c. 433 § 23-132.3). A core principle on which land-grant universities were established by the Morrill acts of 1862 and 1890 was that every citizen — not just the elite few of society — would have access to knowledge that they could use to improve their lives. Tal Stanley, assistant professor and chair of public policy and community service at Emory and Henry College, reminded a group of aspiring community leaders that Extension community clubs were active rural civic groups making significant improvements in their communities (2009).

This historic mission provides the foundation for Extension programming designed to develop vital community resources related to entrepreneurship, community leadership, and civic engagement. A noted U.S. Department of Agriculture white paper, "Cultivating Resilient Communities and Rural Prosperity in a Dynamic and Uncertain Environment," asserted that "practitioners and policymakers alike call for holistic approaches that simultaneously value and invest in economic opportunity, family and human capital, community vitality, infrastructure, and natural resources and environmental stewardship" (Cleland et al. 2002).

The 2010 USDA National Institute of Food and Agriculture programs in the economics and community development national emphasis area "promote increased prosperity and economic security for individuals and families, farmers and ranchers, entrepreneurs, and consumers across the nation ... to discover new economic opportunities, develop successful agricultural and nonagricultural enterprises, take advantage of new and consumer-driven markets at both the local and international levels, and understand the implications of public policy on these and other activities."

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The VCE listening sessions revealed many pressing social, economic, and environmental needs and issues facing communities. Participants identified concerns related to the quality of life within communities, namely workforce, economic, and leadership development; public service infrastructure; urban sprawl; and the ability to respond to emerging critical issues within local communities. More specifically, issues identified during the listening sessions include:

- ▶ Reducing job loss, employing community residents, and maintaining a strong workforce through workforce development, job retraining, and retaining young talent.
- ▶ Creating and retaining jobs and developing local economies through entrepreneurship education, small business development, and the establishment of community-based local and regional food systems and enterprises.
- ▶ Empowering community members to create and drive change through individual and community leadership development, facilitation, and conflict resolution skills development.
- ▶ Enhancing the ability of communities to effectively anticipate and respond to emerging critical local issues.

- ▶ Addressing urban sprawl and its effects on land use and individual/community health and wellness, identifying key community assets and natural resources as part of agriculture and green infrastructure, and preserving a sense of place and community.
- ▶ Rebuilding and enhancing basic infrastructure by focusing on road connectivity and accessibility, expanding public transportation options, increasing affordable and accessible housing, improving educational opportunities, providing greater access to high-speed Internet service that enhances opportunities for the effective use of social marketing and networking, and offering more recreational opportunities.

In response to these issues, VCE will (1) provide educational resources within the local community to build entrepreneurship and community-based enterprises, including community-based food systems; (2) develop civic leadership; and (3) enhance community planning. Addressing these topics will engage multiple academic disciplines and draw on VCE and university science-based resources, as well as the resources of Extension's many partners. An interdisciplinary approach and the development of productive internal and external partnerships will allow VCE to effectively address the priority issues within the Cultivating Community Resiliency and Capacity focus area.

To develop community resiliency and capacity to respond to locally based issues, two strategic goals will guide VCE's response:

Goal 1: Assist communities in developing and strengthening local economies through entrepreneurship and small business development.

Goal 2: Develop and deliver educational programming to improve capacity among community members to engage in community planning, decision-making, and community leadership.

Long-Range Goals and Objectives

Entrepreneurship Development

Governor Bob McDonnell stated, "In these tough economic times we must do everything we can to grow and create jobs in Virginia. ... economic opportunity and free enterprise are the bedrock of a stable and prosperous Commonwealth" (Virginia.gov 2010d).

Small businesses are the backbone of Virginia's economy and the economy of our nation. In Virginia, 97 percent of businesses are small and account for approximately 75 percent of new job growth. Small businesses employ roughly 55 percent of Virginia's job force (Virginia Economic Development Partnership 2008).

A growing number of young people in America view entrepreneurship as a desirable career path and recognize that the economy has changed dramatically over the past decade. Youth from rural communities recognize that markets that were not accessible before the advent of the World Wide Web can now be successfully reached — even from the most remote community. When channeled and combined with entrepreneurial education and real-world experience, they can start businesses with significant wealth and job creation potential.

Virginia farmers need alternative profitable markets and marketing strategies to remain financially solvent and grow their businesses. Many small and mid-level Virginia farms — those with gross annual sales between \$2,500 and \$500,000 — struggle to survive financially. Farms may experience positive economic impacts from direct marketing local foods and developing community food systems.

