

Maryland Cooperative Extension Strategic Plan (2006–2011)¹

I. Introduction

Cooperative Extension, nationally and in Maryland (MCE), is at a crossroads. The founding principles of Cooperative Extension are fundamentally sound, but Extension has transcended the idea of being a service-oriented organization to that of a learner-centered organization. Today, it is the only agency or organization of its kind: a grassroots program partnering university knowledge and resources to solve the practical needs of American citizens. Extension's system of federal, state, and local support is the envy of governments and communities around the world. The many complex and often conflicting issues related to food, fiber, natural resources, the environment, families, youth, and societal change are routinely addressed by Cooperative Extension professionals in a timely fashion for the benefit of all.

Maryland Cooperative Extension will continue to review and focus its direction. The state continues to change at a rapid rate, which creates additional educational needs and opportunities for MCE's historical audiences. It also places new demands on MCE for access to University knowledge and resources by new audiences. Balancing historical programming with the increasing demands of new stakeholders and a static funding base requires development of new funding sources in association with innovative strategic alliances to meet changing needs. Maryland Cooperative Extension will need to distinguish itself as an adaptive and valuable organization in order to continue to be successful at meeting the needs of all our stakeholders.

This strategic plan will serve as the guiding document for our organizational direction for at least the next five to ten years. Concomitantly, MCE is currently developing its next USDA five-year plan of work, which serves as our implementation plan. In developing this plan of work, and as a way to continuously improve our planning and implementation efforts, we will integrate the Strategic Plan and our Plan of Work with the Outcomes-based Logic Model. Together these documents will be a new beginning that will direct our organization and MCE's educational and outreach focus in the new century. By implementing these plans, we will build on past accomplishments, provide relevant and responsive research-based information, and integrate community-based knowledge into our teaching efforts. We envision MCE as the premier educational outreach component of the University System of Maryland. As such, we will enhance our commitment to engage and share resources with individuals, organizations, and communities across the State of Maryland.

¹ The *Introduction* and *Strategic Initiatives & Action Statements* (Sections I and II, pages 1-8) were taken from the previous MCE plan of work completed in 2003. *Our Implementation: How We Plan to Get There* (Section III, pages 9 through the end of the chapter) are based on the programmatic logic models submitted by MCE faculty to Bob Tjaden and Dick Byrne in early 2006 for use in our Federal Plan of Work. They are included here as a beginning point in developing our State Plan of Work.

The role of MCE in fostering the engagement of the University into Maryland's communities and organizations is a key concept of this document. To help define this concept, we relied heavily on the precepts and underlying tenets of two documents: The 1999 Kellogg Commission on the Future of State and Land-Grant Universities' Third Report; *Returning to Our Roots: The Engaged University* and the 2002 Extension Committee on Organization and Policy's (ECOP) *The Extension System: A Vision for the 21st Century*.

We have before us a great opportunity and the necessary tools to create our future. By implementing this Strategic Plan and the related Plans of Work, we will be strong and focused. We know who we are, and who we need to become. By using the Outcomes-based Logic Model, we will continuously improve our efforts. All of us, the faculty, staff, and administrators of MCE, are leaders in our organization. Individually and together we will adapt to change, distinguish MCE, and enhance our value to the citizens of Maryland.

Mission – Vision – Values Statement

Our Mission

The Maryland Cooperative Extension mission is to develop, integrate, and deliver relevant and accurate research-based knowledge and educational programs. We engage communities, groups, and agencies in decision-making to achieve economic prosperity, stewardship of resources, and quality of life.

Our Vision

Maryland Cooperative Extension will be recognized as the premier educational outreach organization of the University System of Maryland.

Our Core Values

We value:

- Intellectual freedom and creativity
- Excellence in educational programs
- Lifelong learning
- Truth, ethical and professional conduct, and integrity
- Helping people
- Diversity of programs and people

Strengths – Challenges – Opportunities Statement

Insight into our institutional, organizational, and personal strengths, challenges, and opportunities provides us with the conceptual framework to better define how we function in order to meet our stakeholder needs.

Our Strengths

Maryland Cooperative Extension faculty and staff strive in our work and programs to reach people and communities with real educational needs. We take pride in our role as scholarly knowledge providers, helping people make sound decisions to improve their lives. We:

- Offer Maryland citizens unparalleled access to national and regional resources with timely information on critical issues, from faculty and staff who conduct research and education programming at 24 extension offices, five research and education centers, and four university campuses.
- Are respected by individuals and communities as knowledge providers who help answer specific questions and needs.
- Celebrate the diversity of people and programs within MCE, recognizing the quality of our faculty, staff, and administration, and the expertise and dedication they provide the people of Maryland through relevant programs.
- Achieve excellence in MCE programs through our ability to teach effectively—using unbiased, research-based information, integrated with the experiential knowledge of our learners, to solve their practical problems.
- Respect lifelong-learning and the need to balance the differing needs of our urban and rural communities.
- Provide opportunities for all people to learn how to assess and change behaviors and practices to improve the quality of their environment and their lives.
- Have experience and skill in nurturing traditional and fostering new, yet perhaps unexpected, partnerships that utilize multi-state and multi-institutional efforts to share resources, and to appropriately respond to changing citizen needs.

Our Challenges

Maryland Cooperative Extension is challenged to:

- Communicate the MCE mission throughout Maryland and promote opportunities to help its citizens.
- Think differently about, and where appropriate redirect, staffing to create flexible appointments as sources of funding of positions and/or programs change.
- Develop visionary leadership, foster excellence among faculty, and sustain support staff to be in a position to address current and emerging issues given the need to balance available resources.
- Seek new ways to recruit and retain faculty and staff that reflect the diversity of our state and provide relevant and timely programs to meet the diverse needs of our citizens.
- Build an internal working environment that fosters cooperation and teamwork by strengthening existing and developing new partnerships—internal and external.
- Define the scholarship of Extension as it relates to our mission, vision, and faculty promotion and tenure process.
- Review conventional thinking about the role and function of local extension offices and our state and regional specialists.
- Work across disciplinary and institutional boundaries on common, high-priority initiatives.

- Look for new sources of funding while making every effort to increase budgetary support from traditional sources to achieve our mission.
- Work within a society where communication and information technology makes access to information (both accurate and inaccurate) readily available in most, if not all, communities.
- Create effective systems for all aspects of the work that we do to ensure that paperwork, regulations, and other requirements do not hinder the ability of faculty and staff to respond in a timely manner to learners' needs.

Our Opportunities

As MCE looks ahead to future programming directions, we will be prepared to take advantage of current and potential opportunities. Taking advantage of opportunities will allow us to better implement our goals and answer our challenges as well as demonstrate MCE's leadership in the future. We will:

- Showcase and promote the strengths and the potential public benefits that extension programs have and can have in meeting the challenges of today and of the future.
- Provide leadership within MCE at all levels in the organization that is flexible, proactive, and able to meet new challenges in innovative ways.
- Capitalize on existing partnerships and create new ones between and within MCE, the college, and the University, as well as with our audience, that help us address the unique opportunities provided by rapidly changing demographics, dynamic educational needs, and evolving issues.
- Make use of communication and information technologies to improve internal and external communication methods, provide flexible and timely program delivery, and make effective and efficient use of available resources.
- Provide educational opportunities to diverse communities and develop programs that are responsive to existing, new, and changing audiences.
- Position MCE as one of the premier sources of relevant, accurate, timely, and unbiased research-based information, using in-house as well as outside sources.

II. Strategic Initiatives and Action Statements

Initiative 1: Provide the knowledge to improve the lives of Maryland citizens through innovative educational programs of excellence

Excellence in education is one of our core values. Maryland Cooperative Extension creates and leads the University's non-formal educational programs—integrating the knowledge of science, technology, and learner communities—to solve problems faced by the citizens of Maryland. To enhance our ability to educate, we will initiate strategic actions that require increased and refocused allocations of our resources and a sharing of resources with others. Our commitment is to engage other resource providers and our learners in partnerships that solve problems in timely and cost-effective ways; in short, we are committed to creating and leading educational programs of excellence.

Strategic Actions

- Using the Logic Model and information provided by Extension's Committee on Organization and Policy, the Kellogg Foundation, and other sources, we will build into our understanding of MCE and our program planning the values of engagement, the utility of innovative program design, and the benefits of indicators of excellence.
- Develop and conduct applied research programs that address stakeholder needs, which will lead to the desired outcomes and impacts of our educational programs.
- Develop and conduct educational programs with recognized excellence that lead to the desired outcomes and impacts.
- Based on needs assessments, engage people and groups in timely and effective ways to better integrate community-based knowledge with our knowledge of science and technology.
- Based on learner needs, enhance the diversity of our programs and of our learner groups.
- Expand our numbers of learners and our teaching effectiveness by using cost-effective distance learning technology.
- Assess and use, as appropriate, innovative program promotion and delivery systems.
- Provide adequate staffing and program development resources to implement these strategies.

Initiative 2: Leverage MCE strengths with those of other groups to the mutual benefit of Maryland citizens

Maryland Cooperative Extension has a long tradition of working with organizations and community leaders. Mutually beneficial partnerships have been established with communities, business groups, agencies, campuses, and colleagues nationally and internationally. Partnerships require the exploration of innovative communication methods and provide multi-faceted collaborative opportunities to identify, assemble, and leverage the resources necessary to meet the ever-changing needs of people. Through partnerships, we more quickly and accurately identify issues requiring attention, bring diverse perspectives to bear on those issues, and develop and deliver educational programming more effectively than would be possible through independent actions. Funding opportunities for programs are often enhanced with our partners and, in some cases, provided by our partners. Effective partnerships are characterized by their flexibility and open communication.

