

2011 University of Maryland and University of Maryland - Eastern Shore Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

The 2011 Accomplishment Report consists of the University of Maryland Extension (UME) and Maryland Agricultural Experiment Station (MAES) results and accomplishments. UME and MAES at the University of Maryland College Park (UMCP) are in partnership with the University of Maryland Eastern Shore (UMES), and, as such, they coordinate their research and extension activities to the maximum extent possible.

In 2009, UME developed a new strategic plan to reflect the priorities of the University of Maryland and the National Institute of Food and Agriculture. The new strategic plan forms the framework for the 2013-2017 Plan of Work and annual Accomplishment Reports for those years. Similarly, MAES has developed its POW for 2013-2017 using the framework identified by NIFA.

The plan for UME emphasizes key outcomes, impacts in critical areas, and "marshaling our intellectual resources" into nonformal educational programs that work together to deliver measurable results for the economy, the environment, and the community. This approach parallels that of UMCP, UMES, MAES, and the College of Agriculture and Natural Resources to achieve impact on the big societal issues important to Maryland and, ultimately, to the global community.

The UME impact areas (referred to as Initiatives 1-4) represent major programmatic initiatives that UME directs resources to accomplish. These impact areas are a broad-based method of dividing the critical needs identified by the planning process into manageable units. Key outcomes are the goals within each impact area. Impact leadership teams consist of field-based Extension Educators, Extension Specialists, and Faculty Extension Assistants who work together to provide overall statewide leadership for programmatic efforts. These teams are responsible for collectively achieving the goals, measuring the impacts using suitable evaluation methods and tools, and reporting findings to stakeholders. Impact teams are linked to each other through common target and primary audiences served, the topics and subjects taught, and outcomes and impacts achieved. Impact leadership teams, across the major programmatic initiatives, develop signature programs that are replicable, measurable, and recognized at the state and national levels.

The MAES coordinates its research projects in the challenge areas identified by the USDA-NIFA. Its research focus ranges from plant and animal genomics to nutrients, health, environment, and economics of production systems. Both basic and applied research are conducted by the faculty to cover the topics of important value to animal and plant production systems with both environmental and economic sustainability.

The four major program areas in the UME and MAES strategic plans are:

Initiative 1: LOCAL FOOD & AGRICULTURE SYSTEMS

Key Outcome: Agriculture and food production will be sustainable and profitable and produce a safe, abundant, affordable, and accessible food supply.

This initiative is reported under Planned Program, "Global Food Security and Hunger."

Initiative 2: ENVIRONMENT AND NATURAL RESOURCES

Key Outcome: Individuals and communities will become stewards to manage the environment for the

mutual benefit of people, ecosystems, wildlife, natural resources, and economic interests.

This initiative is reported under Planned Programs, "Climate Change" and "Sustainable Energy."

Initiative 3: HEALTHY LIVING

Key Outcome: Youth, individuals, and families will make informed decisions about their health, finances, food, housing, and overall well-being.

This initiative is reported under Planned Programs, "Childhood Obesity," "Food Safety," and "Family & Community Resiliency."

Initiative 4: RESILIENT COMMUNITIES

Key Outcome: Improve human capacity to achieve desired community outcomes and be prepared to respond to uncertainties of economics, health, climate, and security.

This initiative is reported under Planned Programs, "Childhood Obesity, Food Safety," and "Family & Community Resiliency."

Total Actual Amount of professional FTEs/SYs for this State

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	80.5	16.5	49.5	14.5
Actual	80.5	16.5	49.5	14.5

II. Merit Review Process

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

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

2. Brief Explanation

The merit review process for UME faculty occurs annually when the faculty member is formally evaluated by the Program Leader (Assistant Director). The AGNR Program Leader evaluates AGNR Educators and Specialists; FCS Program Leader, the FCS Educators and Specialists; and the 4-H Program Leader, the 4-H Educators and Specialists. Input is obtained from the County Extension Director (CED) or Area Extension Director (AED). Emphasis is placed on program impacts and the difference made to constituents and the residents of Maryland during the preceding 12 months. Each faculty member is evaluated on individual merit. Documents used for the merit review are approved Individual Extension Plan (IEP), Curriculum Vitae, MCERS reports, and Teaching Effectiveness Summary.

All research faculty have a departmental home, and while there are subtle differences between the departments, they all have a peer-review system wherein assigned faculty or a faculty committee review the annual performance criteria of each faculty member and assign a merit ranking. These criteria, from a research perspective are evaluated, in general, on grantsmanship, publications, the quality of the journal

(based on a citation index), and invited and/or contributed scientific talks and seminars. These are also the same criteria that are used to evaluate promotion and tenure decisions. The peer committee recommendations are reported to the respective department chair who provides his/her input and then provides a final ranking and conducts the annual review. This process is followed for tenured, tenure-track, and research faculty appointments.

III. Stakeholder Input

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

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

Brief explanation.

Stakeholder participation is encouraged through local Extension Advisory Councils, 4-H Club leaders (volunteers), and various surveys targeted to UME clients. The UME customer satisfaction survey is used to insure that existing stakeholders are being heard. Social media strategies are also now being used to solicit feedback (Facebook, web sites, blogs). In 2012-13, listening sessions will be held throughout the State of Maryland to solicit feedback for the new 2014-18 strategic plan.

The administrative officers of the Maryland Agricultural Experiment Station and UME sit on and attend a wide array of committees with the State's agricultural leaders. Such continuous contact with the agricultural leadership, including the Maryland Secretaries of Agriculture, Natural Resources and Environment, provides additional contact to keep current the research and education issues examined by research and extension in the State's two land-grant universities. The groups include the Maryland Agricultural Commission, the Maryland Grain Producers Association, the Delmarva Poultry Industry, the Southern Maryland Agriculture Commission, the Maryland Association of Soil Conservation Districts, Department of Housing and Community Development, Maryland Department of the Environment, and many other similar groups. Both research and extension faculty also seek stakeholder inputs through their participation and presentation of their projects to stakeholder audiences in state, regional, and national workshops and conferences.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions

- Needs Assessments
- Use Surveys

Brief explanation.

The UME Customer Satisfaction Survey was a scientific sample of UME customers. The survey sample was drawn from the UME customer database--an aggregate of all county and city customer databases across all program areas.

End-of-class surveys are used to gather input from individuals attending UME workshops and other events. In addition, follow-up surveys are conducted with stakeholders.

The UME Facebook page is used as a method to solicit feedback from our stakeholders.

The College of Agriculture and Natural Resources utilizes a Dean's Leadership Council consisting of a broad cross-section of agricultural industry leaders to provide input on major directions for the College's research, teaching and extension agenda. The Advisory Council meets periodically to discuss rising issues in the State.

The administrative officers of the Maryland Agricultural Experiment Station and UME sit on and attend a wide array of committees with the State's agricultural leaders. Such continuous contact with the agricultural leadership including the Maryland Secretaries of Agriculture and Natural Resources and Environment provides additional contact to keep research and education issues examined by the research and extension in the State's two land grant universities. The groups include the Maryland Agricultural Commission, the Maryland Grain Producers Association, the Delmarva Poultry Industry, the Southern Maryland Agriculture Commission, the Maryland Association of Soil Conservation Districts, Rural Maryland Council, MARBIDCO, and many other similar groups.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public

Brief explanation.

UME draws upon the expertise of approximately 145 UME Educators, Specialists, and administrators in ongoing, informal needs assessment. UME field-based educators solicit feedback from local Extension Advisory Councils and other stakeholder groups. Survey work with all groups participating in programs is performed on a regular basis to assess needs. Analysis of secondary data for Maryland is also used, including the updated data from the 2010 U.S. Census, USDA National Agricultural Statistics, Maryland Departments of Planning, Agriculture, Natural Resources, Economic Development, and Maryland Department of Health and Mental Hygiene (and many more) and environmental scanning at the national, regional, state, and local levels.

MAES has identified state agencies such as the Maryland Department of Agriculture, Maryland Department of Natural Resources, and Maryland Department of Environment as stakeholders for the important role that they play in economics, environmental, diseases, and public policies related to diverse land uses. MAES scientists also have identified USDA-ARS scientists from Beltsville, Maryland, as stakeholders due to their common research interests. In addition, our own UME educators are the best research stakeholders because they often use the results of research conducted by the MAES scientists to respond to questions from the public across the state. Therefore, MAES collects input from all these entities by participating in joint committee meetings and other related communication platforms (e.g., workshops, conferences, etc.). MAES has also formed a Faculty Research Council composed of both research and extension faculty that will serve as another body of stakeholder input to identify research needs in 2011 and beyond.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities
- Other (Strategic Plan Development)

Brief explanation.

This information was used to: Set program priorities for our strategic plan 2009-2013; determine statewide staffing plans for UME; develop new job descriptions for county and regional extension positions; develop new initiatives for the College and UME; allocate financial resources, primarily operating expenses for program and curriculum development; and, to assist in revamping strategic initiatives as needed to deal with current budgetary shortfalls and staffing challenges.

MAES used the information obtained from the stakeholders to focus on research issues that are important to the state with respect to production, marketing, economics, public-economic-environmental policies, biotechnology, ecosystem services, animal and human health, energy issues, etc. This information, combined with the national priorities set by USDA-NIFA was used to set the research priorities and monitor progress.

Brief Explanation of what you learned from your Stakeholders

UME and MAES are still vital to the citizens of Maryland. The agriculture community requested that UME spend more time in community resource and economic development, primarily providing support for the small and beginning and young farmers. Topics included: Business and market plan development; Inter-generational transfer of assets; Niche markets; Home based businesses; Rural urban interface issues; and Agricultural awareness. In order to meet this need, there was support for the establishment of a Maryland Rural Enterprise Development Center (MREDC). Two tenure-track educators are being hired to deal specifically with community resource and economic development issues in Maryland.