USDA Secretary Tom Vilsack has asserted that alternative economic development opportunities such as farmers markets “help support small family farms, help revitalize rural communities, and often promote sustainable agricultural practices” (USDA 2009a). Also, the White House Task Force on Childhood Obesity recommended that the “USDA should work to connect school meals programs to local growers, and use farm-to-school programs, where possible, to incorporate more fresh, appealing food in school meals” (2010).

At the Virginia Food Security Summit in 2007, Ken Meter of the Crossroads Resource Center said that Virginians annually spend \$14.8 billion on food — \$8.1 billion to eat at home and another \$6.7 billion to eat out (Bedarf 2007). Of this amount, approximately \$8.9 billion represents a lost economic and social opportunity for Virginia farmers and communities because the money is spent on food coming from outside Virginia, it is not as economically embedded in communities, and the money generally leaves the state. He also suggested that if Virginia consumers bought 15 percent of their food directly from local farms, Virginia farms would earn \$2.2 billion in new annual income.

A similar study by Virginia Cooperative Extension showed that if each Virginia household would spend just \$10 of their total weekly food budget on local food and farm products, it would annually generate an additional \$1.65 billion in direct economic impact for Virginia’s economy (Benson and Bendfeldt 2007).

In Virginia, the direct marketing industry of local foods from field to table grew approximately 72 percent from 2002 to 2007, from a \$16.8 million industry to \$28.9 million in 2007 (USDA 2009b). During this same period, the number of farms selling directly in Virginia grew by 14 percent (from 2,513 to 2,855 farms), with the average sales per farm growing from \$6,695 to \$10,115 — an increase of more than 51 percent. Thus, with the recommendations to support community food systems and the alternative economic development potential, there is a need for more education on how communities can support these efforts systematically and for growers to learn more about direct marketing and the potential value-added opportunities.

Enhancing community support systems for new and emerging entrepreneurs can significantly increase job creation, business start-ups, and business expansion in the community (Korshing and Allen 2004). Virginia entrepreneurs need education on existing resources to support an array of small business opportunities. In addition, a community-based food system would complement existing systems and further bolster Virginia agriculture by diversifying the rural farm economy, increasing market opportunities and farm profitability, and seizing consumer demand.

Goal 1: Assist communities in developing and strengthening local economies through entrepreneurship and small business development.

Objective 1.1: Educate Virginia entrepreneurs and community planners on local/community food systems and the connections between agriculture, nutrition, tourism, culture, and the impact on local economic development and quality of life.

Objective 1.2: Increase the capacity of entrepreneurs to identify, develop, and sustain business enterprises.

The impact of achieving this goal will result in increased knowledge and skills of youth and adults who are pursuing small business opportunities, receiving funding to open small

businesses, and successfully opening small businesses in rural and urban communities across the commonwealth. The creation of a community-based food system will offer an asset-based social and economic tool for Virginia communities, as well as provide an adequate, affordable, nutritious food source accessible to community members.

Community Leadership and Civic Engagement

“People have the inherent capacity to solve their own problems and that social transformation is within the reach of all communities” (Kellogg Foundation 2009). At the 2010 Virginia Rural Summit, state Delegate R. Steve Landes noted the importance of empowering local governments to solve their economic and health care problems. Thus, there is a need to equip citizens, civic leaders, and elected and appointed officials to be the force for positive change within their communities. Research supports the notion that community leaders need to be involved in decision-making and problem-solving to help organize and develop their communities. Yet, there is often a lack of formal leadership training to equip community leaders with the skills necessary to effectively meet community needs (Tackey et al. 2004).

The residents of a community are arguably its greatest asset; thus, communities must be equipped to respond to the various social, economic, and environmental changes they may face. Dallas Tonsager, undersecretary for rural development at the USDA, has noted that “building great communities requires local leaders with vision, drive, and the resources to succeed” (USDA 2010a). In general, community leaders understand what skills and characteristics are needed to serve their communities and that community growth and prosperity are linked to a strong leadership network (Boleman and Taylor 2008).

Equipping local leaders, aspiring leaders, and engaged community members with the skills and tools needed to effectively lead their communities affords the opportunity for communities to build on local strengths. VCE recognizes that strengthening the leadership and civic capacity of communities requires preparing more citizens to serve in leadership roles, engaging citizens in public issues education, and strengthening civic engagement skills and knowledge while increasing opportunities for civic involvement.

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Goal 2: Develop and deliver educational programming to improve capacity among community members to engage in community planning, decision-making, and community leadership.