Strategic Actions

- Initiate and expand partnerships among campuses, colleges, departments, and campus-based support units, especially University of Maryland College Park, University of Maryland Eastern Shore, University of Maryland Center for Environmental Science, and University of Maryland Biotechnology Institute.
- Work with MCE and university administration to establish guidelines for developing, maintaining, monitoring, and evaluating relationships with partners and their effectiveness.
- Develop mechanisms to continually assess and address the needs of stakeholders.

- Identify new partners who can assist MCE to expand programs and resources that best meet their needs and the needs of Maryland citizens.
- Develop partnerships, where appropriate, with state, national and international advisory bodies that make recommendations to governments, industry, and other groups.
- Broaden existing means of communication for staying connected with partners.
- Develop a university-mentoring program that encourages senior and junior employees to share their knowledge of existing partnerships and the proven methods for creating and maintaining partnerships.
- Add an incentive to the performance review process for MCE faculty and administrators to build and maintain effective partnerships.

Initiative 3: Enhance our human capital and capacity

Maryland Cooperative Extension is committed to enhancing the capacity of its employees, including faculty, staff, and administration. However, we are constantly faced with the challenge of maintaining, recruiting, and enhancing our human capital and capacity in light of evolving learning needs, changing technology, funding constraints, and personnel retention. These challenges provide opportunities for continually adjusting the face of Extension to meet our citizens' needs. The potential loss of knowledge, experience, and expertise as a result of turnover and retirements can have a tremendous impact on our ability to be successful in our mission. At the same time, this exodus of expertise provides opportunities for recruiting a new cadre of faculty and staff.

Strategic Actions

- Through human resource development efforts, challenge and empower our faculty, staff, and administrators to develop and deliver outstanding educational programs.
- Consider alternatives for transferring the knowledge and expertise of our experienced faculty, staff, and administrators in a manner that will ensure our continued expertise in mission critical program areas.
- Strive to hire diverse faculty, staff, and administrators that are reflective of the populations we serve.
- Evaluate the relationship between funding resources, tenure-track requirements, and the educational needs of our audiences. Ensure that tenure-track requirements for new faculty are not in conflict with the ability of faculty to meet the needs of our stakeholders.
- Strengthen our new employee orientation process to quickly assimilate new hires into our organization.
- Promote an organization that fosters a mentoring environment between new and senior faculty. Implement a structured, well thought-out, and managed mentoring program designed to orient new employees quickly and effectively.
- Provide enhanced professional development opportunities for all MCE personnel that will prepare them to lead our organization successfully into the future.
- Integrate volunteers and other community resources into our organization in order to develop their capacities to lead and serve as well as enhance Extension's capacity to provide programs of excellence.

- Recognize and reward contributions of volunteer and salaried staff, faculty, and/or administrators using appropriate means on a regular basis.
- Evaluate our use of technology to ensure that we are making effective and efficient use of available technology as well as looking for new technologies that would enhance our human capital and capacity.

Initiative 4: Enhance our organization to support engagement, programming, innovation and creativity, and accountability

We envision that Maryland Cooperative Extension functions as an engaged institution, embracing the seven guiding principles of engagement, as defined by the W. K. Kellogg Commission on the Future of State and Land-Grant Universities. These are defined as responsiveness, respect for partners, academic neutrality, accessibility, integration, coordination, and using partnership resources. We will foster a culture where leadership is promoted, innovation is encouraged, and excellence in programming is recognized and rewarded at all levels of the organization. We will create and maintain a culture where faculty members are given the freedom to direct their programs, and where there is both individual and organizational accountability. This will focus people and programs, engender a sense of collective ownership, and foster pride in the organization and its important public work.

Strategic Actions

Balance program development and delivery within our organizational structure, by:

- Identifying existing barriers to effective programming and modifying or eliminating those barriers where appropriate.
- Defining the scholarship of Extension in the context of an academic environment and how program development and delivery are evaluated.
- Setting realistic expectations and goals for faculty, staff, and volunteers.
- Promoting active collaboration and partnering among faculty, staff, and volunteers.
- Strengthening internal partnerships and communications between MCE, College of Agriculture and Natural Resources, the University of Maryland College Park, and the System.

Recognize innovation, creativity and leadership throughout the organization, by:

- Promoting a culture of risk-taking, and reward and recognition for excellence and innovation at all levels and in all positions.
- Fostering an environment that promotes active mentoring and knowledge retention.

Set expectations throughout the organization, and ensure that people and programs are held accountable for their success or failure, by:

- Using the Logic Model as the mechanism to plan programs that will provide accountability.

- Integrating this accountability into the annual performance review and promotion and tenure processes.
- Using accountability data to justifiably build cases for resources and programs.

Initiative 5: Human, monetary, and technical resources that augment program delivery and information transfer

Traditionally, funding for Maryland Cooperative Extension has relied heavily on the Land Grant System partnership among federal, state, and local governments. Our public funding, while critical and greatly appreciated, will likely not be sufficient for MCE to meet our educational responsibilities in the future. An initiative is required to exercise fiscal stewardship, by evaluating and prioritizing our programs, and to secure additional resources through community and/or program development grants, private contributions, competitive grants processes, gifts and bequeaths, more volunteer assistance, in-kind contributions, and other sources.

As noted in other initiatives of this plan, in meeting our resource and program needs, we must continually assess the needs of our stakeholders, invest in the human capital of our organization, increase our ability to do cost-effective education, create more effective partnerships, evaluate our programming efforts, and strengthen our organizational structure.

Strategic Actions

- Enhance MCE stewardship by scrutinizing the rationale for existing resource allocations and shifting resources as needed.
- Strengthen individual and group initiatives to obtain new resources for MCE by providing stronger behavioral incentives, through personnel evaluations and promotions for faculty and staff.
- When hiring new faculty, make the expected ability to access new and additional resources a prime consideration for employment.
- Create more cost-effective program delivery techniques.
- Integrate the Logic Model into our evaluation procedures.
- Anticipate the changing dynamics of our economy with contingency planning reflecting flexibility and stewardship.
- Increase our ability to anticipate and share information about emerging possibilities for additional resources.

III. Our Implementation: How We Plan to Get There

In Outcomes 2002, our previous Plan of Work, we dealt with seven directed initiatives that served as the basis of our programming. While these initiatives were germane, they had a proclivity to be exclusive. Changing demographics of Maryland, the need to be more responsive to all Marylanders, and an increasing mandate to truly partner with other organizations, civic groups, agencies, and institutions mandated that we become more inclusive to all our clientele. Thus we re-examined and redefined our Mission Statement from our 2002 document to emphasize three major areas that impact all of Maryland. In doing so, we identified three areas as focus themes: Quality of Life, Economic Prosperity, and Environmental Stewardship. These

three themes direct what we do as an education organization. They also have expected outcomes that transcend each theme and facilitate cross-discipline, self-directed team efforts by our faculty. Concomitantly, we found ourselves lacking in certain areas of necessary expertise, program delivery, self-continuing education, and organizational process and infrastructure that potentially inhibit achieving our new Mission and Vision. To better prepare to meet the challenges of serving all of Maryland within our focus themes, we identified two internal themes that will help us better prepare to accomplish what we do: Professional Development and Organizational Development.

Theme 1: Quality of Life for Maryland's children, youth, families, and communities

Quality of Life is defined as “*Living and working in an environment that enables individuals and families to attain their basic needs and provides the opportunity for personal and community development.*”

Quality of life involves everything impacting our daily lives from our environment and socio-economic position to communication and personal growth in family, work, and social interactions. Although to achieve one's life goals is a continued pursuit by most, not everyone is as fortunate as others and some individuals and their communities still require basic services for their education, health, and welfare. Abraham Maslow's motivational theory regarding the hierarchy of needs is most relevant here. It provides the building blocks behind the motivation for achieving personal satisfaction and feeling a sense of worth and accomplishment.

In the pursuit of a “Quality of Life” it is necessary for MCE to develop and implement educational programs to help people sustain and improve their quality of life by better achieving their physical, psychological and materialistic needs, and a safe and secure home.

1) Nutrition, Wellness, and Prevention of Chronic Disease

Situation: The Centers for Disease Control and Prevention informs us that overweight and obesity have reached epidemic proportions in the U.S. and are recognized as the leading health problem facing adults and children. In the U.S. approximately 60 percent of adults are either overweight or obese and 16 percent of children are overweight. Overweight children are more likely to remain overweight as adults, and to be at increased risk for coronary heart disease, high blood pressure, type 2 diabetes mellitus, gallbladder disease, and some cancers. This epidemic, which causes about 300,000 premature deaths each year, also accounts for approximately 9 percent of national healthcare expenditures.

Program Description: Addressing chronic disease associated with obesity and overweight will require not only changes in personal behavior but changes in public policy. Health services professionals struggle with this increasing phenomena. Schools and localities are feeling the impact. Elected school and government officials are challenged to find viable solutions. Yet seldom do citizens, health professionals, and elected officials come together to consider what is in the public interest and where there is common ground for action. Using guided deliberations on the topic can lead to changes in systems that surround and impact individuals and families.