In 2011, the demand continued for agricultural literacy, including understanding the national, state, and local food systems. Maryland's citizens want to know where their food comes from and how to prepare it in ways that are healthy and affordable. In addition, customers continue to ask for

information on growing home gardens and food preservation. Therefore, an agricultural literacy program for school-age children, "AGSpIoration" has been developed and delivered in class rooms across Maryland. The UME Grow It/Eat It program continues to attract many first-time gardeners who want to grow their own produce. The Grow It/Eat It network (web-based) now has almost 4,000 members. A resurgent interest of home food preservation was expressed by Maryland residents and UME responded with a program (Grow It, Eat It, Preserve It) to teach people how to preserve their own food. An Urban Agriculture Extension Educator is being hired to meet the ongoing demands for agriculture education in the central and northern portions of Maryland.

MAES researchers in cooperation with the UME educators learned that their research should focus on issues needing answers through research; thus, they focused on topics of both state and national importance. Topics included the development of new BMPs to reduce negative agricultural impacts on water quality, especially the Chesapeake Bay; ecosystem health using bioindicators, development of new varieties of crop seeds that are disease resistant; genomics on plants and animals for efficient storage of nutrients and reduction of such nutrients as phosphorus in the animal waste, thus helping to minimize nutrient loading to stream systems via runoff; development of bioenergy using new technologies such as anaerobic digesting of animal waste and combustion of biomass such as switch grass, etc.; study of the H1N1 virus and its vector of transmission; and alternate uses of tobacco such as pharmaceutical purposes.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
3273440	1313733	3037954	1507211

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	3273530	1313733	3037953	1507211
Actual Matching	3273530	1313733	3037953	1507211
Actual All Other	3273530	1313733	3037953	1507211
Total Actual Expended	9820590	3941199	9113859	4521633

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

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Global Food Security and Hunger
2	Climate Change
3	Family & Community Resiliency
4	Sustainable Energy
5	Childhood Obesity
6	Food Safety

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%	10%	15%	20%
205	Plant Management Systems	10%	10%	10%	20%
216	Integrated Pest Management Systems	15%	10%	10%	15%
311	Animal Diseases	10%	10%	10%	10%
503	Quality Maintenance in Storing and Marketing Food Products	5%	10%	5%	0%
601	Economics of Agricultural Production and Farm Management	10%	10%	10%	15%
602	Business Management, Finance, and Taxation	10%	10%	10%	0%
604	Marketing and Distribution Practices	10%	10%	10%	0%
608	Community Resource Planning and Development	10%	10%	10%	10%
704	Nutrition and Hunger in the Population	10%	10%	10%	10%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	27.0	6.0	25.0	8.0
Actual Paid Professional	24.0	4.0	16.0	4.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
982032	394120	1518977	753606
1862 Matching	1890 Matching	1862 Matching	1890 Matching
982032	394120	1518977	753606
1862 All Other	1890 All Other	1862 All Other	1890 All Other
982032	394120	1518977	753606

V(D). Planned Program (Activity)

1. Brief description of the Activity

- UME and MAES will have a combined focus to ensure that Maryland agriculture and food production will be sustainable and profitable and produce a safe, abundant, affordable, and accessible food supply.
- Research coordinated through MAES on crop and animal breeding, specialty crops, market analysis, economic sustainability, and policy analysis will be performed, while UME will be involved in local and regional efforts to assist agricultural and natural resource entrepreneurs.
- Research conducted through MAES and UME will generate vital information to increase productivity using genomics, breeding, and adaptation of alternate crops with economic and environmental sustainability.
- Through UME's Impact Teams and MAES's research projects, the following planned program activities were emphasized: IPM; Value Added & Specialty Crops; Grow It-Eat It; Annie's Project; Best Management Practices in Crop and Animal Agriculture; Technologies for the Genetic Improvement of Crops and Animals; Agronomic Fruit & Vegetable Production; Dairy Analysis; and Small/Beginning Farmers Program.
- On-line educational programs, field trials, twilight tours, seminars, workshops, on-farm research & demonstrations and individual farm consultations will be used to educate Maryland farmers, Agriculture industry professionals, Soil Conservation District personnel, USDA-NRCS conservationists and extension faculty.
- New research and technologies developed by the MAES will be transferred via UME on-farm demonstrations and twilight tours.
- Training programs will be developed to improve nutrient management practices, IPM, diagnostic skills, identification and control of invasive species, water management practice improvements and reductions, biosecurity and animal health.
- An online youth quality animal health assurance program insured that 4-H youth understand quality and ethical treatment of animals, biosecurity practices, and responsible behavior when showing animals.

2. Brief description of the target audience

- Limited Income Families
- Food Stamp Recipients
- School age youth on free-reduced meals
- New immigrants

- Students
- Plant growers and Breeders
- Retailers

3. How was eXtension used?

UME educators are involved in several eXtension communities of practice (CoPs).

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1765862	1572234	1058	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	20	40	60

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. IPM (Green Industry & Agronomic Crops): Fact sheets, short courses, workshops, field trials, twilight tours, curriculum, websites, grants awarded.

Year	Actual
2011	24

Output #2

Output Measure

- 2. Community Resource & Economic Development: Publications, seminars, workshops, grants and curriculum developed.

Year	Actual
2011	10

Output #3

Output Measure

- 3. Biosecurity, BMP's and Animal Health: In-service training, seminars, publications, grants, presentations, websites, research trials, and workshops.

Year	Actual
2011	9

Output #4

Output Measure

- 4. Pasture Management, Rotational Grazing & Dairy Analysis: Pasture walks, variety trials, in-service training, grants, publications, budgets, websites, farm analysis performed & workshops

Year	Actual
2011	11

Output #5

Output Measure

- 5. Grow It-Eat It: Number of workshops, publications and grants.

Year	Actual
2011	26

Output #6

Output Measure

- 6. Agronomic, Fruit & Vegetable Crop Production: Number of variety trails, twilight tours, seminars, workshops, publications, and grants.

Year	Actual
2011	38

Output #7

Output Measure

- 7. Small/Beginning Farmers and Annie's Project: Number of workshops, number of participants; publications, grants and new partnerships.

Year	Actual
2011	39

Output #8

Output Measure

- 8. Family Food Security: Workshops; training sessions; new collaborations; needs assessment; newsletters; mass media; external funding.

Year	Actual
2011	6

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. IPM (Green Industry & Agronomic Crops): Number of IPM scouts and producers that can identify threshold level; number of pest management programs; Number implementing research based recommendations; certification in Pesticide Safety; field trails.
2	2. Community Resource & Economic Development: Number of business people, advisory groups, development agencies, rural leaders and potential farmers interested in developing new AGNR businesses; Favorable policies created to encourage AGNR enterprises; New AGNR businesses established; Business and marketing plans developed; Number of Communities integrating UME information for land use decisions and improved growth management concepts; Pubs developed; Number of people downloading AGNR enterprise information from MREDC web site; and Regional collaborations.
3	3. Bio-security, BMPs and Animal Health: Number of educational seminars held for producers, allied industry personnel and government workers; number of producers implementing biosecurity and BMP measures; new training curriculum developed; and number of resources and collaborative efforts with Extension Disaster Education Network (EDEN).
4	4. Pasture Management, Rotational Grazing & Dairy Analysis: Number of farmers/livestock owners adopting best management practices; Number of farmers/livestock owners adopting rotational grazing strategies; Number farmers (Dairy, Beef, Equine, Sheep/Goats) increasing profitability as a result of these programs; new variety trails; Extension, NRCS and SWCD personnel trained; new practices (BMPs & rotational grazing) recommended; and number of dairy farmers implementing changes as a result of Dairy Analysis.
5	5. Grow It-Eat It: Number of Master Gardeners trained; Number of people establishing new back yard gardens; number of new community supported agriculture (CSA) gardens established; and Number of new "Salad Tables" established.
6	6. Agronomic, Fruit & Vegetable Crop Production: Number of producers attending programs, twilight tours and workshops; Number producers/growers developing basic diagnostic skills in identifying invasive insects, diseases and weeds; Number of producers who write and update their own nutrient management plan; Number of producers adopting production management practices that will improve their profitability; Number of producers selling products at local markets; Number of producers who increase profitability; Number adopting field research practices dealing with improved crop varieties, invasive species, weeds and diseases; Number adopting methods to be more efficient in their water use in livestock and crop production.
7	7. Small/Beginning Farmers (Agronomic & Green Industry) and Annie's Project: Number of new farm enterprises established as a result of our programs; Number successfully completing Annie's Project; Number of women who have implemented change in their family farming operation after attending Annie's Project; Number new/beginning farmers and Annie's Project graduates participating in additional UME AGNR programs, twilight tours and workshops; and number who become certified in nutrient management planning and/or pesticide safety.
8	8. Family Food Security: increase in # families and individuals having sufficient food for family through the week/month.

Outcome #1

1. Outcome Measures

1. IPM (Green Industry & Agronomic Crops): Number of IPM scouts and producers that can identify threshold level; number of pest management programs; Number implementing research based recommendations; certification in Pesticide Safety; field trails.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	1650

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nursery, greenhouse and landscape management is Maryland's second largest agricultural industry (valued at \$1.96 billion in 2008). This industry requires cost-effective and environmentally safe materials and methods to control insects and diseases and to efficiently use water and nutrients. The IPM program was developed to help Maryland greenhouse and nursery managers stay on top of current insect, disease and fertility problems with greenhouse crops and to sustain and expand the use of IPM techniques.

What has been done

A new project was launched, "Dealing with an Invasive Species in Maryland: Brown Marmorated Stink Bug and Its Impact on Commercial Greenhouse and Herbaceous Perennial Nurseries." The Maryland Extension IPM Coordination Project broadened the scope of stakeholder participation in IPM programming. Over 27,000 people have accessed the IPMNET web site since its new redesign.

Results

UME faculty conducted almost 200 programs reaching approximately 7,400 people. Approximately 50 green industry stakeholders were trained on sustainable practices. Eleven Maryland commercial horticulture operations have been recruited and are actively involved with this field research project on BMSB. The University of Maryland Extension IPMNET website that serves the Green Industries was improved and expanded. The site is more user-friendly and allows green industry practitioners and extension personnel to search the site for specific insect

and disease problems and find IPM solutions in our current and archived weekly IPM Pest Alerts. Demonstration plots at 3 Maryland nurseries were set up with beneficiary insects to demonstrate their influence on national enemy abundance and plant damage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

2. Community Resource & Economic Development: Number of business people, advisory groups, development agencies, rural leaders and potential farmers interested in developing new AGNR businesses; Favorable policies created to encourage AGNR enterprises; New AGNR businesses established; Business and marketing plans developed; Number of Communities integrating UME information for land use decisions and improved growth management concepts; Pubs developed; Number of people downloading AGNR enterprise information from MREDC web site; and Regional collaborations.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	5000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Surveys of rural communities indicate an overwhelming need for education programs in financial issues, business planning, sustainable agriculture, entrepreneurship, value-added, alternative enterprises/crops, land use planning, farm profitability and support for small and beginning farmers, rural-urban interface conflicts and AGNR marketing.