Objective 2.1: Develop individual leadership, facilitation, and conflict resolution skills to anticipate and respond to emerging community resource development issues.

Objective 2.2: Equip appointed and elected boards to define and respond to community resource development issues.

This goal is interconnected with other strategic planning focus areas and lends itself to opportunities for education and research that cross disciplines. Educational programs focused on leadership and civic engagement build the capacity of youth and adults to effectively participate in community planning and decision-making. Furthermore, educational programs focused on sustainable natural resources will inform citizens of the environmental impacts and options related to those plans. Similar multidisciplinary opportunities exist for other key issues in Virginia, including childhood obesity programming. Virginia communities will benefit from the expanded network of citizens who become more effectively engaged in community,

civic, and governmental planning, decision-making, and actions on critical issues and an increased capacity among community citizens and groups to address issues of change, growth, sustainability, and quality of life.

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Focus Area VI: Organizational Effectiveness

Virginia Cooperative Extension's historic mission to "provide information and knowledge ... through instruction and the dissemination of useful and practical information" in partnership with the Virginia Agricultural Experiment Station has contributed to the sustainability of an \$79 billion agriculture and natural resource industry within the state. When Congress created the Extension system nearly a century ago to address exclusively rural agricultural issues, more than 50 percent of the U.S. population lived in rural areas and 30 percent of the workforce was engaged in farming. Less than 2 percent of Americans farm for a living today, and only 17 percent of Americans live in rural areas.

Reduced state funding, changing state demographics, technology, and societal expectations have challenged VCE's traditional content and program delivery model. In the 2010 budget bill, state funding reductions eliminated \$5.5 million in state funding for VCE and the Virginia Agricultural Experiment Station, including a \$1 million reduction specifically targeted to Extension.

Relevance of Work to People of the Commonwealth of Virginia

During the 48 dialogue sessions held with Extension internal and external stakeholders, the following concerns emerged:

- ▶ Lack of administration stability. VCE needs stable leadership to ensure that it moves forward with a clear vision and direction that is integrated across the land-grant college mission, issues, and emerging issues.
- ▶ Underutilized technologies for delivering Extension programming. Changing population demographics in Virginia and the myriad of educational strategies and information technologies require VCE program efforts to be culturally and technologically appropriate for the audience being served.
- ▶ Limited access to materials and programming for non-English speaking audiences.
- ▶ Lack of diversity within VCE.
- ▶ Ineffective communication system internally and externally. Internal support (College of Agriculture and Life Sciences, Virginia Tech, Virginia State University, U.S. Department of Agriculture, and the land-grant university system) and external support (local governmental agencies, industry, state agencies, etc.) for VCE are compromised because limited communication exists among partners and needs to be strengthened. VCE program participants, including volunteers, should also be a part of enhanced communication. In addition, there appears to be a lack of awareness of the purpose, mission, goals, and programs of VCE that should be addressed by increased branding and marketing of statewide and local programs.
- ▶ Declining funding from local, state, and federal levels resulting in reduced budgets. Continually changing funding support from local, state, and federal sources affects VCE operating budgets. This issue requires additional effort in securing future funds from a wide range of sources, including grants, collaborative agreements between agencies, and new opportunities that fit within the mission of VCE.

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- ▶ Reduced presence/visibility of Extension in local communities. A strong, local VCE programming presence, lacking in some areas of the state, is critical to local funding partners/supporters and to the mission of VCE that brings research to people focusing on solving local issues.
- ▶ Collaboration. Partnerships with entities of common interest are essential to enhance program delivery and financial support.

The Organizational Effectiveness focus area is not program-specific, but provides direct and indirect support and oversight to educational delivery systems and promotes collaboration with all local, state, and federal partners in addressing the needs of Virginia's families and communities. Overall, the Organizational Effectiveness focus area incorporates every entity and system within Extension to effectively deliver, assess, and report impacts that support Virginia's productive society.