MCE will review existing programs and educational materials addressing nutrition and food safety issues in light of the 2005 Dietary Guidelines and MyPyramid recommendations. Identify appropriate programs for use by MCE, EFNEP, and FSNE. Plan, implement, and evaluate programs in consultation with focus team members and other partners. Conduct trainings for county educators and identify educational materials and professional training opportunities in Maryland and state, regional and national workshops, and conferences. Offer, or support, forums where citizens, including youth and adults, health and education professionals, and elected or appointed officials can together explore obesity as a public policy issue using the *Sizing Up America* materials.

Target Audience: Maryland youth and adults, EFNEP and FSNE program eligible participants, health service professionals, school officials, elected and appointed officials, community volunteers.

Goals: Maryland families will gain knowledge and skills related to healthy eating, healthy food choices, improved skill in preparation of healthy foods, and increase awareness and knowledge of the benefits of physical activity. In relation to changes in nutrition behaviors and practices, Maryland residents will utilize the MyPyramid in planning healthy meals; and learn how to consume appropriate portion sizes to maintain optimal weight; consume foods rich in whole grains, fruits and vegetables; exercise daily; read food labels for fat, trans fat, and sugar content; and voice their opinions regarding desired public policy to support health.

2) Food Safety

Situation: Food-borne illness is a major and continuing public health problem in Maryland and in the nation, and is also a concern with respect to bioterrorism, food security, and emergency preparedness. Millions of people become sick every year after eating food contaminated with pathogenic bacteria or their toxins, or through personal contact with people exposed to food-borne pathogens. Most cases of food-borne illness can be prevented through hygienic practices such as hand washing and by routinely following proper food handling and preparation recommendations. It is fundamentally important that consumers learn how to properly wash their hands before handling food and that they understand the reasons for proper hand washing. Food-borne illness is especially a concern in two settings: (1) Special events such as church dinners, fairs, community events, camps, and other functions where food is prepared and served by occasional food handlers, including volunteers and paid staff; and (2) Child care centers, where children, because of a general lack of immunity, are vulnerable to food-borne illness.

Program Description: Work with DHMH and MDA to identify and implement statewide educational needs. Identify appropriate materials or programs for use by MCE. Plan, implement, and evaluate programs in consultation with focus team members and other partners. Conduct at least one statewide in-service training in food safety for approximately 20 extension educators each year. Provide web-based information and resources to clientele. Write or update at least 1 MCE publication each year. Purchase and distribute educational materials. Conduct programs emphasizing proper hand washing techniques using Neighborhood Grime Watch, Grime Watch Mini Cam, and other resources. Conduct programs emphasizing the prevention of food-borne illness using existing MCE materials, including “Feeding the Community Safely” and “Feeding

the Children Safely,” and identify other appropriate programs for use by MCE. Seek opportunities to conduct food safety programs for food processors, including training in Hazard Analysis and Critical Control Points (HACCP) and Sanitation Standard Operating Procedures (SSOP).

Target Audience: Maryland residents, including youth; food science professionals from Maryland and other states; local state and federal cooperating partners such as DHMH, MDA, Joint Institute for Food Safety & Applied Nutrition (JIFSAN), Center for Food, Nutrition and Ag Policy (CFNAP), Clean Hands Coalition, and MD Association of Ag Fairs and Shows; local boards of education; child care centers; camps; volunteers.

Goals: Individuals will increase their knowledge of issues that relate to proper hand washing, preparing foods safely, avoiding food-borne illnesses, and emergency preparedness. In particular, individuals will gain awareness and knowledge of how to handle foods safely, particularly with respect to recognizing perishable foods, practicing good personal hygiene including proper hand washing, cooking foods adequately, avoiding cross-contamination, keeping foods at safe temperatures, and avoiding foods from unsafe sources. Participants and clientele will adopt or maintain behaviors that result in food being safe to eat. There will be a lower incidence of food-borne illness in Maryland, or a reduction in morbidity and mortality from food-borne pathogens that approach or meet the goals described in “Healthy People 2010.”

3) Environmental Science Education

Situation: To be good stewards of the environment, we must first understand it. Connecting students and educators with current research and methods for scientific inquiry defines the focus of Maryland Sea Grant Extension’s efforts for elementary, middle and high school students, teachers, and adult learners. Environmental science has become a growing focus in Maryland and nationwide as an integral part of K-12 science education. Specifically, state and national standards have been developed for environmental science that has put it at the forefront as a core content area in science education today. Locally, the Chesapeake Bay Agreement (2000) expands upon the need for experiential environmental education for all students and professional development for teachers to promote a greater awareness and stewardship of their local environment. In the background of this renewed movement in environmental science is the diversity of research being performed among universities. One of the challenges today is the interpretation of this research into an understandable, practical and applied resource for classroom teachers and students. The Maryland Sea Grant Extension Program (SGEP) has become a well-connected and respected source of information and resources concerning issues in environmental science education and in the application of current research in the classroom.

Program Description: Conduct 2 fellowship programs, 2 graduate course in Chesapeake Bay ecology, 8 workshops in aquaculture, water quality and invasive species, and 6 seminar programs in various marine and estuarine topics. Enhance interactive elements of the ESEP website (www.esep.umces.edu) and make available teacher-developed PowerPoint presentations and 5E lessons that will help link science research and hands-on classroom application. Conduct an Aquaculture in Action network survey (via a meeting) on accomplishments, awards, additions to curriculum, impacts on enrollment etc. related to their aquaculture projects at school.

Develop a pilot DVD (Chesapeake Science Series) for classroom teachers and other informal education users on oysters based upon successful web based materials. CHESPAX Oyster gardening and Restoration Program – development of a new 5th grade county-wide program focused on oyster biology, oyster restoration and oyster bar communities and incorporates community involvement in restoration activities Produce the Maryland Sea Grant Schools Network News newsletter (twice yearly) designed to give K-12 educators an opportunity to share their work with their peers in Maryland and the Mid-Atlantic region via the Internet. Interactive Marine Education on the Web - A survey will be sent out to a segment of teachers that have downloaded the lessons to gain feedback and insight on how they are used, frequency of use, and number of students impacted. Interactive Marine Education on the Web - web lesson downloads will continue to be updated (Oyster Anatomy Lab- June 06) and tracked. To assist and collaborate with Adventure Productions, Inc. Aqua Kids TV show in identifying new content and connections with research scientists for new episodes. .To assist with the identification and development of appropriate Ocean Sciences related materials with the MD State Department of Education for piloting courses in Oceanography and Marine Science

Target Audience: K-12 educators and students

Goals: Student incorporation of research science into their classroom projects and science fair. Students return to UMCES education program and research laboratories as interns. Teachers involved in teacher profession development programs will return to their classrooms with resources and content confidence to successfully integrate materials into their curriculums. Teachers will present/train other educators with lessons developed and incorporate their work into curriculum at the county level. Products will be developed appropriate for classroom application and meet curriculum needs (web, print, multi-media). Products developed incorporated into classroom and county lessons and curriculum. Expansion of the distribution of ESEP products and the number of teachers participating in programs. Development of grants with teachers and other non-profit groups based on appropriate feedback. Successful implementation of awards that impact teacher and student performance in the classroom and enhance curriculum. Citizens of Maryland will become stewards of the environment and will seek out various venues to participate in research, restoration or education activities.

4) Strengthening and Expanding the 4-H Club Program

Situation: The Maryland 4-H program’s core mission is to help youth reach their fullest potential as individuals through the development of life skills. For most 4-H members, these life skills are practiced and developed throughout the year by participating in club and county activities such as record keeping, demonstrations, leadership, and the exhibition of completed 4-H projects. The 4-H club program is part of an educational program designed to improve techniques of agriculture, environmental, and human sciences; promote high ideals of civic responsibility, provide training for community leadership, and foster international understanding. The New York 4-H Club study indicated that participation in 4-H Clubs contributes to positive youth development. The results indicated that youth who belong to 4-H clubs “do better in school, are more motivated to help others, and are developing skills in leadership, public speaking, self-esteem, communication and planning, and are making lasting friendships.” Thus, the 4-H Club has been proven to be an outstanding delivery method for the development of youth.

Program Description: Conduct an assessment to determine the need for resource materials and training to support club development/management; this includes a review of existing materials from 4-H programs across the nation. Conduct interviews with leaders, review survey results, and personal observations by the educator to determine if participation in the 4-H club program and concomitant activities such as the county fair help prepare youth for meaningful and constructive lives.

Establish priorities for creating and/or updating materials that will assist volunteers in developing club programs that will retain our current members and recruit new members. Ensure resource materials are easily accessible via multiple media sources. Develop and conduct trainings for Faculty, Staff, and Volunteers on effective club management strategies on the state and local level. Develop a process to share “Effective Practices” in Enhancing and Strengthening 4-H Clubs. Develop Maryland 4-H Youth Development promotional materials. Develop a self-assessment tool for measuring effectiveness of 4-H clubs. Assess enrollment trends and community club program quality. Identify and/or develop tools to determine and document desired educational outcomes and life skills assessments and develop pre- and post-event evaluation tools. Reward and recognize faculty, staff, and volunteers for effective club programming practices. Use new technologies to shape 4-H developmental and learning opportunities.

Target Audience: MCE staff; faculty, teen and adult volunteers; community partners including schools and other youth organizations.