What has been done

UME has developed significant programs in CRED, including the Maryland Rural Economic Development Center, youth entrepreneurial development, urban agricultural, value-added

products, and food processing. The food processing module provides information about how to sell and process food in Maryland including rules for specific foods and important regulatory information.

Results

MREDC networked directly with 5 other State business development agencies and 1 regional rural development center and consulted with 26 entrepreneurs with 10 entrepreneurs starting or expanding their businesses. Youth entrepreneur train-the-trainer programs educated 90 youth/adults who led STEM, nutrition, and entrepreneurship/workforce development programs, impacting over 3,000 individuals. In Baltimore City where housing foreclosures and bankruptcy rates are high, 1033 youth and adults received financial management training. An assessment research project of on-farm food processing regulations resulted in a handbook to help the farming community navigate their way through complex requirements and regulations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

3. Bio-security, BMPs and Animal Health: Number of educational seminars held for producers, allied industry personnel and government workers; number of producers implementing biosecurity and BMP measures; new training curriculum developed; and number of resources and collaborative efforts with Extension Disaster Education Network (EDEN).

2. Associated Institution Types

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poultry production accounts for approximately 70% of the total economic value of agriculture in the Delmarva area. A disease outbreak such as Avian Influenza (AI) or exotic Newcastle disease would economically impact poultry growers and processors, and in the case of H5 or H7 AI, would present potential human health risks. There are also a large number of small non-commercial flocks raised in Maryland. A poor biosecurity program by these small flock producers could potentially place all Maryland poultry farms at risk for a disease outbreak.

What has been done

A Poultry Farm Management Training & Certification for New Growers was developed for potential poultry growers as part of the New Source Performance Standard for EPA's Concentrated Animal Feeding Operations. Research has been conducted in the areas of reducing salmonella in neonatal chicks, regulation of growth hormone gene expression during chick development, and vaccines for intracellular infectious pathogens.

Results

Since 2008, twelve 2-3 hour workshops have been held throughout the state for over 250 small flock growers. Topics included biosecurity, common poultry diseases, small flock management, poultry processing and table egg guidelines. Research findings include: A. Rapamycin works similarly effective over a wide range of concentration and B. Rapamycin regulates the size and phenotype of memroy CTL programming in different time windows; increased apoptosis may be a mechanism by which B11 reduces Salmonella infection; and, the four isoforms of the pituitary-specific transcription factor Pit-1 to regulate chicken growth hormone production has been functionally characterized.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

4. Pasture Management, Rotational Grazing & Dairy Analysis: Number of farmers/livestock owners adopting best management practices; Number of farmers/livestock owners adopting rotational grazing strategies; Number farmers (Dairy, Beef, Equine, Sheep/Goats) increasing profitability as a result of these programs; new variety trails; Extension, NRCS and SWCD personnel trained; new practices (BMPs & rotational grazing) recommended; and number of dairy farmers implementing changes as a result of Dairy Analysis.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	944

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Urban sprawl leads to high land values, placing added pressures for decreasing farmland and increasing scrutiny on environmental issues such as water and air quality. Our farmers must become efficient in reduced labor cost, reduced feed cost, and increased revenues from value-added products to have profitability.

What has been done

A group of educators and specialists developed and distributed a statewide agronomy newsletter for agronomic crop producers. The Grazers Network Team provides technical assistance. Research has been conducted milk-lipid secretion in dairy animals, composition of dietary nutrient intake for beef cattle, and genetic differences in meat goat bucks.

Results

Since 2006, meat goat producers from 18 states have consigned more than 350 goats to the Western Maryland Pasture-Based Meat Goat Performance Test. A preliminary study conducted in 2011 showed that pen-feeding increased goat carcass yields by 5 percent (24 vs. 19 percent). Dairy research indicates that XOR binds to BTN in the apical plasma membrane and the combined BTN/XOR complex interacts with other as yet unidentified factors on the lipid droplet surface. In beef cattle, research indicates that, despite differences in macronutrient infusion, gluco-control was maintained in steers receiving Casein by increasing glucose recycling, whereas steers receiving starch and Na-propionate increased glucose absorption and gluconeogenesis, respectively.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

5. Grow It-Eat It: Number of Master Gardeners trained; Number of people establishing new backyard gardens; number of new community supported agriculture (CSA) gardens established; and Number of new "Salad Tables" established.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	15969

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Interest in home and community food production has grown over the past two years in Maryland due to the 2008 recession, and a growing public desire for locally grown foods. Less than 30% of adult Marylanders consume five servings of fruits and vegetables each day. Many Marylanders desire fresh, locally grown vegetables, either to purchase or to grow themselves, but lack the space, time, or knowledge to create and maintain a garden of their own.

What has been done

UME Master Gardeners have taught 151 classes to 4,681 residents. The GIEI program has developed the University of Maryland Salad Tables and Salad Boxes to help homeowners with backyard food production. The GIEI web-based network continues to grow (almost 4,000 members) and provide information to this virtual growing community.

Results

Since 2009, HGIC has delivered information to a wider audience through social media. HGIC and GIEI each maintain active Facebook pages and Twitter feeds. These social networking tools allow current horticultural information to be delivered directly to users through the portal of their choice. The interactive aspect of Facebook and Twitter give direct and immediate feedback from our clientele. In Baltimore City, urban farms yielded 80,000 pounds of produce from 46 gardens and at the City Hall garden for city residents and local food pantries. Three thousand four hundred and thirteen residents received horticultural training, and 31 new UME Master Gardener volunteers were certified.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #6

1. Outcome Measures

6. Agronomic, Fruit & Vegetable Crop Production: Number of producers attending programs, twilight tours and workshops; Number producers/growers developing basic diagnostic skills in identifying invasive insects, diseases and weeds; Number of producers who write and update their own nutrient management plan; Number of producers adopting production management practices that will improve their profitability; Number of producers selling products at local markets; Number of producers who increase profitability; Number adopting field research practices dealing with improved crop varieties, invasive species, weeds and diseases; Number adopting methods to be more efficient in their water use in livestock and crop production.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	38

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Maryland is home to a robust agriculture industry with a proud tradition of supporting economic development, providing safe and affordable foods and maintaining essential open space and working lands for all to enjoy. Maryland farmers tend 1.25 million acres of grain crops, 75,000 acres of vegetable and fruit crops, 260,000 acres of forage crops and pasture acreage. Farmers need to be profitable through crop production efficiency and land management.

What has been done

Agronomy meetings with updated and technical information were held at 13 locations around the state, resulting in increased economic net profits for farmers. A survey was conducted with people

who have received nutrient management training to determine the results and impacts. Research included alternative uses for tobacco, collaboration and support for sustainable agriculture, the emerging threat of soybean rust, and improved antioxidant property and storage stability of antioxidant compounds. Research has also developed new wheat and barley varieties with high economic return.

Results

Seventy percent of participants in Nutrient Management Education have reduced the use of nutrients and 81% report that their knowledge allows them to better manage nutrients on their farm. Soybean growers were provided with educational materials about soybean rust, resulting in improved grower profitability through reduction of unnecessary fungicide applications. Non-smoking purposes for tobacco research found new cultivation practices which can substantially reduce weed control costs and found new post-harvest handling practices that can increase the longevity of the leaf protein following harvest. Research on chitosan (CS nanoparticles coated with zein has been newly demonstrated as a promising encapsulation and delivery system for hydrophilic nutrient with enhanced bioactivities. The newly released wheat variety called "Chesapeake" was planted in over 30,000 acres of Mid-Atlantic region and the estimated additional farm gate value to farmers growing this variety was \$1 million.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
608	Community Resource Planning and Development

Outcome #7

1. Outcome Measures

7. Small/Beginning Farmers (Agronomic & Green Industry) and Annie's Project: Number of new farm enterprises established as a result of our programs; Number successfully completing Annie's Project; Number of women who have implemented change in their family farming operation after attending Annie's Project; Number new/beginning farmers and Annie's Project graduates participating in additional UME AGNR programs, twilight tours and workshops; and number who become certified in nutrient management planning and/or pesticide safety.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	790

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Small and beginning farmers, who are often women in Maryland, need to learn business practices that will ensure the sustainment and profitability of their business. They also need to understand risk management and the appropriate strategies to deal with risk.

What has been done

Annie's Project has reached over 350 farm women in Maryland and Delaware to teach skills in farm management. The Grain Marketing for Women workshop introduced grain marketing basics with topics such as finding UME offeres a series of computer classes focused on farm use. Farmers learned how to manage your files, operate windows software, protect your computer, develop spreadsheets and use QuickBooks.

Results

Over half of the women participating in Annie's project report checking their credit, working on a business plan, using computers and increasing family relations. QuickBooks for Farm Businesses, both a beginner and advanced course, taught farm business finance techniques. Right Risk program help farmers understand and explore risk management decisions and evaluate the effects of those decisions. Participants report that the workshop was very helpful in learning about their personal risk preference and that it helped them learn about managing risks on the farm.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
216	Integrated Pest Management Systems
311	Animal Diseases
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices
608	Community Resource Planning and Development

Outcome #8

1. Outcome Measures

8. Family Food Security: increase in # families and individuals having sufficient food for family through the week/month.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Overall, we have been able to meet our strategic goals through the use of Impact Teams and more focused programs. We are also doing a better job at reporting impacts.

A strategic staffing plan has been developed and implemented for UME that focuses on providing adequate geographic and programmatic coverage of tenure-track educators and faculty educator assistants. On the producer side, input costs continue to rise, such as fuel, oil, seed, fertilizer and electricity. There is also the continuing unsteady commodity market and depressed economy in the nation and state that have made it difficult for the farming community to be profitable.