In June 2010, a nine-member task force was assembled and charged by the dean of the College of Agriculture and Life Sciences to engage stakeholders in developing a recommendation for changing the structure of VCE. Based on the research findings of the task force, stakeholder comments were organized into five themes that served as a platform for restructuring recommendations. The five themes were:

1. **Programming process.**
2. **Geographic structure.**
3. **Administration and management.**
4. **Professional development.**
5. **Organizational marketing and communication.**

In response to the concerns discovered during the 2009 listening sessions and the work of the Restructuring Task Force, Extension has framed an organizational model that:

- ▶ Enables development and delivery of high-quality programs that use science-based educational curricula to meet the needs of target populations.
- ▶ Includes a delivery mechanism with a dynamic local presence.
- ▶ Links research and development activities from the Virginia Tech and Virginia State University campuses with the delivery of educational programs across the state.
- ▶ Allows local governments to have choices in their partnership in the delivery of programs that meet local needs.
- ▶ Continues to support rural areas and traditional agricultural industries while paving the way for new economic opportunities across the breadth of today's agriculture, food, and fiber industries.
- ▶ Is flexible in order to take advantage of emerging issues facing Virginians.
- ▶ Invests in a network of skilled professionals through an ongoing commitment to professional and skill development.
- ▶ Has an administrative and managerial structure that can effectively focus resources on program delivery with a minimum administrative overhead requirement.
- ▶ Integrates with the VCE Strategic Plan and the national program priorities of the federal funding partner, the National Institute of Food and Agriculture.
- ▶ Updates position responsibilities, job functions, individual accountability, and performance standards for faculty and staff.

Long-Range Goals and Objectives

Goal 1: Implement the programming, local structure, and organizational structure from the 2010 Restructuring Plan.

- Objective 1.1:** Establish issue-based program teams to design educational programs delivered in the state through a network of locally based field faculty.
- Objective 1.2:** Restructure administrative functions and field staffing structure used for delivery of field based programs to increase effectiveness of programs.
- Objective 1.3:** Utilize multiple delivery modes, including technology, to deliver science-based educational programming to Virginians.

Virginia Cooperative Extension will use multidisciplinary, issue-based program teams to successfully respond to current and emerging issues affecting agriculture, natural resources, families, youth, and communities. Comprehensive programming strategies and innovative program delivery will increase the number served among Virginia's diverse population and provide access to unbiased, research-based information that is both timely and relevant in providing solutions to pressing issues.

Goal 2: Invest in the recruitment and development of a diverse group of VCE educators, specialists, and staff to ensure exceptional programming, services, and leadership that address Virginia's needs.

- Objective 2.1:** Recruit a diverse group of Extension educators, staff, and specialists.
- Objective 2.2:** Develop and implement a comprehensive training system to promote excellence in scholarly, teaching, and programmatic efforts of Extension educators and specialists.
- Objective 2.3:** Review the performance evaluation system to ensure that exceptional performance is rewarded and ineffective performers are removed.

VCE will continue to be good stewards of the public funds by ensuring that every dollar is well-invested in the quality performance of each member of the Extension family. The result of achieving this goal will position VCE to be competitive in attracting qualified educators and staff who will be committed to Extension's culture of service, focused on community-based issues, engaged with multidisciplinary teams, and a contributor to innovative solutions. In addition, organizational costs will decrease when employee turnover is reduced.

Organizational
Effectiveness

Goal 3: Develop an effective internal and external communication system to inform and engage citizens, stakeholders, and partners.

- Objective 3.1:** Strengthen internal communication between Extension educators and specialists at Virginia Tech, Agricultural Research and Extension Centers, and Virginia State University.
- Objective 3.2:** Implement external marketing strategies to increase brand recognition of high-impact programs and services within the commonwealth.
- Objective 3.3:** Establish partnerships and collaborate with organizations and individuals who have common goals in serving the people of the Commonwealth of Virginia.
- Objective 3.4:** Design an effective volunteer development system that attracts, retains, and energizes a diverse group of youth and adult volunteers, including Extension Leadership Councils and program-focused volunteers.

The people of the Commonwealth of Virginia, Virginia Tech, and Virginia State University will have an increased awareness of VCE's diverse programs, resources, and overall impact on Virginia communities. New partnerships will be developed that increase volunteer resources, program funding, participation, and problem-solving capacity at local, regional, and state levels. Through more effective community and partner engagement, program and service duplication will be eliminated.

Goal 4: Identify and secure public and private resources that support quality programming in the focus areas.

- Objective 4-1:** Focus on NIFA funding priorities and college-based science activity to increase public service research awards by 30 percent.
- Objective 4-2:** Develop and implement a VCE strategy to increase private giving from both individual and corporate donors.
- Objective 4-3:** Develop fee-based models that support the delivery of programs where applicable and appropriate.
- Objective 4-4:** Develop a financial structure which is flexible and seeks to reinvest new and existing state and federal resources based on the identified strategic plan and anticipated return on investment.

Securing new funding and resources aligned with VCE goals will be explored from multiple sources, including grants, collaborative agreements between agencies, and partnerships with private sources. These newly identified resources will permit an expansion of programming and Extension work that allows Extension to address emerging issues, conduct the required research, and implement the science-based response.