Goals: The 4-H club experience provides the eight essential elements of youth development. 4-H members become aware of and/or learn subject matter. 4-H members become aware of and/or learn life skills. Parents/guardians are more aware of the 4-H club experience and potential benefits of the club experience and/or develop a more favorable attitude toward the 4-H program. Increase youth participation in Maryland 4-H clubs. Increase knowledge and skills of extension faculty, staff and volunteers. Improve understanding and reporting of 4-H club member enrollment data. Increase number of 4-H clubs available within the Maryland 4-H Program. Volunteers model experiential learning and “eight essential element” strategies when programming. 4-H members demonstrate subject-matter skills (including marketable skills). 4-H members demonstrate healthy life skills behavior (self-responsibility, decision making, social skills). 4-H members get involved in community and volunteer activities in and outside of the 4-H club experience. 4-H members re-enroll in the 4-H club program. Youth are successful, healthy, productive, contributing members of their communities (leadership, citizenship, life skills; academic success; workforce prep). Stakeholders (parents/guardians, community members, etc.) recognize the local 4-H club as an environment for positive youth development (member retention rates, funding, parent/guardian involvement, community support). The Maryland 4-H club program is viewed as a model quality youth development delivery method that enables youth to become competent, caring, and contributing members of today’s society. 4-H club alumni return as MCE volunteers.

5) 4-H Outreach to Underserved Youth and Communities in After-school and Out of School Time

Situation: In 2005 Maryland 4-H reached nearly 50,000 youth with positive youth development programs. The programming efforts focused primarily on 4-H club and school enrichment programs. Many youth throughout the state, particularly youth in need of after-school and out of school time care, those at risk for low academic achievement and/or those whose parents are on active duty or reserve military, or those who are not involved in 4-H or connected to the resources of the 4-H youth development program.

Youth, families, and communities need access to community resources that offer high quality youth development experiences. Maryland 4-H creates high quality youth development opportunities for culturally diverse audiences that embrace the essential elements of 4-H and contribute to positive youth development for all children and youth.

Program Description: Two program priorities have been identified: (1) Outreach to children and youth through 4-H after-school program initiatives that incorporate the essential elements of 4-H—belonging, mastery, independence, and generosity; and, (2) Outreach to children and youth of active duty and reserve military units throughout the state by engaging them in 4-H and other youth development programs.

Target Audience: Maryland families; youth ages 5-19; 4-H volunteers; community partners of 4-H, including military child and youth services staff; and school officials.

Goals: Maryland 4-H Youth Development will build capacity to expand and improve after-school and 4-H/military programming efforts, in partnership with other youth-serving agencies, to provide education, training, curriculum resources, and 4-H club experiences that result in positive youth development outcomes for underserved military and non-military youth in after-school and out of school settings across the state.

6) Volunteer Development

Situation: Volunteers are persons who perform unpaid activities for Maryland Cooperative Extension who are screened, trained, and appointed. There are not enough trained and mentored volunteers to extend the 4-H program into more Maryland local communities. In 2002, there were 3,565 4-H adult volunteers, but only 3,048 in 2005. Current volunteers do not represent the diversity of Maryland communities and families. Families do not live where they work and lack a sense of commitment to community. Families perceive 4-H as a rural farm-based organization. Family structure, jobs, perception of time, and priorities interfere with the willingness to volunteer. Maryland requires a 1-10 ratio of MCE volunteers to youth for programming.

Program Description: Apply current volunteer development and management research and assessment information to evaluate techniques used to recruit and maintain volunteers. Recruit, screen, train, appoint, evaluate, and recognize MCE volunteers concentrating on club development for the under-served. Collect, manage, and evaluate local volunteer enrollment statistics to target under-served and under-represented communities in the 4-H program. Develop outcome-based training for event management by volunteers. Integrate technology into communication, teaching, and evaluation for volunteers. Provide risk management policies and

procedures to volunteers to use in 4-H programming. Demonstrate youth and adult partnerships in local and state programming on advisory boards and committees.

Target Audience: MCE faculty and staff, current and potential adult and teen volunteers, staff in collaborating agencies and organizations, Maryland 4-H Volunteer Association, Maryland 4-H All-Stars, Volunteer Development Curriculum Committee.

Goal: Maryland 4-H Youth Development will increase, diversify, and train the MCE volunteer base to extend the 4-H program into more communities across the state.

Theme 2: Economic Prosperity for Maryland Families and for Productive and Sustainable Food and Fiber Systems

Economic prosperity encompasses “*The financial and related factors leading to improvement in the well-being of individuals, families, communities, and businesses.*”

Economic prosperity is relative to socioeconomic levels and expectations. For some individuals and families, economic prosperity may mean securing employment and having sufficient resources to meet their basic needs. On the other hand, acquiring business skills, exploring career opportunities, and managing personal finances by reducing debt, increasing savings, and planning for retirement and estate settlement increase economic stability and feelings of prosperity for people at all income levels. Economic prosperity includes collaborative learning with industry that strengthens market positions and profitability in an increasingly global economy. Since many traditional businesses are under economic stress as markets change, future prosperity is likely to depend on innovation, adding value, and accurately identifying customers and their needs. Entrepreneurship, alternative crops, and value-added enterprises could be the key to stimulate economic development and help sustain many AGNR businesses and guide the land use planning effort to favor sustainable and productive AGNR businesses. Regulatory compliance and quality issues often affect production costs and the marketability of products or services, directly affecting profitability. Protecting our animals, crops and people and practicing biosecurity is critical.

7) Family Financial Management

Situation: Many individuals and families in the U.S. are experiencing financial challenges. Some are worried about paying monthly bills, others are concerned about making financial ends meet, and many others wonder if they will have a financially successful retirement. Issues such as low financial literacy, consumer indebtedness, low savings rate, low financial assets, expensive health care and long-term care, and insufficient retirement planning are of great concern. An uncertain domestic economy puts additional pressures on financial security for Americans. Many American consumers lack basic financial knowledge and have poor financial management practices. Consumers are falling behind with their credit card payments. Personal savings rate has steadily declined and more than half of Americans report that they do not save regularly. Many individuals and families are not preparing for their financial futures such as savings, credit, retirement, long-term care, investment, and/or estate planning.

Program Description: Work with Financial Security for Later Life and eXtension to identify and implement statewide educational needs. Facilitate Financial Security for Later Life and eXtension to partners and audiences. Conduct train-the-trainer programs such as Maryland Saves training and High School Financial Planning Program. Provide capacity building opportunities such as Personal Finance Seminar for Professionals for partners, educators, and volunteers.

Target Audience: Families, volunteers, educators, high school students, community development corporations, financial institutions, State Attorney General's Office, Department of Social Services.

Goals: Increase financial knowledge of families. Increase the ability of families to achieve financial self-sufficiency and security. Improve family financial management strategies. Maryland individuals, families, communities, and businesses will improve financial management knowledge, practices and skills, and manage their personal finances, retirement, and estate planning more effectively and businesses will increase profits.

8) Community Resource and Economic Development

Situation: Agriculture has played a major role in rural communities throughout history. The economic and social activities of most communities in rural areas centered on the agriculture and/or natural resource industries of the area. For the past twenty or so years the trend has been to consolidate processing and manufacturing of agriculture commodities to gain or maintain economic efficiencies. Many communities in Maryland have lost their ties to agriculture and serve as simply a place to live and to commute from to work in a nearby town or city. As the price of land has increased the value of the community has decreased. Farmers that make a living producing agriculture commodities are forced to change farming enterprises or leave farming. Many farm and forest properties are now owned by landowners with little farming experience or interest in nontraditional products and services. Rural economic development has refocused its efforts in recent years on developing entrepreneurs in the community, which leads to more sustainable economic development and less reliance on manufacturing industries that come and go with the global economy.

Program Description: Development of a rural entrepreneurship development system. Provide opportunities for individuals to explore, develop, and refine agriculture and natural resource based businesses. Rural enterprise conferences. Business development short course. Development of resources needed by entrepreneurs. Form rural economic development advisory committees or councils.

Target Audience: Southern MD Agricultural Development Commission, Maryland Agricultural and Resource Based Industry Development Corporation (MARBIDCO), Chesapeake Fields, Garrett-Preston Rural Development Association, Rural Development Center at UMES, local agricultural development specialists, planning and zoning boards, farmers, forest landowners, general public.

Goals: To develop an entrepreneurship development system in rural communities across the state that will create, improve, and/or diversify agriculture and natural resource based enterprises that

will contribute to economically viable working lands. Maryland farmers, forest landowners, agribusinesses, forest and seafood industries will increase profits, improve employment opportunities, improve production practices while enhancing a sustainable food and fiber system. Develop a “Center for Beginning Farmers and Enterprise Development. Better coordination between local and state economic development and other service providers.

9) Aquaculture and Restoration

Situation: The importance of aquaculture for restoration and education has become increasingly significant in the Chesapeake Bay as efforts to reconstruct sustainable oyster reef and submerged aquatic vegetation habitats have attracted increasing attention of concerned citizens and interest groups. We are playing an important role in restoration and education activities, partnering with federal and state programs, the Maryland Department of Natural Resources in particular, non-governmental organizations such as the Chesapeake Bay Foundation and Maryland’s Oyster Recovery Partnership, which has a focused mission for helping to restore oyster resources in the state for economic and ecological revitalization

Program Description: The program will include the following tasks: Development and application of strategies for aquatic plant and stormwater pond nutrient management; Continue development of captive Atlantic sturgeon broodstock supporting future spawning and stock enhancement efforts; Continue exotic species re-homing program and expand partnership efforts to expand program on a regional level; Evaluate coastal bay clam production and non-native and native oyster production; Expand training programs and materials aimed at Master Gardeners and other volunteers who can assist in broadening outreach for better management; Expand programs and materials for programs in restoration aquaculture aimed at integrating non-traditional audiences in activities; and assist in multi-state planning for the development of sustainable aquaculture production

Target Audience: Prospective producers, commercial harvesters, resource managers, students, and educators.