The interest in alternative energy sources has continued growing as the price of oil and gas goes up and disasters have occurred, such as the oil spill in the Gulf. Interest continues in alternative and high value crops.

Research related to food security in terms of efficient, economic, and environmentally sustainable production produced more than 100 refereed publications with novel outcomes related to crop and animal genomics, animal and plant diseases, value added nutritional crop products, vaccine development, and economic analysis of the production.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Grow It-Eat It website had 102,000 unique visitors in 2011, a 44% increase over 2010. The GIEI blog had 70,000 page views and 31,000 unique visitors in 2011, an 85% increase over 2010. Twenty-eight new food gardening videos were added in 2011. All 99 video clips had 468,000 views in 2011. Over 1,900 gardeners were added to the GIEI Network in 2011, a 26% increase over 2010.

A 2010 online follow-up survey of Network gardeners (n=290) showed that 43% used GIEI web resources to start an in-ground or raised bed garden, 17% started a container garden and 14% started a Salad Table. 28% used GIEI web resources to expand their food garden and 16% used them to reactivate or renovate a food garden.

In Baltimore City, urban farms yielded 80,000 pounds of produce from 46 gardens and at the City Hall garden for city residents and local food pantries.

Master Gardeners taught basic vegetable gardening and more advanced topics to 4,681 residents.

A follow-up online survey (n=79) showed that 63% of class attendees said that their food garden "helped save money on food costs" and 43% said they used the information from the MG class to start an in-ground or raised bed garden.

For Annie's project, to determine if the participants had actually followed through on their intentions, a follow-up survey was conducted 18 months after the classes had ended. Participants were asked to complete ten questions regarding actions they have taken or implemented since they attended Annie's Project. Both in the end-of-class and the follow-up evaluations, changing insurance policies and reviewing property titles and lease agreements are two actions that had the least intention to implement across all eight categories. However, one-half of the people who intended to change their insurance policy followed through on the action. Class members leave the program with a high intent to write business and marketing plans, use computers, check credit reports, prepare financial statement, update estate plans, and positively increase community and family relations. Writing business and marketing plans was an action that participants wanted to do (94%), but only 38% actually followed through. Checking credit reports, updating estate plans, and positively increasing family communications were the actions that the greatest majority of participants engaged in. Overall, the follow-up evaluations point to the fact that the program is successful in that women leave the program with the skills and knowledge to take action.

Surveys of 1,723 stakeholders that access the Greenhouse IPM Pest Alert and the Nursery and Landscape IPM Pest Alert showed that the pest alerts greatly improved their abilities to identify, monitor, and control pest problems.

Nutrient Management Education participants were asked to report how training has impacted their farm business: 74% better manage nutrients, 67% keep better nutrient application records, 40% better estimate and apply manure, 45% maintain or improve condition of soil, and 86% meet regulatory requirements.

Seventy percent of participants in Nutrient Management Education have reduced the use of nutrients and 81% feel their knowledge allow them to better manage nutrients on their farm. On average participants report increased their profit by \$7.49 per acre because

of better practices learning through Nutrient Management Education. Nutrient Management Education participants were asked to report how training has impacted their farm business: 74% better manage nutrients, 67% keep better nutrient application records, 40% better estimate and apply manure, 45% maintain or improve condition of soil, and 86% meet regulatory requirements. Seventy percent of participants in Nutrient Management Education have reduced the use of nutrients and 81% feel their knowledge allow them to better manage nutrients on their farm.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%	10%	15%	0%
111	Conservation and Efficient Use of Water	10%	10%	5%	10%
112	Watershed Protection and Management	15%	20%	10%	20%
123	Management and Sustainability of Forest Resources	5%	5%	5%	5%
131	Alternative Uses of Land	10%	5%	5%	15%
133	Pollution Prevention and Mitigation	10%	10%	25%	10%
205	Plant Management Systems	15%	10%	10%	20%
216	Integrated Pest Management Systems	10%	10%	10%	20%
403	Waste Disposal, Recycling, and Reuse	5%	10%	15%	0%
608	Community Resource Planning and Development	10%	10%	0%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	1.0	15.0	4.5
Actual Paid Professional	16.0	3.0	11.0	3.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
654688	262747	364554	180865
1862 Matching	1890 Matching	1862 Matching	1890 Matching
654688	262747	364554	180865
1862 All Other	1890 All Other	1862 All Other	1890 All Other
654688	262747	364554	180865

V(D). Planned Program (Activity)

1. Brief description of the Activity

- UME and MAES will have a combined focus to help producers plan and make decisions in adapting to changing environments, sustaining economic vitality, and taking advantage of emerging economic opportunities offered by climate change mitigation technologies.
- UME and MAES will also develop research and educations programs that generate knowledge to develop agriculture systems that maintain high productivity in the face of climate changes and reduce greenhouse gas emissions.
- In an effort to meet these objectives, UME and MAES will develop research and action teams that will focus on: Alternative energy and biofuels; Aquatic resources; Biodiversity/ecosystem services; Energy conservation; Forest resources; Integrated Pest Management; Invasive and exotic species; Land Use; Nutrient management; Recreational resources; Waste management; Waste utilization and resource recovery; Watershed restoration;, and Wildlife resources.
- UME and MAES will conduct workshops, demonstrations, symposia, twilight tours, forums and research to educate producers, farmers and citizens about adapting management practices to benefit the environment and minimize climate change impacts.
- MAES and UME will develop and expand collaborative research and education programs with partners and stakeholder and develop new web based and media educational materials.

2. Brief description of the target audience

- Maryland citizens;
- Master Gardeners and Naturalists ;
- Land developer and owners;
- UME and MAES faculty;
- USDA-NRCS conservationists;
- Soil Conservation District personnel;
- MDA program staff;
- MDE program staff;
- Producers;
- Farmers;
- Nursery and Greenhouse industry personnel;
- Forest landowners;
- 4-H youth;
- County planning and zoning program staff;

- AGNR industry;
- Nonprofits;
- Appropriate state and municipal government officials;
- Primary and Secondary Science Teachers;
- Media; and
- Maryland homeowners.

3. How was eXtension used?

Extension Educators are members of eXtension.org communities of practice (COPs).

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	351789	309000	2513	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	5	35	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Nutrient Management Planning, Waste Management Systems, Composting and Water Resources (Agronomic, Livestock & Green Industry): Short courses; Workshops; Twilight tours; Field days; Seminars; In-service training; Grants; Publications; and Websites.
Not reporting on this Output for this Annual Report

Output #2

Output Measure

- 2. Chesapeake Bay, Water Resources, Nutrient Management and Composting (Residential): Water Resources-Short courses; In-service training; Volunteers trained; and New relationships, policy & technology developed.

Year	Actual
2011	91

Output #3

Output Measure

- 3. Management and Sustainability of Forest/Wildlife Resources (Forest landowners, Forest Industry and Loggers): Publications; Workshops; Distance Education Courses; Field trials; Demonstrations; Grants; and Web sites.

Year	Actual
2011	21

Output #4

Output Measure

- 4. Alternative Crop Production: Workshops; Seminars; In-Service training programs; Variety trials; Field days; Twilight tours; Publications; Grants; and Participants in alternative/ethnic crop production programs.
Not reporting on this Output for this Annual Report

Output #5

Output Measure

- 5. Nursery & Greenhouse Crop Production: Workshops; Seminars; Twilight tours; Field days; Grants; In-service training programs; Web sites; Publications; and Producers attending educational programs.
Not reporting on this Output for this Annual Report

Output #6

Output Measure

- 6. Pesticide Safety Education: Workshops; Seminars; Demonstrations; Grants; Web sites; Publications; and Participants in educational/certification programs.
Not reporting on this Output for this Annual Report

Output #7

Output Measure

- 7. New Technologies-Using High Tunnels to Remain Competitive in a Global Market: Workshops; Field trials; Demonstrations; Twilight tours; Grants; Publications; and Participants in educational programs.
Not reporting on this Output for this Annual Report

Output #8

Output Measure

- 8. Master Gardener Program: Workshops; Seminars; Advanced training; Grants; Publications; and Participants in educational programs.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. Nutrient Management Planning, Waste Management Systems, Composting and Water Resources (Agronomic, Livestock & Green Industry): Number of producers implementing nutrient management plans; plans written; Producers relate nutrient management to water quality; Producers trained in plan writing; Policy makers and farmers understand the scientific issues of land applied poultry litter and poultry stockpiles; Producers using compost technology; and Policy makers access UME information.
2	2. Chesapeake Bay, Water Resources, Nutrient Management and Composting (Residential): Number of lawn care companies reporting fertilizer use and eliminating P from maintenance; Adoption of composting; Water wells tested; Septic tanks improved; Number of citizens adopting practices of landscape ecology and understanding the relationship among pesticides, poor septic systems and environmental health.
3	3. Management and Sustainability of Forest/Wildlife Resources (Forest Landowners, Forest Industry & Loggers): Number of forest landowners and loggers gain knowledge of forest stewardship and practices; Joined forests associations; Understand wildlife damage control measures; Forest Stewardship Plans implemented; and Master loggers trained.
4	4. Alternative Crop Production: Number of farmers growing new alternative crops; New farm enterprises; Farm markets selling new alternative crops and/or value added crops; and New varieties researched.
5	5. Nursery & Greenhouse Crop Production: Number of IPM scouts and producers that can identify threshold pest levels; Research based recommendations implemented, such as efficiency of water use and energy; Certification in pesticide safety; Field trials developed; Nutrient management plans developed; Growers that adopt sustainable practices that will improve crops with reduced losses; Growers implementing sustainable practices that reduce losses and reduce environmental impacts; and New crop varieties planted based on UME/MAES research.
6	6. Pesticide Safety Education (Agronomic & Green Industry): AGNR producers/farmers/applicators that are certified in pesticide safety; Pesticide safety practices implemented such as wearing a respirator, gloves and showering after application; Increase in knowledge of IPM techniques; Extension programs that incorporate audience response system technology, such as "clickers" into PSEPs, thus enhancing the learning environment, stimulating deeper thinking and maximizing the likelihood of a positive behavioral change; and Producers that understand the health risks associated with pesticides and their application.
7	7. New Technologies-Using High Tunnels to Remain Competitive in a Global Market: New high tunnels established; Producers who have implemented research based practices; New varieties established; Applied research- variety trials; Producers who have increased profitability as a result of installing high tunnels; Request for workshops, seminars and twilight tours; Producers who participate in USDA's high tunnel cost share program; and Cooperators in on-farm research projects.
8	8. Master Gardener Program: New Master Gardeners(MGs); Environmental Stewardship programs developed and delivered by MGs; Plant Clinics held; and MGs who participate in MD Master Naturalist Program.