Implementation Plan

The 2011-2016 strategic plan is designed to be program-centered and responsive to local needs. Goals and objectives for each focus area were crafted based on the current situation within Virginia communities.

Goals and objectives within the focus areas will be assigned to state issue teams composed of specialists, Extension educators, and other experts who will design science-based educational programs for delivery across the state. The issue teams will develop action plans containing details such as specific strategies, timelines, accountability roles, funding sources, success measurements, and federal and state reporting requirements, which will be submitted to the VCE director for review and funding allocations. Programming will be delivered to individuals, organizations, and/or communities through a network of local Extension educators.

Teaching pedagogy appropriate for the target audience will be used to deliver programs using a variety of technologies and instructional strategies.

Effective Extension programs possess a common set of characteristics that are identified as program expectations. These expectations are framed around five components:

1. A sound philosophy that embraces the land-grant mission that universities should:

- ▶ Contribute directly to improvement of life within the state by addressing the problems of the people.
- ▶ Link research, science, and technology to the needs of people through planned educational programming.
- ▶ Are consistent with the strategic vision of Virginia Cooperative Extension.
- ▶ Result from the use of the Extension programming model, which serves as a guide to the planning, implementation, and evaluation of a comprehensive educational program.
- ▶ Rely on organized Extension Leadership Councils and input from key stakeholders — an integral component of all facets of Extension programming.

2. Appropriate approaches to programming:

- ▶ Demonstrate an awareness of social, economic, and environmental considerations in development and delivery.
- ▶ Reflect the critical needs and problems of residents within local communities, while also considering state and national priorities.

3. Audience:

- ▶ Includes all populations.
- ▶ Targets youth and adults and utilizes appropriate educational methods.
- ▶ Reaches a substantial number of clientele consistent with the resources committed.
- ▶ Reflects an outreach plan that increases involvement of under-represented audiences.

4. **Program methodology:**

- ▶ Utilizes diverse delivery methods targeted to need and audience.
- ▶ Includes a system of volunteer recruitment, training, management, and recognition as a means of aiding program effectiveness.
- ▶ Includes the use of available communication tools to provide information to the general public.

5. **Program support:**

- ▶ Demonstrates current knowledge of faculty in subject matter related to educational programming while giving particular emphasis to areas of specialization.
- ▶ Develops faculty who are recognized authorities in assigned areas of subject matter responsibility.
- ▶ Fosters cooperative relationships with public and private partners as a means of addressing needs of residents.
- ▶ Includes teamwork that promotes local, regional, state, national, and international priorities within Extension.
- ▶ Involves specialists and local and regional Extension educators in the programming process, from problem identification through evaluation.
- ▶ Attracts funding and support from local and state governments and other sources to enhance programming efforts.

Impact Assessment and Reporting

The learning experiences referred to in the Virginia Cooperative Extension mission statement provide the basis for the VCE programming process. The programming process includes identification of issues and problems, determination of how VCE might address issues and problems through educational programs, design of the educational program, and evaluation and reporting of outcomes/impacts of the effort. Equally important, the VCE programming process includes the involvement of Extension Leadership Councils (ELCs), program volunteers, targeted learners, community resources, Extension educators, and Extension specialists.

The term “programming” should not be confused with the term “program.” A program is the product or educational response that results from the programming process. The programming process includes the planned, coordinated, facilitated, collaborative, deliberate decisions and actions of the Extension educator and specialist in partnership with ELCs, program volunteers, learners, and other relevant segments of the community in the analysis of the community’s situation, the design and implementation of programs, and the evaluation and reporting of results.

Programming Principles

VCE programming:

- ▶ Is participatory and involves ELCs and other program volunteers in analyzing the community’s situation, determining program direction, designing and implementing educational programs, and evaluating programs to determine outcomes/impacts for reporting and program renewal.
- ▶ Is the result of a reciprocal partnership based on collaborative decisions and actions of all Extension staff and ELC representatives.
- ▶ Meets the identified needs of the people.
- ▶ Is open to all, regardless of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status.
- ▶ Is based on unbiased, scientific research.
- ▶ Extends and represents Virginia’s land-grant universities — Virginia Tech and Virginia State.

Programming Assumptions

The following assumptions undergird the VCE programming process:

- ▶ Extension programming changes the behavior of learners and communities.
- ▶ The Extension educator is skilled in the programming process and implements it appropriately.
- ▶ The Extension educator serves as a steward and facilitator of the VCE mission and programming process.