Goals: Best Management Practices for all aquaculture species and production systems will be developed and submitted to the Maryland Aquaculture Coordinating Council. Seek legislative approval and implementation as the new regulatory framework for the MD aquaculture industry. Up to 30 nurseries and garden shops will be educated on water garden design, water quality and fish health management and aquatic plant selection and care leading to decreases fish and plant loss and increased homeowner water garden success. Natural Resource agencies, pond and housing development contractors and pond owners will be educated on the benefits of aquatic plants in reducing nutrient discharges, species selection and planting tips resulting in reduced nitrogen and phosphorus discharges form stormwater ponds. Millions of oyster spat will be produced and utilized through the network of restoration partners to conduct various restoration projects including preserves. Public, oyster restoration partners, hatchery operators and industry will be informed of current oyster hatchery management practices and see latest hatchery technology

10) Alternative Crops

Situation: The changing economic, demographic, agrarian, and political patterns have affected Maryland agriculture. Housing development pressure, coupled with the downfall of the tobacco industry in Southern Maryland, has spurred the development of alternative crops. Alternative crops and enterprises are an important source of income for Maryland farmers due to factors such as the proximity of local and regional market outlets, the diversity of Maryland's population, and a health-conscious population looking for fresh and locally produced fruits and vegetables. In addition to traditional farmers, a growing number of non-traditional farmers, including beginning and immigrant farmers are adopting alternative agriculture enterprises. The needs and priorities of organic and sustainable growers are different from traditional vegetable and grain growers.

Program Description: Short course and training seminars for industry personnel. Conduct field trials to evaluate alternative crops. Evaluations for crop varieties, IPM, fertility, other production issues. Market investigation. 3 crop tours/twilight per year focusing on alternative crops and enterprises. Collaborate on 2 regional production and marketing conferences (MADMC, Future Harvest's Farming for Profit and Stewardship Conference). Develop 5 organic crop enterprise budgets. Research will be conducted in the areas of high tunnel crop production, organic and ethnic vegetable production, and pumpkin production. Maryland-developed alternative crop/enterprise information will be available on the MCE website.

Target Audience: Traditional farmers, people new to agriculture community, small and part-time business owners, landowners, technicians, undergraduate and graduate students, general public, landscape architects, members of specialty production groups and associations, markets (the direct consumer or potential buyer of alternative crops), traditional farmers; small, beginning farmers.

Goals: Maryland farmers will increase profitability by incorporating alternative crops/enterprises into their businesses. Maryland farmers and forest landowners will expand markets and increase profits through adoption of alternative crops and new enterprise development. Identify potential crops and production practices to explore. Identify and engage potential collaborators including producers, researchers, and stakeholders.

11) IPM Field Crops

Situation: Insect, disease, weed, nematodes, invasive species, and cultural plant problems have the potential to cause economic and plant material loss in Maryland. The public and the agricultural community are demanding safe, effective methods to reduce this economic loss, but using methods that have minimal impact on the environment. Many in the agricultural community are adopting IPM methods, but need help expanding their efforts. Good nutrient and pest management practices impact all citizens of the state by introducing farmers to practices that not only are financially viable but also are more environmentally friendly. Currently, a great deal is known about the effect that crop management practices have upon both profitability for farmers and the impact those practices have on the environment. However, profitable crop production is faced with constantly changing challenges including commodity price fluctuations, rising input costs, changes in crop-threatening pests, introduction of new technologies, and pressures from rapid suburban growth.

Program Description: Conduct train-the-trainer programs in new technology and transfer the pest management information to growers. Continue to provide plant diagnostic and training support. Continue to write new publications. Conduct applied research on alternative control strategies. Develop a list of personnel at UMD trained in sustainable agriculture for distribution to organic and sustainable grower groups. Obtain training in new diagnostic techniques. Develop new pest management programs for mid-Atlantic area and the northeast United States.

Target Audience: Crops, crop scouts, certified crop advisors, chemical reps, industry personnel, extension faculty, Master Gardeners, farmers.

Goal: Adoption of non-chemical means of plant protection. Maryland farmers and agribusiness will put in place appropriate management practices to protect crops, maintain a sustainable agriculture system, conserve soil and water resources, and protect the environment, Develop a Maryland “Plant Protection Center.”

12) IPM Green Industry

Situation: Many green industry professionals are adopting IPM methods, but need help expanding their efforts. Homeowners need education and science-based information to deal with insect and diseases with reduce health-risk methods. Both the green industry professional and the homeowner need help in pinpointing insect and disease most susceptible stages and selecting reduced risk pesticide control options. Improvement of diagnostic skills among green industry professionals is key to operating an effective IPM program. Master Gardeners and homeowners need to improve their diagnostic skills and IPM practices.

Program Description: Green industry: Short course and training seminars for industry personnel. Electronic dissemination of IPM information. Conduct field trials to evaluate low risk pesticides, biological control releases and augmentation, and alternative to chemical control methods. Conduct research on methods that reduce use of highly or moderately toxic pesticides. Pesticide safety use certification. Research in weed control strategies and disease control using bio-rational and bio-pesticides. Provide plant pest and pathogen assay and diagnostic facilities. Master Gardeners receive basic and advanced training. Extension faculty develop curriculum, resources, and products.

Target Audience: Green Industry: Arborist, landscape managers, professional grounds managers, greenhouse growers, cut flower growers, homeowners, Master Gardeners; agency personnel (MDA, MCE, USDA); certified pesticide applicators in category III, IV, IV; private pesticide applicators; technicians; undergraduate and graduate students; general public (e.g., Master Gardeners); IPM consultants; landscape architects; community gardeners; builders and developers; municipalities; federal, state, and local agencies.

Goal: Increase profitability of green industry operations. Increase diagnostic skills of Master Gardeners. Adoption of non-chemical means of plant protection. Implementation of research-based recommendations for insect, disease, and weed control using least environmentally damaging materials. Use of plan information for long-term change in management and

infrastructure (strategic planning) for green industry operations in Maryland. Professionals will be able to identify invasive species, contact appropriate regulatory agencies, and take swift action to control the invasive weed, insect, or disease. Reduce pesticide accidents. Adoption of use of low risk and biological control for weed, insect, and disease control in commercial green roofs.

13) Biosecurity and Animal Health

Situation: The issue of biosecurity is extremely important to Maryland due to the significant animal industries in the state. A disease outbreak of epidemic proportion not only has economic consequences but it also has the potential to disrupt the food supply, cause significant mental duress of animal owners, create animal disposal problems, create doubt in the minds of consumers regarding food safety, halt interstate transport and shipping of animals, and prevent international trade. An inherent problem in biosecurity is that the adoption rate of preventive management practices to decrease the risk of disease transmission varies widely. Poultry and swine operations have a longer history of stressing the importance of maintaining biosecure premises for the animals whereas other commodities such as cattle, sheep, goats, and horses have not stressed biosecurity as part of necessary management practices until recently. Commercial poultry and swine operations typically require a full set of rigorous biosecurity practices for workers and visitors. Only essential personnel are allowed in the animal facilities and visitors are discouraged. A much different set of expectations is found in other commodities.

Program Description: In-service training of extension professionals within Maryland Cooperative Extension, managers and caretakers of animals at the University of Maryland Research and Education Centers, campus farm, and other research facilities that handle animals. Train industry personnel including producers and farm employees, allied industry professionals, and state government employees that visit farms, fairs, auctions, or any other facility that houses domestic animals. Equip Maryland Cooperative Extension professionals with proper biosecurity materials so that we are setting an example when visiting farms, fairs, auctions, or any other animal facilities.

Target Audience: Farmers, youth, MDA, agricultural industry, small and beginning farmers, backyard livestock owners, extension faculty.

Goal: To protect the animals and plants of the state by implementing proper biosecurity management practices. Maryland farmers, agribusinesses, and citizens will increase awareness of biosecurity, plant and animal health, and implement appropriate biosecurity management practices. Develop strategic alliances with state government agencies that provide direction and resources for biosecurity emergencies.

14) Marketing Maryland Agricultural Commodities

Situation: Maryland has 1.4 million acres of land that is used for crop production. Each year, farmers producing those crops are faced with an array of weather, pest, nutrient, and other production-related impacts that can affect their profitability. Profitability is key to keeping Maryland's agricultural land from being converted to housing developments. Maryland farmland

is disappearing at an alarming rate. Commodity prices have not kept pace with production costs. To maintain profitability and sustainability, Maryland farmers need to enhance their marketing practices to elevate or enhance their net income.

Program Description: Develop educational programs to help producers better market their commodities. Develop new websites to show current prices and new strategies for marketing. Develop fact sheets and posters to transfer knowledge to producers. Conduct county and regional tours and workshops. Explore new marketing ventures. Facilitate the establishment of new farmers' markets.

Target Audience: Farmers, producers, growers, grain marketing clubs, farmers' markets, local economic development offices, Mid-Atlantic Direct Marketing Association.

Goals: Increase profitability and sustainability of Maryland farms. Maryland farmers, forest landowners, agribusinesses, forest and seafood industries, state governments, local communities, and private organizations will expand agribusiness opportunities.