Outcome #1

1. Outcome Measures

1. Nutrient Management Planning, Waste Management Systems, Composting and Water Resources (Agronomic, Livestock & Green Industry): Number of producers implementing nutrient management plans; plans written; Producers relate nutrient management to water quality; Producers trained in plan writing; Policy makers and farmers understand the scientific issues of land applied poultry litter and poultry stockpiles; Producers using compost technology; and Policy makers access UME information.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	6245

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Maryland Water Quality Improvement Act requires Maryland farmers as well as green industry businesses to develop and follow nutrient management plans that are approved by the State of Maryland.

What has been done

MAES researchers developed two software systems: nutrient management and Maryland phosphorous site index, both of which are being used by UME faculty, private consultants, farmers, and others to develop state mandated Agricultural Nutrient Management Plans to meet the co-production needs in an environmentally and economically sustainable manner. UME provides training for writing a nutrient management plan and updates to recently certified Nutrient Management Consultants on program and research components of a nutrient management plan. This is the only program of its kind in the State of Maryland.

Results

Seventy-one farmers were certified through the FTC program, for a total of 402 farmers since the program started. Thirty-nine face-to-face nutrient applicator training sessions were held and 1,116 operators either received or renewed their nutrient applicator vouchers. Plans for 99 CAFO or MAFO clients were written. The phosphorous site index was performed for 336 clients on

1,943 fields. The combination of research and extension accomplishments has helped to bring 99.8% of the state's 1.3 million acres of crop land and 99% of the state's 6,200 farmers in compliance with the state mandated nutrient management plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

Outcome #2

1. Outcome Measures

2. Chesapeake Bay, Water Resources, Nutrient Management and Composting (Residential): Number of lawn care companies reporting fertilizer use and eliminating P from maintenance; Adoption of composting; Water wells tested; Septic tanks improved; Number of citizens adopting practices of landscape ecology and understanding the relationship among pesticides, poor septic systems and environmental health.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	92693

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many sources, including agriculture and urban ecosystems, are considered culprits for pollution of the Chesapeake Bay. Urban and suburban sprawl has led to the conversion of thousands of acres of native landscape into home lawns and gardens. This growth and change in the Chesapeake Bay watershed is typically accomplished without an understanding of how these landscapes are a part of the greater ecosystem, and environmental and ecological concepts are essential to prevent continued degradation of soil and water quality.

What has been done

Through research and extension education, viable pollution reduction methodologies have been developed and implemented. Examples are the development and implementation of cover crops, riparian buffers, and conservation tillage for the agro-ecosystems. Also, BMP efficiencies developed by researchers are also being used by the EPA's Chesapeake Bay Modeling group for simulating load reduction to the Bay.

Results

Research has led to the implementation of more than 7,500 acres of riparian buffers and 398,679 acres of cover crops by 2011 in Maryland. Also, development of no-till farming of double-cropping systems of soybeans after wheat/barley in 1970 became a hallmark of best management practices (BMPs) in reducing erosion and other pollutants to the Bay. BMP efficiencies have been instrumental as input to the Bay model for estimating contaminant loadings. Thousands of primary school students discovered the connections between water quality, agriculture and their environment during field days at Close Encounters with Agriculture. Twenty-three Master Gardeners became certified in BayWise and certified almost 70 new landscapes as BayWise. A new UME program was developed to extend well-water testing and education to homeowners in Maryland. Research results by MAES include: a strong relationship is observed to occur between water table levels and the presence of reducing soil conditions; soluble sulfide was identified in the soil porewater by the presence of black FeS coating on IRIS tubes; and, making visual interpolations and estimating Munsell chroma and value to the nearest half unit may enable workers to identify hydric soils using field morphological criteria.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

3. Management and Sustainability of Forest/Wildlife Resources (Forest Landowners, Forest Industry & Loggers): Number of forest landowners and loggers gain knowledge of forest stewardship and practices; Joined forests associations; Understand wildlife damage control measures; Forest Stewardship Plans implemented; and Master loggers trained.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	2441

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are 157,000 private forest landowners in Maryland who own 78% of the forest resources, which provide forest products, wildlife habitat, recreation, open space and other benefits to all Maryland citizens. Only an estimated 6% have a written forest stewardship plan to guide their activities, and fewer than 10% seek the assistance of a professional forester before harvesting timber.

What has been done

UMES conducts small landowner forestry and conservation field tours on Maryland's Lower Eastern Shore to educate farmers about forest resource management strategies, various cost-share/conservation programs available from state and government (USDA) agencies, and way to manage their natural resources. The Maryland Woodland Stewards program educates forest landowners about forest stewardship, and the participants commit to 40 hours of extension work in the following year.

Results

Research has shown that non-timber medicinal forests such as American Ginseng, is a sustainable production system if soils are treated with lime. Currently, research is investigating the environmental benefits of forests in the urban corridors such as Baltimore-Washington in terms of the enhancement of both air and water quality. Maryland Woodland Steward volunteers manage 69,040 acres of land in Maryland with an average of 154 acres per volunteer. The Woods in Your Backyard workshops are now offered in PA, MD and VA and supported by extension professionals, master gardeners, forest and wildlife agencies and non-profit organizations, and others with about 12 workshops offered last year reaching an estimated 1500 landowners in these three states. The program has gained widescale acceptance and many acres of lawn are being transitioned to natural areas and existing natural areas better managed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
205	Plant Management Systems
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

4. Alternative Crop Production: Number of farmers growing new alternative crops; New farm enterprises; Farm markets selling new alternative crops and/or value added crops; and New varieties researched.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

5. Nursery & Greenhouse Crop Production: Number of IPM scouts and producers that can identify threshold pest levels; Research based recommendations implemented, such as efficiency of water use and energy; Certification in pesticide safety; Field trials developed; Nutrient management plans developed; Growers that adopt sustainable practices that will improve crops with reduced losses; Growers implementing sustainable practices that reduce losses and reduce environmental impacts; and New crop varieties planted based on UME/MAES research.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

6. Pesticide Safety Education (Agronomic & Green Industry): AGNR producers/farmers/applicators that are certified in pesticide safety; Pesticide safety practices implemented such as wearing a respirator, gloves and showering after application; Increase in knowledge of IPM techniques; Extension programs that incorporate audience response system technology, such as "clickers" into PSEPs, thus enhancing the learning environment, stimulating deeper thinking and maximizing the likelihood of a positive behavioral change; and Producers that understand the health risks associated with pesticides and their application.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

7. New Technologies-Using High Tunnels to Remain Competitive in a Global Market: New high tunnels established; Producers who have implemented research based practices; New varieties established; Applied research- variety trials; Producers who have increased profitability as a result of installing high tunnels; Request for workshops, seminars and twilight tours; Producers who participate in USDA's high tunnel cost share program; and Cooperators in on-farm research projects.

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

8. Master Gardener Program: New Master Gardeners(MGs); Environmental Stewardship programs developed and delivered by MGs; Plant Clinics held; and MGs who participate in MD Master Naturalist Program.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Overall, we have been able to meet our strategic goals through the use of Impact Teams and more focused programs. We are also doing a better job at reporting impacts. A strategic staff plan has been developed for UME that focuses on providing adequate geographic and programmatic coverage of tenure-track educators and faculty educator assistants. However, UME is still limited in climate change expertise and is working to develop that expertise among educators, specialists, and researchers.

The limitation for research has always been shortage of funds. Our faculty achieved excellent research findings in the area of climate variability and land use impacts on our water resources and the environment despite limited funds. Again, UME, MAES, and UMES need more positions and expertise in this area, which requires additional resources.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Nutrient Management Education participants were asked to report how training has impacted their farm business: 74% better manage nutrients, 67% keep better nutrient application records, 40% better estimate and apply manure, 45% maintain or improve condition of soil, and 86% meet regulatory requirements.

Seventy percent of participants in Nutrient Management Education have reduced the use of nutrients. On average, participants report a profit of \$7.49 per acre through the use of best practices learned in Nutrient Management Education workshops.

Pesticide Private Applicators use information learned in class for crop production (81%), pesticide safety (88%), better recordkeeping (70%) and update on regulatory issues (72%). Pesticide Private Applicators 90% of participants report managing pesticides better and 69% report reducing the amount of pesticides used. Ninety-nine percent of the state's 6,200 farmers have nutrient management plans, which comprises 99.8% of the state's 1.3 million acres of crop land.

Seventy seven thousand acres of riparian buffers were implemented by 2011.

Almost 398,680 acres of land was under cover crop in 2011.

The new wheat variety, Chesapeake, resulted in an estimated \$1 million of additional income at the farm gate to the participating farmers in the Mid-Atlantic region.

Participants were asked to report how pesticide training has impacted their farm business: 50% increased the use of integrated pest management, 62% chose appropriate pesticides, 75% applied safety precautions for themselves and 76% for the environment, 75% met regulatory requirements and 48% received timely research based information.