- ▶ The Extension programming process provides a framework for collaborative decision-making and identification and distribution of program tasks.
- ▶ The Extension programming process collaboratively engages Extension educator partners with the ELC and other members of the community in analyzing the situation, determining program direction, implementing educational programs, and evaluating and reporting results.
- ▶ The Extension educational process produces feedback that guides program renewal and direction.
- ▶ Programming contributes directly to the Extension mission and program area missions.
- ▶ Resources from Virginia's land-grant universities, Virginia Tech and Virginia State, are the foundation for educational programming.
- ▶ Programs address major issues and problems identified through situation analysis.
- ▶ Program objectives frame the design, implementation, and measurement of program outcomes/impacts.
- ▶ Determination and measurement of program outcomes/impacts are the responsibility of all Extension educators working in partnership with the ELC and other program volunteers.

VCE Programming Process

The VCE programming process includes: (1) situation analysis, (2) program design and implementation, and (3) program evaluation and reporting. This approach to education relies on the collective efforts of Extension educators, specialists, ELC members, program volunteers, and other partners.

1. **Situation analysis focuses on examination of the community/environment to determine issues, problems, and opportunities that VCE resources can address.**

- Step 1. Organize for action: Review the role and importance of situation analysis in the Extension programming process, identify the ELC's roles and responsibilities in the process, and prepare a time and task table for conducting the situation analysis.
- Step 2. Develop a unit profile: The local profile provides a snapshot of the community for program planners and residents that indicates current baseline data to gauge the effectiveness of Extension educational programs over time.
- Step 3. Assess needs from a community and resident perspective: After completing a local profile, assess peoples' knowledge, attitudes, and other perspectives on issues and problems they think impact their lives, both positively and negatively. Methods to collect this data include issue forums, focus groups, key informant interviews, and community surveys.
- Step 4. Interpret data and determine programs: Once the ELC develops a local profile and assesses needs from a community and resident perspective, interpret the data and decide on the direction for Extension's educational efforts. Determine: (1) what issues are identified in the situation analysis? (2) what is Extension currently doing? (3) what issues are of priority interest to the ELC? and (4) what renewed direction should Extension programs take?

2. Program design and implementation focuses on outcomes from the situation analysis.

Step 1. Develop program goals and objectives: Decide what results will be achieved through an educational program. A program goal is a broad statement of the result(s) to be achieved by a program. A program objective more specifically indicates change in learners who participate in the program.

Step 2. Understand the dynamics of learners: Focus on how learners take in and process information. Design educational programs for a variety of learning styles using a variety of learning experiences.

Step 3. Design the Extension educational program: Structure and sequence learning experiences to ensure target audience learning. Identify, sequence, and develop multiple learning experiences for the program.

Step 4. Develop a marketing plan and strategy: Describe the elements needed to effectively promote the program.

Step 5. Develop a program plan and strategy: Identify the roles and responsibilities for unit staff and ELC members to implement programs.

Step 6: Implement the Extension educational program plan: Put the program plan into action.

3. Program evaluation and reporting is a continuous, active part of the programming process where results are used for program improvement, informing stakeholders of impacts, and marketing Extension. Issue teams are responsible for developing measurable outcomes for use in the federal reporting system. The teams will design the necessary instruments to gather data to report against those outcomes or Extension educators will evaluate programs using individual instruments. Impacts will be reported using the electronic Faculty Annual Reporting System (eFARS). The data submitted by faculty in eFARS and through issue-teams-generated evaluation tools will be used to generate impact reports to stakeholders.

The four basic steps are:

Step 1. Focus the evaluation: (1) Identify key program stakeholders so the evaluation provides information for a specific audience, and (2) specify the purpose of the evaluation. Process evaluation focuses on how the program is conducted; results evaluation focuses on the outcomes, or impacts, from the program.

Step 2. Collect evaluation data: (1) Identify types of data to collect, (2) decide when to collect the data (called evaluation design), and (3) determine how to collect data. How to sample is also covered in this step.

Step 3. Analyze data: Qualitative (open-ended responses) or quantitative (predetermined responses) methods are used.

Step 4. Report results: Use guidelines for preparing a written report of evaluation findings.

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Impact
Assessment
and
Reporting

Appendix I: The Strategic Planning Process

In May 2009, 25 members of Virginia Cooperative Extension's family gathered at the Skelton 4-H Center to discuss the future of Extension in Virginia and respond to Virginia Tech's request to develop a strategic plan. The Strategic Planning Steering Committee has worked with 93 members of our Extension community to host and facilitate 26 dialogue sessions with external state-level and local stakeholders and 22 sessions with Extension agents and staff and campus and center-based faculty and staff. The sessions yielded approximately 12,000 responses from 1,120 individuals between October and December 2009.