15) Pasture Management

Situation: According to the 2002 Ag Census, 3,990 of the 12,198 Maryland farms have cattle and calves. Additionally, 655 farms have sheep and hundreds more have alpaca, llama, goat, and other grazing animals. The 2002 Maryland Equine Census documented 20,200 locations that have horses, donkeys, mules, and burros. Over 25 percent of the state's land is devoted to forage production, much of which is devoted solely to pasture. This forage production supports 240,918 cattle and calves, 22,702 sheep, and 87,100 equine. Over the last 10 years, livestock producers have recognized the need to use pastures more effectively to decrease feed expenses, increase farm profits, and improve animal herd health. Approximately 10 percent of the dairy producers in Frederick and Washington counties, the state's two major milk-producing counties, utilized Management Intensive Grazing (MIG). These early adopters have shared financial information with Maryland Cooperative Extension educators and have been shown to have \$150 higher net farm income per cow per year as compared to conventional confinement dairy farms. The use of MIG on additional dairy farms has the potential to improve net farm profits by \$16,500 per farm.

Program Description: Conduct variety trials and provide data in annual bulletins. Develop financial analysis of these pasture management system through the Annual Dairy Financial Analysis. Develop fact sheets on new strategies. Develop website for Maryland and other researched-based bulletins, fact sheets, presentation, and information. Conduct seminars, workshops and pasture walks to demonstrate pasture management techniques. Conduct individual farm consultations. Develop a series of PowerPoint presentations demonstrating techniques. Assist other extension faculty nationwide to understand intensive grazing systems by providing information in extension journals and other professional publications.

Target Audience: Individual landowners, agribusinesses, horse owners, dairy farmers, beef producers, sheep and goat producers, USDA conservationists, extension faculty.

Goals: Increase the number of farms adopting improved pasture management systems. Increase financial profitability of farms. Increase knowledge of extension faculty and other agriculture professionals of Management Intensive Grazing systems.

16) Crop Management

Situation: Profitability is key to keeping Maryland's agricultural land from being converted to housing developments, a major threat for many of the agricultural areas of this densely populated state. Maintaining profitability for farmers by assisting them with current and appropriate information and technology is one of the objectives of Maryland Cooperative Extension (MCE). MCE's programs for crop management are targeted primarily for the farming community. However, on a broad scale, good nutrient and pest management practices impact all citizens of the state by introducing farmers to practices that not only are financially viable but also are more environmentally friendly. There is currently a great deal known about the effect that crop management practices have upon both the profitability for farmers and the impact that those practices have on the environment. However, profitable crop production is faced with constantly changing challenges including commodity price fluctuations, rising input costs, changes in crop-threatening pests, introduction of new technologies, and pressures from rapid suburban growth. These constant changes have farmers constantly seeking the latest information so they can make the best management choices. Examples of pertinent crop management issues are Asian soybean rust, soybean aphid, roundup resistant weeds and their management, rising energy costs, nutrient management, economical and environmentally friendly manure management, new agronomic and horticultural varieties and production practices, cover crop management, and variable rate technologies for pesticides and fertilizers.

Program Description: MCE employees working in conjunction with the National Rust Monitoring System will follow the annual progression of rust spores so that farmers can be alerted of local infections or high risk for infections. Conduct research on Roundup weed resistance and transfer information to producers through fact sheets, newsletters, and workshops. Conduct applied research and educational programs on variable rate technology for pesticides and fertilizers. Develop new nutrient management strategies. Develop educational materials on how to reduce on-farm energy consumption. Develop new production practices (seeding rates, row spacing, planting dates, crop rotations, quality enhancements, post-harvest management). Develop a handbook on cover crop practices for farmers.

Target Audience: Maryland farmers; extension faculty; NRCS, MDA, Soil Conservation District personnel; Delmarva Poultry Industry; Certified Crop Advisors; Chesapeake Bay Foundation; Maryland Soybean Board; Maryland Grain Producers; Maryland Crop Improvement Association.

Goals: Producers in the state will become knowledgeable about the movement of Asian soybean rust spores and Roundup-resistant weeds and their management. Producers will become knowledgeable about new threshold levels for determining when to initiate IPM solutions for various pest and diseases. Maryland farmers will learn ways to use their nutrient management plans to not only make sure that excessive amounts of nutrients are not applied to the land, but to also manage their fertilizer applications so they can maintain farm profitability. Increase profitability of farmers.

Theme 3: Enhancing Environmental Stewardship and Maintaining a Balance between Agriculture and the Environment

Environmental stewardship can be defined as “*Educating the public regarding the management of our environment (ecosystems and natural resources) for this generation and for those yet to come.*”

Situation: Ecosystems are a critical component of sustainable and economically viable land use. Studies have shown that both ground and surface waters contain high levels of nitrogen and phosphorus (N and P), sediments, and toxic contaminants. These contaminants adversely affect water quality, aquatic organisms, fisheries, and human health. Various regulations, programs, and legislation are in place with the goal of reducing these sources of pollution. The Chesapeake Bay Program has a goal of 40 percent reduction of nutrients into the Bay by 2010. The Water Quality Improvement Act of 1998 mandates that farmers have and implement nutrient management plans. There are now new storm water runoff regulations to help control storm water, create remediation of soil and groundwater, and reduce air pollution. Previous legislation requires that restricted-use pesticides may only be used by certified applicators.

Urbanization, development and the subsequent construction and use of wastewater treatment plants contribute significantly to contamination. Urbanization and development also compromise open space. In urban areas, toxins and nutrients enter Maryland’s environment through excessive use of pesticides and fertilizers from commercial, public, and private applications. Sediment enters Maryland’s surface water from erosion originating from exposed soil, mainly from construction sites and home landscapes. There is concern that as much as 30 percent of the nutrients entering the Bay is caused by air deposition (rainfall). Commercial and noncommercial pesticides are used in Maryland in the indoor and outdoor environment.

Farming cannot continue without a land base. As good farmland is fragmented and lost to development the variety of economically feasible farming options is reduced. Land planning decisions are ultimately in the hands of citizens, but citizens are unaware of what land planning is and what the consequences of land planning and zoning decisions will be.

17) Chesapeake Bay and Coastal Water Quality

Situation: The Chesapeake Bay is a water body of many uses. It serves simultaneously as a recreation area, transportation hub, waste disposal system and seafood production system. Human activities in the watershed have increased nutrient input from point and non-point sources, which leads to excess algal production and the anoxic water that threatens valuable fisheries.

Since the historic Chesapeake Bay agreement in 1987, which set an ambitious nutrient reduction goal of 40%, the EPA Chesapeake Bay program has concentrated its efforts in this area. Realization of these reduction goals has been elusive, however, and there is growing frustration that despite the considerable investments of the past decades, the Bay is not recovering as quickly as hoped. By some measures, the Bay is worsening. Poor water quality is not just an

environmental concern but an economic problem as well. Chesapeake Bay fisheries, boating and commerce are multi-million dollar activities that are jeopardized by deteriorating water quality.

Program Description: We will develop information on the economic impacts of water quality changes on recreational and commercial activities, refining the previously developed human use indicators of water quality impairment and making them accessible to the management community. We will also continue applied research on management of harmful algae with barley straw, ecological role of toxin from a Chesapeake Bay dinoflagellate *Karlodinium micrum*, and the use of plants (macroalgae, submersed aquatic vegetation and wetland species) in nutrient remediation. Economic valuation of water quality improvements will be integrated into both the programs and products developed. Our specific objectives include:

Target Audience: Maryland Department of Natural Resources and Department of the Environment, the Chesapeake Bay Program, environmental Non-Governmental Agencies, the Chesapeake Bay Commission.

Goals: Increase awareness of sources of nutrients in the Bay and their impacts
Build a public understanding of the role that algae play in the ecology of the Chesapeake
Increase awareness of mitigation strategies for algae. Improve public perception of the costs and benefits of water quality improvements. Establish a volunteer network for HAB monitoring in the Chesapeake Bay

18) Nutrient Management (Green Industry)

Situation: Water and nutrient management extension education programs are developed for, and delivered to Maryland nursery and greenhouse growers and interiorscapers. These programs are designed to implement the Maryland Water Quality Act of 1998 and directly address the nutrient management regulations developed by the Maryland Department of Agriculture. These programs are delivered in response to the continuing educational needs of growers, applicators, consultants, and other professionals in the Green Industry, so that water and nutrient management plans can be written and implemented, and these agricultural operations can better conserve resources and reduce the environmental impact of production practices. Water and nutrient management research and extension programs are directed at optimizing inputs of irrigation water and nutrients in container-production (by container nursery, pot-in-pot, and greenhouse operations) and in-ground nursery production ornamental plants in Maryland.

Program Description: Develop grower certification training programs to teach how to write nutrient management plans. Develop applicator (voucher) training for growers. Develop web-based and classroom courses for professionals and undergraduate students. Provide training opportunities for Master Gardeners. Explore alternative technologies and production scenarios. Collaborate with industry and other researchers and extension faculty nationwide. Develop fact sheets. Disseminate research-based knowledge through extension programs, and trade and peer-reviewed journal publications.

Target Audience: Field, container-nursery, greenhouse, and field producers; agency personnel (MDA, MCE, NRCS and SCD); certified nutrient management professionals and growers

throughout the NE region; irrigation, IPM and interiorscape industry professionals; undergraduate and graduate students; general public (e.g., Master Gardeners); other state and national agencies (MDE, EPA, USDA); policy-makers.