On average Pesticide Private Applicators that participate in the training and implemented best practices increased their farm profit by \$5.95 per acre.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Family & Community Resiliency

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	10%	20%	30%	20%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	5%	5%	30%	70%
724	Healthy Lifestyle	10%	20%	20%	10%
801	Individual and Family Resource Management	10%	0%	0%	0%
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	5%	0%	0%
806	Youth Development	60%	50%	20%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	20.5	5.0	0.0	7.0
Actual Paid Professional	20.0	3.5	13.0	4.0
Actual Volunteer	5530.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
818360	328433	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
818360	328433	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
818360	328433	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- The traditional rural economic development tools of available land and cheap labor no longer apply. Rural entrepreneurship and sustainable development of our rural landscapes hinge on utilizing technology, new partnerships with urban stakeholders and decision makers, and retaining our human resources by developing profitable and community-centric businesses.
- Communities value a well-trained workforce and will pursue opportunities to increase the skills levels of citizens, especially young people. A well-trained workforce benefits communities, increasing attractiveness for businesses to establish in a locale.
- Attracting successful businesses equips communities to be more sustainable, expanding their economic base.
 - Training and education will result in stronger leadership and civic engagement.
 - Increasing and building stronger and civically-engaged leaders will strengthen communities.
 - Leadership can be defined in many ways and can be demonstrated by individuals, groups, and communities.
 - Identify existing resources and data that would feed into the needs and resources assessment regarding intentional engagement work within and around community development by a University System.
 - Community mapping and resource assessment
 - Define and develop, for community members to participate in, quality, research-based programs in economic development, agricultural and natural resources, family asset management, and youth development.
 - Define and develop, for community members to participate in, quality events and opportunities, such as train-the-trainer educational experiences. These events would focus on building leadership, entrepreneurship, workforce readiness and Science, Technology, Engineering and Mathematics (STEM).
 - Develop Webinars, fact sheets, seminars, workshops, entrepreneurial coaching, and meetings to support program efforts
 - Develop leadership training workshops
 - Identify, recruit, and develop emerging leaders
 - Train leaders how to develop their own public actions on issues affecting their community
 - Train leaders how to create space and venues for community residents to discuss public issues
 - Delivery of signature programs that incorporate a leadership development/civic engagement component
 - Contributions to eXtension.org Community of Practice focusing on Financial Security
 - Implement "Reading Makes Cents" Curriculum on financial literacy for school-age youth
 - Deliver Basic Financial Education for First Term Soldiers at Walter Reed
 - Implement Financial Education Program for Geographically Dispersed Military Families

- Development of a Deployment Database of Resources for Military Families to support financial literacy and family resiliency topics
- Development of a distance education counseling network for isolated and geographically dispersed military families
 - Financial education for University of MD faculty and staff
 - Financial Education for MSRP participants

2. Brief description of the target audience

- Youth and adult residents of Maryland
- Collaborative partners
- County/City Extension Advisory Councils/Boards
- Community members including young people and adults.
- Community decision makers
- Businesses
- Transitional workforce
- Community decision makers
- Immigrants
- Limited resource individuals and families
- People engaging in Urban Agricultural Enterprises
- Businesses in the community
- First Term Soldiers
- Geographically dispersed military families
- Employees
- Retirement system participants

3. How was eXtension used?

Extension educators are members of Communities of Practice (CoPs).

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	132062	861000	45073	90000

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

Patent Applications Submitted

Year: 2011
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	16	3	19

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Factsheets & publications, curricula, meeting with partners, in-services, workshops

Year	Actual
2011	6961

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. Nutrition: The number of individuals who demonstrate adoption of healthy eating practices based on the 2005 My Pyramid and the 2005 Dietary Guidelines for Americans, including the number who adopt or plan to: Choose a variety of colors of fruits and vegetables; choose high fiber foods; choose lower fat dairy products; choose smaller portions of foods; choose whole grain foods; read food labels before making purchase; make foods at home instead of buying convenience foods; plan meals before shopping at grocery store.
2	2. Food Safety: The number of individuals that indicate change in behavior related to good personal hygiene including hand washing, cooking foods adequately, avoiding cross contamination, keeping foods at safe temperature
3	3. Volunteers: The number of MCE trained 4-H volunteers who provide leadership and guidance for 4-H youth development programs.
4	4. 4-H Clubs: The number of 4-H club leaders and volunteers who demonstrate an application of the essential elements of youth development and model experiential learning.
5	5. Youth Outreach: Teen and adult volunteers in after school and military partnership programs and youth enrolled.
6	6. Healthy Living: Read labels before using hazardous household chemicals; Identify potentially hazardous products that affect indoor quality; take steps to control humidity in homes; use safe practices with household products to improve indoor air quality. Health Literacy: increased awareness of how to access research-based health information; understand connection between health literacy and financial literacy.
7	7. Financial Literacy Education: An increase in basic financial literacy; An increase in ability to make both short- and long-term decisions regarding credit, debt, estate planning, spending and saving

Outcome #1

1. Outcome Measures

1. Nutrition: The number of individuals who demonstrate adoption of healthy eating practices based on the 2005 My Pyramid and the 2005 Dietary Guidelines for Americans, including the number who adopt or plan to: Choose a variety of colors of fruits and vegetables; choose high fiber foods; choose lower fat dairy products; choose smaller portions of foods; choose whole grain foods; read food labels before making purchase; make foods at home instead of buying convenience foods; plan meals before shopping at grocery store.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	38126

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Less than 30% of adult Marylanders consume five servings of fruits and vegetables each day, the minimum amount generally recommended for good health by the Centers for Disease Control (CDC). Eating more fruits and vegetables is associated with less obesity and better health, yet the percentage of obese youth and adults in Maryland and in the U.S. has doubled over the past 25 years (CDC). Many Marylanders desire fresh, locally grown vegetables but lack the space, time, or knowledge to create and maintain a garden of their own. Importantly, a large percentage of low-income residents have limited access to fresh produce.

What has been done

Classes; workshops; train-the-trainer series; multi-session education; exhibits; social marketing messages; social media use to communicate recommended practices; Dietetic intern training; healthy food preparation workshops and demonstrations; child care provider training; after school sessions for 4-H Youth; summer day camps; in-school enrichment programs; systems environmental changes in schools; partnerships to develop educational programs.

Results

One hundred and eight Master Gardeners taught 263 food gardening classes to over 6,500 residents. Approximately 14% of the classes were taught in low-income neighborhoods. Seventy-seven Master Gardeners taught 151 food gardening classes to 4,681 residents. Respondents in nutrition classes reported that they intended to choose fruits or vegetable for snacks, choose

lower-fat dairy products, choose lower fat meats, and choose whole grain foods more often in order to improve the quality of their diet. Research on enhancing antioxidant bioavailability in whole wheat foods showed that a little change in food processing procedures may greatly improve the health properties of conventional foods.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

2. Food Safety: The number of individuals that indicate change in behavior related to good personal hygiene including hand washing, cooking foods adequately, avoiding cross contamination, keeping foods at safe temperature

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

3. Volunteers: The number of MCE trained 4-H volunteers who provide leadership and guidance for 4-H youth development programs.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	4518

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

With the typical busy lifestyle of Americans, it is important that organizations effectively recruit volunteers to support their ability to deliver programs to the community. In order to maintain enough adult volunteers to meet the needs of the many young people across the state, UME must continually recruit new individuals to serve as volunteers. Volunteer recruitment has become

a necessary driving force behind all successful volunteer-based organizations and is thus being emphasized by UME leadership.

What has been done

The Maryland Volunteer Association provides training opportunities for Maryland 4-H volunteers. Members also serve as mentors to new 4-H volunteers and/or new clubs. The Maryland 4-H Volunteer and Teen Forum provides professional development opportunities for 4-H adult volunteer leaders. Online training for volunteers is also provided.

Results

Members of the Volunteer Association report contributing over 2940 hours of volunteer time to the Maryland 4-H program; this is valued at \$21.83 per hour for a total of \$64,180.20. Three hundred fifteen volunteers from all across Maryland networked with one another at the Volunteer Forum and shared their knowledge about the 4-H Youth Development program. Ninety-two percent of volunteers reported that they would take home new and innovative ideas and concepts to share with others. Ninety-one percent report that they feel as though participation in the 4-H Maryland Volunteer Forum will make them a better volunteer

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

4. 4-H Clubs: The number of 4-H club leaders and volunteers who demonstrate an application of the essential elements of youth development and model experiential learning.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	2335

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Maryland 4-H program's core mission is to help youth reach their fullest potential as individuals through the development of life skills. Studies indicated that participation in 4-H Clubs contributes to positive youth development and 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.

What has been done

Essential elements of 4-H youth development have been incorporated into the training programs for volunteers. 4-H educators have been provided with a tool for self assessment of 4-H clubs to determine how well the essential elements of 4-H are incorporated into 4-H club programs. The Maryland 4-H Volunteer Association provides multiple professional development training opportunities in a variety of formats.

Results

The Maryland 4-H Volunteer and Teen Forum is conducted every year to provide professional development opportunities for 4-H adult volunteer leaders. Three hundred twenty-five volunteers from all across Maryland networked with one another and shared their knowledge about the 4-H Youth Development program. Ninety-two percent of volunteers reported that they would take home new and innovative ideas and concepts to share with others. Ninety-one percent report that they feel as though participation in the 4-H Maryland Volunteer Forum will make them a better volunteer

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5

1. Outcome Measures

5. Youth Outreach: Teen and adult volunteers in after school and military partnership programs and youth enrolled.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	3488

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Maryland's youth of today are Maryland's leaders of tomorrow. Youth need positive and caring relationships to build the knowledge, skills, self-esteem, and self-confidence they will need in the future.

What has been done

Maryland 4-H Youth Development has increased and strengthened after school programming efforts in partnership with other youth serving agencies, including military youth and family programs, to provide education, training, curricula resources, and 4-H club experiences that result in positive youth development outcomes for youth in after-school settings across the state, in local communities, and on military posts and bases.

Results

UME has approximately 62,000 youth learning about science, engineering, and technology; 16,150 engaged in citizenship learning and activities; and, almost 45,075 participating in building healthy lifestyle programs

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

6. Healthy Living: Read labels before using hazardous household chemicals; Identify potentially hazardous products that affect indoor quality; take steps to control humidity in homes; use safe practices with household products to improve indoor air quality. Health Literacy: increased awareness of how to access research-based health information; understand connection between health literacy and financial literacy.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	4148

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Maryland residents face health hazards in the built environment including: toxic materials (lead, asbestos, pesticide and household products); dangerous gases (carbon monoxide and radon); hazards that cause and contribute to asthma (dust allergens, molds, and pests); and other safety and health concerns. Health literate people understand health information and have the skills to use that information in making health decisions and accessing health services.