In support of that task, dialogues were conducted with the following groups:

Target audiences of VCE programs (both current and potential). Users must find relevance in VCE products and services or they will not use them. One way to ensure relevance of purpose and direction of educational programs is to ask those for whom such programs are targeted.

Extension Leadership Councils. Individual committee members who understand both the Extension program development process and the needs and concerns of their community are valuable assets. The involvement of leadership councils in planning fosters greater commitment to programs relevant to the local community.

Extension, research, and teaching faculty. One of the long-standing missions of the land-grant university system is to enhance the physical, economic, and social environment surrounding agriculture and the quality of life of those the university is charged to serve. Gathering input from faculty provides current and emerging research and the educational experiences that are crucial to Extension's mission.

Stakeholders with local, state, and national priorities. Stakeholders (external and internal) play a key role in providing financial and other support for Extension programs. Listening sessions provide an opportunity to obtain their input and to make them aware of effective programs and challenges/changes that may impact VCE.

Dialogue Comment Review

A team of Extension facilitators, site coordinators, and recorders, along with researchers led by Donna Moore, recorded the 12,000 comments from the 48 listening sessions. When the comments were recorded, Moore worked with each of the session facilitators and site coordinators to review the transcripts and identify any gaps or potential errors in the transcripts. All recorded comments were linked by key words, then printed and published for review by the Steering Committee.

The Steering Committee was charged with reviewing each of the 12,000 comments during a three-day planning session led by Howard Ladewig in February 2010. Steering Committee members were grouped in the four original teams that had developed and managed plans for gathering feedback from (1) internal agents and staff, (2) internal campus and center faculty and staff, (3) external state-level stakeholders, and (4) external local stakeholders.

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Common Themes

Each team spent hours reading the comments, identifying common themes, and linking other dialogue statements to each theme. As the teams brought their findings to the full group, it was interesting to watch how different groups reported similar themes identified by the various internal and external stakeholder audiences.

By the end of the planning session, six focus areas had emerged, and writing teams were assigned. As work begins on drafting and reviewing the text for the strategic plan, teams will seek to expand participation for their groups to include stakeholders internal and external to Extension. You are encouraged to engage in this effort that is so critical for Extension. The writing teams addressed each of the following focus areas:

- ▶ Value-enhanced agriculture.
- ▶ Sustainable natural resources and the environment.
- ▶ Healthy living for youth.
- ▶ Building capacity for communities (resiliency).
- ▶ Healthy families and communities.
- ▶ Organizational effectiveness.

Contained within each focus area are multiple overarching issues (e.g., obesity) identified during the internal and external sessions that required collaboration between the writing teams to develop cross-disciplinary goals and objectives. In addition, the organizational effectiveness team developed plans for community impact reporting and the accountability process when working in cross-disciplinary programming.

Writing teams established program goals and objectives that are unique to Extension and responsive to Virginia's identified issues. The teams transformed the focus areas into an Extension strategic plan that incorporates Extension core values of inclusion, integrity, scientific information, engagement, partnerships, individual relationships, and good stewardship of public trust. The teams are committed to Extension's mission of building local relationships and collaborative partnerships and of putting scientific knowledge to work through learning experiences that improve economic, environmental, and social well-being.

The teams identified and researched the issues affecting the commonwealth, established the goals to address these issues, and developed the objectives and strategies to achieve these goals. The writing teams invited separate review teams to read and comment on each of the proposed plans. Because of each team's investment in this process, Virginia Cooperative Extension developed a draft strategic plan. On July 28, a report was given to the state Extension Leadership Council on the goals, objectives, and strategies. ELC members worked in small groups to review the report and prepare their suggestions for strengthening the draft plan.

The draft plan was shared with internal audiences through district meetings and on-campus sessions. External stakeholders provided input at public meetings in Richmond and Blacksburg. In addition, the draft plan was posted on the VCE Strategic Planning website and individuals submitted feedback via survey. The comments made during the review of the draft plan enabled the Extension family to create a dynamic plan that is focused in direction but flexible, thereby allowing Extension to respond to emerging issues.