Goal: Maryland's agriculture and forest community will increase the use of alternative energy systems. Reduced runoff to the local environment. Reduced nutrient impacts to the Chesapeake Bay. Growers and industry professionals will learn to write and incorporate best management practices for production and post-production into management plans. Grower and industry recognition of inefficiencies. Increased awareness of contributing factors. Increase in nutrient management certification by MDA. Growers will use plan information for long-term change in management and infrastructure (strategic planning). Increased profitability for individual operations.

19) Nutrient Management (Residential)

Situation: Urban and suburban sprawl has led to the conversion of thousands of acres of the native landscape into home lawns and gardens. These lawns and gardens have been developed using concepts and techniques that were developed two or more centuries ago. Most residents, planners, and developers do not recognize the urban and suburban landscape as part of the greater ecosystem, and they have generally failed to incorporate environmental and ecological concepts into their landscape plans. This failure has led to the continued degradation of soil and water quality. Also, landscape plantings continue to add exotic and sometimes invasive plant species into the landscape. Because these plantings generally lack diversity and rely too heavily on mowed turf as ground cover, they fail to attract desirable wildlife that can add balance to a damaged ecosystem. All told, we have been left with a very unhealthy and unsustainable landscape. The Chesapeake Bay Program estimates that approximately 17 percent of the excess nutrients in the Bay water system originate with nutrients from urban or suburban settings. Maryland has an estimated 12,000 farm operators, but there are an estimated 1.25 million home lawns, each managed by a different person. The lawn care industry is responsible for applying a significant amount of fertilizer as well.

Program Description: Develop curriculum and resources (fact sheets—printed & on-line, self diagnostic web pages). Conduct workshops, meetings, seminars, and classes, such as weekly plant clinics, Master Gardener training, Bay-Wise training for Master Gardeners and Level II training. Train volunteers and HGIC phone consultants. Partner with agencies like MDA, MDE, DNR, local housing agencies, municipal waste management agencies.

Target Audience: Master Gardeners; residents; gardeners; community gardeners; builders and developers; real estate agents; municipalities; federal, state & local agencies; private and non-profit organizations; Green Industry; outdoor education centers.

Goal: Urban and suburban soils are maintained and improved through the recycling of organic matter and reduced soil erosion. Water quality is maintained and improved because fewer nutrients, sediments, and toxic contaminants are entering local surface and ground water. City residents save money, improve nutrition, and enjoy a greater sense of community. Residents improve the health of the overall ecosystem by planning, developing, and maintaining healthier,

more diverse rural and suburban landscapes. Urban Nutrient Management—The nutrient load to the suburban sector is reduced as measured by fertilizer sales figures. Lawn care companies report fertilizer use data and show reduction from earlier rates. Lawn care companies eliminate P from standard lawn maintenance programs. Water quality nutrient impairment attributed to the urban-suburban sector does not increase.

20) Urban Nutrient Management, Wells, & Septics

Situation: According to the Maryland Department of Environment, one in five residences in Maryland has a private septic system—bringing the state’s total to more than 450,000 systems. These systems contribute substantial amounts of nitrate to ground water. In the Southern Maryland watersheds, over 26 percent of the nitrogen entering the Bay is coming from on-site disposal systems. The Chesapeake Bay Program estimates that approximately 17 percent of the excess nutrients in the Bay water system originate with nutrients from urban or suburban settings. Maryland has an estimated 12,000 farm operators, but there are an estimated 1.25 million home lawns, each managed by a different person. The lawn care industry is flourishing in Maryland and is responsible for applying a significant amount of fertilizer as well. There has not been as much focus on this arena as there has been on agriculture and point sources. Other water-related issues include salt-water intrusion in coastal areas and serious water table draw down throughout the state, caused by high water demand (and waste!), and competition for finite supplies of water among residential, agricultural, and industrial uses.

Program Description:

- *Urban Nutrient Management*—Conduct an annual one-day course for lawn care companies and grounds managers on urban nutrient management. Develop and conduct two half-day courses for lawn care technicians, with one section taught in Spanish. Cooperate with Scotts MiracleGro to reduce phosphorus content in DIY fertilizer by 50 percent nationwide.
- *Wells and Septics*—Develop a Master Well Owners Network program that produces a network of trained volunteers to promote the proper construction and maintenance of private water systems.

Target Audience: Homeowners, Master Gardeners, elected officials, extension faculty, MD Department of Environment, farmers, EPA, MDA, Tributary Strategy Teams.

Goal: Homeowners will learn how septic systems can degrade water quality and how water quality can be improved through proper maintenance of existing systems. More extension personnel are involved in the tributary team process. Nutrient load in suburban sectors is reduced. Lawn care companies report fertilizer use data and show reduction from earlier years. Lawn care companies eliminate P from standard lawn maintenance programs. Water wells are tested more frequently and well driller maintenance loads increase in response to owners increased awareness and understanding.

21) Nutrient Management (Agriculture)

Situation: Passage of the Water Quality Improvement Act requires most agricultural producers to have and implement a nutrient management plan for all crops grown. It also requires crop

producers to report annually on actual nutrient usage. In addition, producers who apply nutrients to ten or more acres are required to attend a nutrient applicator voucher training session every three years. Studies have shown that both ground and surface waters contain high levels of the nutrients nitrogen and phosphorus (N and P), sediments and toxic contaminants, that adversely affect water quality, aquatic organisms, fisheries, and human health. Under the Chesapeake Bay Agreement, there is to be a 40 percent reduction in nutrient loading into the Bay by the year 2010.

Program Description: Conduct training sessions in areas such as farmer training and certification, fundamentals of nutrient management, and continuing education sessions. Develop publications on soils, soil fertility, nutrient management planning, record keeping, and annual compliance reporting. Continue to write nutrient management plans for agriculture producers.

Target Audience: Farmers, agriculture consultants, extension educators, conservation district employees, NRCS employees, EPA, MDE.

Goal: Maryland farmers and agribusiness will improve application and adoption of land applied biosolids, manure, compost, and commercial fertilizers. Regulations and beneficial utilization techniques will be in place so that biosolids and poultry manure produced in the state will be applied close to their source of production in ways that are compatible and sustainable with land use and citizen acceptability. Improve water quality of the Chesapeake Bay. Increase the number of certified nutrient management consultants.

22) Land Use

Situation: Maryland, the fifth most densely populated state in the nation, is undergoing rapid changes in population growth and migration, land cover, community character, ecosystem stability, and economic diversity. State and U.S. Census Bureau estimates predict that Maryland's population will grow from approximately 5.5 million today to 6.5-7 million by 2030. While increase in population and migration is inevitable, decisions for where these people will be placed often lies in the hands of local decision makers who determine how development will occur in their communities. Communities in Maryland are confronting unprecedented population growth pressures as shifts in residential preferences move through urban, suburban, and rural landscapes. Agricultural and forestland base is being impacted as land is used to accommodate economic and social forces of change. Small communities and localities that had minimal exposure to growth pressures in the past are now confronting issues associated with land use change, such as urban sprawl, traffic congestion, loss of open space, changing community dynamics, and rising infrastructure costs.

Program Description: Create an internal Collaboration for Land Use Education (CLUE) website to provide information on land use, smart growth, and coastal communities. Develop educational brochures on sprawl reduction planning policies. Develop fact sheets on the issue of land use planning in relationship to farming, water quality impacts, and estate planning. Organize Planning 101 workshops and curriculum for agriculture communities and extension educators. Conduct four land use conferences to educate on development options such as smart growth, safe growth, neo-traditional development, and new urbanism. Develop a fact sheet for each county

that contains natural resource and demographic data, growth trends, and impacts. Create a local exchange program to allow local officials to exchange dialogue with neighboring jurisdictions and communities.

Target Audience: Extension faculty, elected officials, planning and zoning officials, homeowners, MD Department of Planning, MD Department of Agriculture, MD Department of Environment, Tributary Strategy Teams, non-government organizations (NGO), landowners, farmers.

Goals: Citizens, communities, and government organizations will make informed decisions that will conserve and improve our environment while maintaining a sustainable food and fiber system. Prepare communities to take a proactive approach to manage growth and confront land use issues. This will be done by building Extension's internal capacity to educate and address local issues related to land use and growth management, while improving access for communities to reach university programs and expertise relate to land use, coastal communities, and resource protection. Six major goals of focus: 1) Communities will learn of CLUE and the various resources available at UMD for use when planning for growth and development in their communities; 2) Integrate CLUE program with similar statewide land use education programs, such as Chesapeake Bay NEMO (Network for Educating Municipal Officials); 3) Improve growth management in coastal and watershed communities in Maryland; 4) Regional collaboration and cross-jurisdictional cooperation will be evident in Maryland's community planning; 5) Reintegrate a Community Resource Development agent/program within MCE; 6) Organize resources within MCE, MD Sea Grant, and other centers and programs within the University of Maryland system via the CLUE group.

23) Coastal Economies

Situation: Maryland's coastal communities are experiencing rapid and often-unanticipated change as the result of development and growth. Coastal-dependent businesses such as commercial fishing and seafood processing struggle to maintain a foothold, while recreational boating strives to balance the goals of growth with competing environmental and policy concerns. Decision-makers within industry or at the state and local level require tools and data to support decisions that will help ensure a sustainable coastal environment and a sustainable coastal economy. Many marine businesses are also at a pivotal time in their history. Despite increased U.S. per capita consumption of seafood, many Maryland companies have closed and others are enduring an extended period of low profitability due to multiple economic pressures, including increased global competition, reduced availability of raw materials, and higher costs associated with operations and regulatory compliance. Nearly all of these businesses are small, independently operated companies lacking experience in methods for adding value to their products. Changes in seasonal work visa restrictions (H2-B visas) threaten to block the flow of workers to the crab-picking sector. Federal and state regulations require many food processors to implement a system of proactive controls and monitoring (HACCP) for food safety hazards, such as pathogenic microorganisms (like *Listeria monocytogenes*) and toxins. In contrast, marine trades businesses in Maryland that deal principally with recreational boating activity are more stable, but present an opportunity to contribute to economic growth and prosperity in the coastal communities in which they are based. This industry, however, does have its share of

issues such as boaters concerns about water quality, competition for waterfront land and increased costs of dredging. One of the factors that has been identified as being a barrier to “growing boating” in Maryland is the confusing and inconsistent state laws governing registration of documented boats. These laws actually create an incentive for boaters to spend less time in Maryland waters (and spend less in the local economies).