What has been done

UM Extension's Healthy Homes Program addresses environmental health and safety concerns that collectively have an economic cost of over \$100 billion annually. The HealthSmart Impact team uses a multi-disciplinary approach to create programs for audiences ranging from 4-H youth to child care providers and community health workers. Researchers received a second year of funding to determine which methods of dissemination of health messages will be most positively received by rural mothers.

Results

In 2011, over 7,000 people took part in 4-H Safety programs, and another 400 participated in emergency preparedness programs. Team educators introduced over 500 residents to the seven principles of Healthy Homes through workshops ranging from indoor air and water quality, hazardous chemicals, and Integrated Pest Management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
806	Youth Development

Outcome #7

1. Outcome Measures

7. Financial Literacy Education: An increase in basic financial literacy; An increase in ability to make both short- and long-term decisions regarding credit, debt, estate planning, spending and saving

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	4429

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Low financial literacy, consumer indebtedness, low saving rate, low financial assets, expensive health care and long-term care, and insufficient retirement planning are all areas of concern for Maryland residents. Individuals and families need to be empowered with knowledge, attitudes, and skills to practice successful financial management, and eventually become financially secure in later life. Participation in personal finance education programs help individuals learn how to reduce debt and increase savings.

What has been done

READING MAKES CENTS is a financial literacy and reading curriculum for children in grades 3-5. Children are introduced to basic money management concepts and provide them opportunities to practice important life and money skills. The Maryland Cash Match Savings Program brings together community-serving and community development oriented agencies to work outside traditional silos and to strategically grant cash matches to accumulated savings of residents of Maryland; thereby teaching people to save money, improving their credit worthiness, and encouraging Marylanders to build longer term assets in the areas of education, workforce readiness, housing, and business

Results

To date, 113 people have initiated savings plans and the Cash Match program has awarded \$26,563 in cash matches to an equal dollar amount of personal savings accumulated among 62 successful savers. In 2011 five teens ages 14-17 began and successfully completed a structured savings plan and each earned a full cash match of \$500 to pair with their own savings to further education or workforce readiness.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Overall, we have been able to meet our strategic goals through the use of Impact Teams and more focused programs. We are also doing a better job at reporting impacts. A

strategic staff plan has been developed for UME that focuses on providing adequate geographic and programmatic coverage of tenure-track educators and faculty educator assistants.

While some indicators suggest that the recession is ending, it will likely be several years before the economy recovers. Almost all people are affected by the slowing economy, but the effects will be much harder for some groups to manage. Loss of income-- from effects such as job loss and furloughs-- continues to be a major problem. Maryland continues to face a budget shortfall (approximately 1.6 billion) with unknown potential funding reductions for all state agencies.

Another factor significantly impacting the makeup of our communities is the increasing cultural diversity in our area, as well as the BRAC Military actions, which both bring opportunities as well as challenges to communities.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

An on-line 6-month follow-up survey of people who took a Master Gardener-led vegetable gardening class (n=130): 64% used the information they learned in class to start some type of food garden; 31% responded that the class information made their garden more productive; 70% said that their food garden contributed to a more healthy diet for them and their family; 54% said they saved up to \$50 on food because of their garden; 29% thought they saved \$50-\$100 and 17% believed they saved over \$100.

With the Cash Match program, 22 local businesses have been started or expanded, 11 savers have pursued home ownership or acted to prevent foreclosure, and 8 savers have directly reduced their debts. The average savings increase per participant is \$102 per month. 95% of savers maintain or increase their monthly savings even after exit from the program.

With the Rural Health project, results from 8 focus groups and 56 individual interviews in 8 states were used to develop health messages about dental health, physical health, and food security. Results indicate that mothers preferred messages that are medium-length; in mother's voice citing an authority figure; positive; with a short story or including simple steps that mothers find easy to do; and empathetic about their busy lives. These characteristics identified by mothers are being used as a template for message creation and dissemination.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Sustainable Energy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
403	Waste Disposal, Recycling, and Reuse	40%	30%	50%	20%
601	Economics of Agricultural Production and Farm Management	60%	70%	50%	80%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	1.0	4.0	2.0
Actual Paid Professional	4.0	1.0	4.0	1.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
163762	65687	243036	120577
1862 Matching	1890 Matching	1862 Matching	1890 Matching
163762	65687	243036	120577
1862 All Other	1890 All Other	1862 All Other	1890 All Other
163762	65687	243036	120577

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Short course and training seminars for industry personnel and growers;
- Conduct basic and applied research in alternative fuel sources, energy saving techniques and recycling of green waste products;
- Contribute to trade and peer reviewed journal publications.
- Research on biomass and waste conversion to bioenergy (e.g., anaerobic digestion of animal waste to methane and conversion of algae to biofuel).

2. Brief description of the target audience

- Nursery, greenhouse, poultry growers and managers;
- In-state bioenergy industry;
- Research community at large.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	792	0	2513	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	1	10	11

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Alternative Energy Options and Energy Conservation & Efficiency (Agronomic, Poultry, Dairy & Green Industry): Number of workshops, seminars & twilight tours; Publications; Grants; Extension faculty engaged in programs.

Year	Actual
2011	196

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. Alternative Energy Options and Energy Conservation & Efficiency (Agronomic, Poultry, Dairy & Green Industry): Number of participants attending programs; Growers implementing new energy savings/conservation options; New energy systems installed; and Producers who participate in USDA's Rural Energy Audit Program.

Outcome #1

1. Outcome Measures

1. Alternative Energy Options and Energy Conservation & Efficiency (Agronomic, Poultry, Dairy & Green Industry): Number of participants attending programs; Growers implementing new energy savings/conservation options; New energy systems installed; and Producers who participate in USDA's Rural Energy Audit Program.

2. Associated Institution Types

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	739

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

UME is helping to move the industries toward sustainable practices and in adopting solar, wind, ground water heating and cooling, using more gas efficient cars and trucks, and switching to lower input light sources. These strategies will reduce input costs for producers/operators and reduce the consumption of non-renewable sources of energy.

What has been done

UME organized a MD Wood Energy Coalition made up of agencies, non-profit organizations, and business to determine the issues and what needs to be done to increase the adoption of wood energy. MAES research is developing technologies for efficient conversion of biomass and animal waste into bioenergy. A small-scale anaerobic digestion system capable of converting combined horseradish and animal waste into bioenergy was built and is in testing mode. Also, the use of algae as a nutrient scrubber and source of biofuel was tested and found to be an efficient strategy in a small-scale system.

Results

The Alternative Energy for Commercial Horticulture Industry in Maryland program works with commercial greenhouse operations and nursery owners in the state to adopt solar arrays, wind turbines, geothermal, biofuels, high efficiency wood stoves, energy saving methods and other

alternative methods of energy. Some of the impacts as a result of this program include: The Ruppert Companies plans to install a 300 kilowatt solar array at their landscape and to conduct a one day educational tour of greenhouse operations in Northern Nursery, one of which is using miscanthus grass in pelletized form as an alternative energy source. Research on anaerobic digestion of animal waste and conversion of algae to biofuel produced promising results in terms of refining the technology.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

UME has limited capacity to address this planned program. However, through the efforts of our Natural Resources Impact Team, it is planned to build capacity in this area and have an action team established within the next two years. The poultry, dairy, and green industry are very interested in alternative sources of energy and more energy savings techniques that make their operations more efficient and profitable. Research on the conversion of biomass to bioenergy was at its infancy, but it is envisioned that with more research funding Maryland scientists will move forward in developing economically and environmentally sound methods to convert biomass and waste into biofuels.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UME's work in this program area has not matured to the point that evaluation results can be reported.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Childhood Obesity

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	70%	70%	70%	50%
724	Healthy Lifestyle	30%	30%	30%	50%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	2.0	0.0	3.0
Actual Paid Professional	8.0	1.5	5.0	1.5
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
327344	131373	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
327344	131373	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
327344	131373	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Develop/implement training for cafeteria/food service workers using Walk the Line curriculum.
- Workshops and professional development for Growing Healthy Habits, Farm-2-School, and Walk

the Line.

- Create effective materials and programs that meet standards of health literacy.
- Investigate taste preference and trying new fruits and vegetable measures for statewide evaluation.
- Educational programs for cafeteria and food service workers and school administrators.
- Educational programs targeting pre-schoolers and their parents through train-the-trainer approach for child care and pre-school teachers.
- Up For the Challenge curriculum implemented for school-age youth in 3 sites targeted to geographically dispersed military families/youth.
- Contribute articles and expertise to eXtension.org Community of Practice for Food, Fun, and Fitness
- Develop Social Marketing and Social networking strategies to engage target audiences in Healthy Living dialogue
- Conduct applied research to inform educational program interventions.

2. Brief description of the target audience

- School-age youth
- Parents of school-age youth
- Teachers
- Cafeteria/Food service workers
- School administration
- Providers of before and aftercare
- Limited Income Mothers and Children
- Food Stamp recipients
- Geographically dispersed military families

3. How was eXtension used?

Members and contributors to FFF Community of Practice, which is used as resource for clientele.

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	73961	0	45037	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	5	0	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Growing Healthy Habits: # workshops; # train-the-trainer sessions; # school gardens developed; # community gardens developed; # new partnerships to implement GHH.

Year	Actual
2011	365

Output #2

Output Measure

- 2. Walk The Line: # sessions conducted; # school cafeteria workers trained; # cafeterias participating
Not reporting on this Output for this Annual Report

Output #3

Output Measure

- 3. Farm 2-School: # Sessions conducted; # schools participating; # farmers participating; # New partnerships developed.

Year	Actual
2011	1244

Output #4

Output Measure

- 4. Eating Smart/Being Active: # youth served; # sessions; # supporting resources developed.