Appendix II: 2009 Strategic Planning Steering Committee

Rick Rudd, Interim Extension Director (2009-2010); Head, Department of Agricultural and Extension Education (Strategic Planning Coordinator)

Brad Jarvis, Extension Agent, Agriculture and Natural Resources (Co-Chair)

Martha Walker, Extension Specialist, Community Viability (Co-Chair)

Brian Calhoun, Associate Director, Community Viability

Roger Ellmore, Program Director, Smith Mountain Lake 4-H Educational Center

Karen Gehrt, Associate Director, Family and Consumer Sciences

Mike Goatley, Extension Specialist, Crop and Soil Environmental Sciences

Johanna Hahn, Extension Agent, Family and Consumer Sciences

Jewel Hairston, 1890 Program Associate Administrator, Virginia State University

Lonnie Johnson, District Director, Southeast District

Christine Kastan, District Program Leader, Northern District

Joe Marcy, Department Head, Food Science and Technology

Lounette Marsh, District Director, Central District

Cyndi Marston, District Director, Northwest District

Mike Martin, District Director, Southwest District

Mary McFerren, Family Nutrition Program Project Director

Michelle Prysby, Virginia Master Naturalist Program Coordinator

Bob Smith, Associate Dean, College of Natural Resources

Glenda Snyder, Extension Agent, 4-H Youth Development

Cathy Sutphin, Associate Director, 4-H Youth Development

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Dee Whittier, Extension Specialist, Veterinary Medicine

Tony Wolf, Director, Alson H. Smith Agricultural Research and Extension Center

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Appendix III: 2010 Writing and Review Teams

Value-Enhanced Agriculture

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Steve Hopkins, Extension Agent, Agriculture and Natural Resources (Co-Chair)

Dee Whittier, Extension Specialist, Veterinary Medicine (Co-Chair)

Tony Wolf, Director, Alson H. Smith Agricultural Research and Extension Center (Co-Chair)

Sustainable Natural Resources

Dan Goerlich, District Director, Central District (Co-Chair)

John McGee, Extension Specialist, Geospatial (Co-Chair)

Michelle Prysby, Coordinator, Virginia Master Naturalist Program (Co-Chair)

Bob Smith, Associate Dean, College of Natural Resources (Co-Chair)

Lori Anne Barnett, Extension Agent, 4-H Youth Development

Brian Benham, Associate Professor, Biological Systems Engineering

Neil Clark, Extension Agent, Agriculture and Natural Resources

Lisa Deaton, Virginia Department of Forestry

Adam Downing, Extension Agent, Agriculture and Natural Resources

Jonah Fogel, Extension Specialist, Community Viability

Jennifer Gagnon, Coordinator, Virginia Forest Landowner Education Program

Cynthia Gregg, Extension Agent, Agriculture and Natural Resources

Bruce Hull, Professor, Forest Resources and Environmental Conservation

John Ignosh, Extension Specialist, Agricultural Byproduct Utilization

Scott Klopfer, Research Associate, Conservation Management Institute

Liam Leightley, Executive Director, Institute for Advanced Learning and Research

John Munsell, Assistant Professor and Extension Specialist, Forest Resources and Environmental Conservation

Jim Parkhurst, Associate Professor, Fisheries and Wildlife Science

Ann Regn, Environmental Education Director, Virginia Department of Environmental Quality

Albert Reid, Aquaculture Specialist, Virginia State University

Jesse Richardson, Associate Professor, Urban Affairs and Planning

Stephen Schoenholtz, Director, Water Resources Research Center

Healthy Living for Youth

Elena Serrano, Extension Specialist, Human Nutrition, Foods and Exercise (Co-Chair)

Glenda Snyder, Extension Agent, 4-H Youth Development (Co-Chair)

Tonya Taylor, Associate Extension Specialist, 4-H Youth Development (Co-Chair)

Building Capacity for Communities

Adria Bordas, Extension Agent, Agriculture and Natural Resources (Co-Chair)

Jewel Hairston, 1890 Program Associate Administrator, Virginia State University (Co-Chair)

Crystal Tyler Mackey, Extension Specialist, Community Viability (Co-Chair)

Jennifer Abel, Extension Agent, Family and Consumer Sciences

Scott Baker, Extension Agent, Agriculture and Natural Resources

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Doris Baskfield-Heath, Extension Agent, Family and Consumer Sciences

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Brian Calhoun, Associate Director, Community Viability

Brian Hairston, Extension Agent, 4-H Youth Development

Kevin Spurlin, Extension Agent, Agriculture and Natural Resources

Martha Walker, Extension Specialist, Community Viability

Kevin Spurlin, Extension Agent, Agriculture and Natural Resources

Healthy Families and Communities

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