Program Description: Assist with environmental problems associated with development and continue evolving its efforts in the field of seafood technology. Our specific objectives include: Provide technical assistance and training that promote food safety, profitability and regulatory compliance; Communicate to industry members, state agency personnel and state politicians the magnitude of the impact of the boating economy in the state, as well as changes or trends in boater spending patterns; Continue to provide economic data to policy makers on the significance of seasonal workers to the crab industry;

Target Audience: Marine Trades industries, boaters, seafood industry, locally-based coastal planners and decision-makers

Goals: Influence over national legislation on H2-B visa workers to solve the long-term problem of current quota limits on hiring workers for the crabmeat processing industry. Improved boating experience for out-of-state boaters to attract more business to the area. Improved economic vitality of the blue crab processing industry through value-added processing, and the shell removal and packaging projects currently underway. Reduction of potential health problems associated with Listeria and histamine production in fish. Increased regulatory compliance for seafood safety.

24) Waste Management

Situation: Waste, more specifically the byproduct of digestion, is usually viewed as a disposal problem by operators, as a nutrient pollution source by regulators and the general public, and as an offensive item that has unacceptable odor consequences by neighbors and the encroaching suburbia. As technology has developed, the unintended consequence has been to concentrate more and more production, resulting in larger concentrations of waste. Waste has become more concentrated and easily visible to spectators. The spectators have not been educated about the technology that has caused this. Hence they don’t understand it, so they don’t like it. Regardless of the waste source, there is very clearly a them-versus-us social conflict. Results of this conflict include technological challenges for operators as they continue to manage and utilize waste as a resource as well as a disposal problem. Poultry litter is applied to land surfaces for its nutrient value as well as due to the disposal necessity. Temporary stockpiles are put at the edge of fields, prior to moving the litter onto the field using a spreader. Agencies such as EPA Region II and MDE are concerned that these stockpiles are a significant source of nutrient pollution. The Baltimore–Washington metropolitan region of Maryland produces close to 1 million wet tons of biosolids each year. As growth continues, that number will increase and as we shift to more sophisticated wastewater treatment (BNR and ENR), the amount of biosolids our urban/suburban sector produces will increase. A significant portion is hauled out of state. Finally, with soaring costs for energy, energy associated with waste disposal, energy associated with waste utilization

and waste-derived energy all require both technology re-evaluation and economic re-evaluation. Waste-derived energy may become a marketable output with a reasonable profit margin.

Program Description:

- *Biosolids*—Develop a three-year report on nutrients from near the trenches; Conduct field days for MDE, DNR, and industry; Develop a thesis on nitrogen fate and transport in the near-trench environment.
- *Poultry Litter Stockpiles*—Transfer technology by writing journal articles and fact sheets. Conduct regional meeting to describe stockpile information. Research project initiated on environmental and economic costs and benefits of utilizing various types of pads beneath stockpiles.
- *Compost*—Organize and conduct a “Better Composting School” for producers. Conduct a one-day poultry mortality composting course.
- *Energy*—Develop a new set of cost data for ordinary operations associated with waste management. Develop a thorough evaluation of waste-derived energy opportunities.

Target Audience: MD Department of Environment, MD Department of Agriculture, government officials, EPA, MD Department of Natural Resources, extension faculty, agriculture producers, poultry industry.

Goal: Maryland citizens will improve application and adoption of land applied fertilizers and pesticides and improve existing on-site waste management systems. Maryland farmers, citizens, and municipalities will optimize land and water utilization, conserve water, and explore alternative waste management options, while minimizing waste and impacts to the environment. Water wells are tested more frequently and well driller maintenance loads increase in response to owners’ increased awareness and understanding. MDE will understand the physical, chemical, and biological processes in the “Deep-Row” biosolids approach to tree farming, as it applies to nutrients. MDE will accept the demonstration and experimental biosolids and tree farming operation as safe for the environment. Mid-Atlantic Water Quality Coordination—Composting is adopted by more state agencies and compost markets improve.

25) Energy Efficiency & Composting (Green Industry)

Situation: Recycling of agricultural, horticultural, and homeowner green waste products makes both economic and environmental sense. Soaring prices for fossil fuels and electrical energy are making solar, wind, and alternative energy sources desirable to nurseries and greenhouses and in home landscapes. To stay competitive, horticultural enterprises need to reduce their reliance on non-renewable energy sources and move toward self-sustaining systems.

Program Description: Develop short courses and training seminars for industry personnel. Conduct field research in alternative fuel sources, energy saving techniques, and recycling of green waste products. Develop training seminars in composting and recycling green waste products. Distribute information in trade and peer-reviewed journal publications.

Target Audience: Arborist, landscape managers, professional grounds managers, greenhouse growers, homeowners, Master Gardeners, agency personnel (MDA, MDE, USDA), technicians, undergraduate and graduate students, general public.

Goal: Horticultural enterprises will stay competitive and be profitable by reducing their reliance on non-renewable energy sources and move toward self-sustaining renewable energy systems. Growers will use plan information for long-term change in management and infrastructure (strategic planning). Growers and industry associations will actively promote these programs. Increased profitability for individual operations. Nursery and greenhouse growers will strive to have their operations totally green. Master Gardeners will become more effective educators and communicators in the composting area.

26) Management & Sustainability of Forest Resources

Situation: There are 130,000 private forest landowners in Maryland that own 78 percent of the forestland (2 million acres). Seventy-five percent of these forest landowners own less than 10 acres. With an average forest holding of about 17 acres, these landowner's objectives are diverse and usually do not focus solely on timber values. Further, the value of forests to provide ecosystem services continues to be a pressing issue that requires education of decision makers to make them aware of how policies and new regulations affect forestland ownership. Maintenance of a forest base that can support a forest products industry is being seriously impacted by parceling of the land base, which results in small land holders and owners who have limited interest in timber harvesting. Forestland ownership is dominated by owners who are retired, white, and more highly educated. Research indicates that much of the forest holdings, especially larger ones, will change hands as the older generation disappears. The continuation of an intergenerational transfer of forest that will maintain its ability to be considered a working forest is a great concern. Reaching the diverse audiences that own or have influence over forestland is increasingly challenging. It is estimated that only 25 percent of forestland is harvested with the assistance of a professional forester and a relatively small number of landowners have forest stewardship plans for their property. With private forest properties changing hands every 12 years on average, many landowners tend to make short-term management decisions that negatively impact long-term sustainability. Research does indicate that landowners who have good information tend to make better forest harvest decisions.

Program Description: Develop and conduct workshops, short courses, correspondence courses, and seminars, as well as field days to share research results. Volunteer training opportunities will be a critical part of certain programs. Develop curriculum, publications, notebooks, media releases, CD's, websites, and videos.

Target Audience: Foresters, wildlife biologists, forest landowners, farmers, forest industry, forestry associations, Master Gardeners, extension faculty.

Goal: Enhance a healthy and sustainable forest resource system. Private forestland of all sizes, and the organizations that service the land and owners, will be managed using forest stewardship practices that will ensure a sustainable source of forest products, wildlife, water quality, and aesthetics that contribute to the quality of life of all citizens. Forest stewardship education of

diverse audiences will be seen as the key method to assure a sustainable forest resource that can provide society open space, forest products, wildlife, recreation, and a healthy environment. Forest landowners and decision makers and other diverse audiences will gain knowledge of forest stewardship planning, practices, and organizational options. Forest landowners will develop plans and implement practices. Woodland owner associations will increase in number and activity.

Theme 4: Professional Development

Professional development is “*The ongoing process of maximizing Maryland Cooperative Extension’s effectiveness through strengthening the capability of the individual employee.*”

Employees are Maryland Cooperative Extension’s most valuable asset. To enhance the effectiveness of extension employees, the organization must provide them with opportunities for development and training that focus on core competencies. Core competencies are defined as the basic knowledge, attitudes, skills, and behaviors that contribute to excellence in extension educational programs. These competencies may include information and education delivery, diversity/pluralism/multiculturalism, and subject matter. Professional development opportunities may include formal and non-formal education, mentoring, coaching, job enrichment, and other methods.

Theme 5: Organizational Development

Organizational development is “*The continuous improvement process that will sustain Maryland Cooperative Extension as an adaptive and valuable outreach and education organization for the University System of Maryland.*”

Throughout 2006, MCE examined its historical accomplishments and current situation and envisioned a future direction for the 21st Century. The immediate result of that work is the strategic plan, which sets a direction for a strong, focused, outcome-oriented organization that will be recognized as the premier educational outreach organization of the University System of Maryland. For that vision to be realized, MCE must incorporate the identified initiatives and actions into its policies and procedures as well as into the hearts and minds of its people. This proposed strategic plan is one means of enabling the vision to become real.