Year	Actual
2011	780

Output #5

Output Measure

- 5. Up For the Challenge: # sessions conducted; # youth reached; # teachers/afterschool providers trained; # schools implementing

Year	Actual
2011	277

Output #6

Output Measure

- 6. Strong Women, Healthy Hearts: # women completing program; # sessions conducted; # partnerships developed to implement program
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. # youth planning to increase consumption of fruits and vegetables.
2	2.# of individuals and families who gain awareness, knowledge, or skills regarding healthy eating and physical activity
3	3. # schools, businesses and organizations with increased awareness of needed systems changes that will positively impact intake of healthier foods.
4	4. # schools, businesses or organizations making systems changes to promote healthy lifestyles
5	5. # youth and adults including physical activity in daily routine at least three times weekly

Outcome #1

1. Outcome Measures

- 1. # youth planning to increase consumption of fruits and vegetables.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	4972

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the Maryland Behavioral Risk Factor Surveillance Survey, 36% of Maryland residents are overweight or obese and 45% participate in no vigorous physical activity. Overweight children are more likely to remain overweight as adults and are at increased risk for coronary heart disease, high blood pressure, Type II diabetes, gallbladder disease, and some cancers. This epidemic, which causes about 300,000 premature deaths each year nationally, also accounts for approximately 9 percent of national health care expenditures.

What has been done

A garden-based program, Growing Healthy Habits introduces children to fruit and vegetables through multiple tasting experiences as they grow, harvest, and prepare foods.

Results

Growing Healthy Habits programming reached 1,440 youth, resulting in students tasting and consuming significantly more fruits and vegetables.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

2.# of individuals and families who gain awareness, knowledge, or skills regarding healthy eating and physical activity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	2535

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Maryland Behavioral Risk Factor Surveillance Survey indicates that 36% of MD residents are overweight or obese and 45% participate in no vigorous physical activity. Overweight children are more likely to remain overweight as adults and are at increased risk for coronary heart disease, high blood pressure, Type II diabetes, gallbladder disease, and some cancers. This epidemic, which causes about 300,000 premature deaths each year nationally, also accounts for approximately 9 percent of national health care expenditures.

What has been done

UME FSNE reached 9,520 low-income adults in Maryland in a wide range of settings. Most participants (52%) were reached in job training sites and senior centers. Participants were also reached through collaborations developed with public health and community centers, schools, libraries, public housing sites, and adult rehabilitation centers. A garden-based program, Growing Healthy Habits introduces children to fruit and vegetables through multiple tasting experiences as they grow, harvest, and prepare foods.

Results

FSNE program results demonstrate nutrition education yielded positive outcomes for adult low-income FSNE program participants. Adult participants showed significant gains in making healthy eating and physical activity choices based on surveys completed during programs. Growing Healthy Habits programming reached 1,440 youth, resulting in students tasting and consuming significantly more fruits and vegetables.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

3. # schools, businesses and organizations with increased awareness of needed systems changes that will positively impact intake of healthier foods.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	3000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Overweight and obesity have reached epidemic proportions nationwide and have become two of the most critical issues of our time. Over the years, environmental changes have resulted in trends toward inactivity and poor diets. It has been stated that children establish eating habits early in life and these are often the results of interactions with parents and caregivers.

What has been done

In 2011, EFNEP partnered/collaborated with 336 community based organizations, agencies, and programs, including, WIC, SNAP (Food Stamps), Head Start, Share our Strength, Social Services, Title I Public Schools, After School programs, Job Start Programs, Faith-based Organizations, Primary Care Coalition, Community Education Partners. Leadership for the implementation of pilot program Shopping Matters for WIC Parents (in conjunction with EFNEP's intervention) to improve self efficacy of low income WIC mothers in making healthy food choices at the supermarket

Results

In 2011, EFNEP graduated 2486 adults and 7757 children/youth from their nutrition education classes. FSNE educators teach a free professional development course to teachers in schools serving low-income families. Integrating Nutrition Education into the Elementary School Curriculum is a course that helps school teachers to generate nutrition, food tasting, and physical activity lessons that integrate with math, science, language arts and social studies curricula. During FY11, 190 teacher participants reached 3,939 students. Students received an average of 12 hours of nutrition and physical activity education integrated into their school subjects.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

4. # schools, businesses or organizations making systems changes to promote healthy lifestyles

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

5. # youth and adults including physical activity in daily routine at least three times weekly

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	350

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Physical activity plays a vital role in the prevention of obesity and its complications. According to the Behavioral Risk Factor Surveillance System, more than half of Marylanders do not engage in physical activity at levels consistent with the 2008 Physical Activity Guidelines for Americans. Up to 23% of adults in the state did not participate in any physical activities or exercise during the past month. The Youth Risk Behavior Survey of 2007 found that 69% of Maryland high school students did not meet the recommended levels of physical activity.

What has been done

FSNE's WalkWays curriculum encourages Marylanders to increase their physical activity. A new program, Strong Women-Healthy Hearts was started to help mid-life women reduce their risk for

heart disease by becoming more physically active and making other lifestyle changes. A Healthy Bones course had over 700 participants.

Results

UME FSNE's WalkWays curriculum has reached more than 1,000 low-income Marylanders since 2008, helping them increase physical activity through walking. Nutrition education lessons, walking plans, and frequent reminders by mail helped participants double the average number of steps taken during the program. Those having the fewest number of steps at the beginning of the program showed the highest rates of increase in number of steps.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

There are more people in need of nutrition education than ever before, especially children, and the situation becomes even more critical. The number of families receiving food stamps is at an all-time high in Maryland. Obesity rates for youth as well as adults are at an all-time high. In these difficult times, having food to eat becomes more important to parents and caregivers than worrying about healthy food to eat. However, UME's programs are addressing these challenges and the organization is building more capacity to address the issue.

The diversity of Maryland's population continues to grow and expand. UME needs more bi-lingual educators on staff to serve our Hispanic audience. In addition, there are indigenous people from many countries in great need of nutrition education, yet we do not have the capacity to fill that need.

More research efforts are underway. However, additional funding would help to employ more graduate students to continue and expand research efforts.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Evaluation results in this program area are not yet sufficient to be reported.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Food Safety

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	100%	100%	100%	100%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2011	Extension		Research	
	1862	1890	1862	1890
Plan	8.0	2.5	10.0	2.0
Actual Paid Professional	8.0	1.5	5.0	1.5
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
327344	131373	911386	452163
1862 Matching	1890 Matching	1862 Matching	1890 Matching
327344	131373	911386	452163
1862 All Other	1890 All Other	1862 All Other	1890 All Other
327344	131373	911386	452163

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Develop technical assistance programs for UME
- Develop and/or adapt food safety materials and resources for UME Educators
- Collaborate with local, regional, and national partners
- Develop safe food educational materials/ resources and disseminate USDA food safety materials to consumers and producers
- Conduct trainings and workshops, including train-the-trainer workshops
- Conduct evaluations
- Promote and support Maryland Farm to School and other agricultural literacy programs
- Conduct data analysis, needs assessments, environmental scans, and asset mapping
- Network internally and externally with collaborators, partners, and affiliates
- Raise community and stakeholder awareness of local food issues
- Contribute to relevant eXtension Communities of Practice
- Develop online food safety modules
- Conduct social marketing awareness education focusing on food safety
- Conduct basic and applied research to inform program development regarding food borne illnesses and beneficial and safe compounds in the food.

2. Brief description of the target audience

- Consumers: Youth, adults, older adults
- Commercial: Fruit and vegetable producers
- Food service workers, childcare workers, community-based organizations
- Service agencies related to food production, promotion, consumption, protection, education

3. How was eXtension used?

Several educators are members of eXtension.org Communities of Practice (CoPs).

V(E). Planned Program (Outputs)

1. Standard output measures

2011	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2531	0	0	0

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

Patent Applications Submitted

Year: 2011

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2011	Extension	Research	Total
Actual	2	3	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Food Safety is For Everyone: # training sessions; # trained; # courses developed; # publications; # Mass Media

Year	Actual
2011	173

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	1. Food Safety is For Everyone: Participants will gain basic food safety knowledge and skills, resulting in an intent to adopt the following: Follow the key safe food handling recommendations (clean; separate; cook; chill) -Wash hands before working with food -Clean food preparation utensils and surfaces -Wash fruits and vegetables before eating and preparing - Keep raw food/meat separate from ready to eat foods -Cook and chill food to safe temperature using a food thermometer -Store foods at a safe temperature using an appliance thermometer

Outcome #1

1. Outcome Measures

1. Food Safety is For Everyone: Participants will gain basic food safety knowledge and skills, resulting in an intent to adopt the following: Follow the key safe food handling recommendations (clean; separate; cook; chill) -Wash hands before working with food -Clean food preparation utensils and surfaces -Wash fruits and vegetables before eating and preparing - Keep raw food/meat separate from ready to eat foods -Cook and chill food to safe temperature using a food thermometer -Store foods at a safe temperature using an appliance thermometer

2. Associated Institution Types

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

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2011	2531

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

During the past 30 years, there has been an increased incidence of food borne illnesses. Currently, one in four Americans suffers from food borne illness each year. Some foods, such as fruits and vegetables, are often consumed raw or with limited preparation. In addition, the U.S. agriculture and food systems are vulnerable to disease, pest, or poisonous agents that occur naturally or are intentionally or unintentionally introduced.

What has been done

Extension educators teach Food Safety Classes and safe food preservation classes. Food Safety information is integrated into nutrition and food preparation classes. An online food safety course is being used by schools and child-care centers.

Results

Research is being conducted to develop a food defense certification program for professional and academic audiences that will increase the number of government and industry personnel who are trained thoroughly in the use of risk analysis tools and methods for food defense. A majority of respondents in UME food safety courses report that they understand food safety concerns, will wash fruits and vegetables before eating and preparing, and intend to store food at the appropriate temperature. In 2011 over 9 programs were presented that reached over 219

growers to improve their understanding of Good Agricultural Practices (GAP) and the process for certification.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The demand for food safety education and research continues to increase. More resources are needed to meet research and outreach needs.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UME educated 244 Maryland citizens on how to safely preserve foods using research-based techniques.

73% said that as a result of their participation in the workshops, they are more likely to understand food safety concerns for preserving foods at home!

71% said that as a result of their participation in the workshops, they feel more confident in their ability to safely operate a water bath canner.

78% said that as a result of their participation in the workshops, they feel more confident in their ability to safely operate a pressure canner.

Benchmark data were collected on the use of Good Agricultural Practices (GAP) for Maryland fruit and vegetable growers.

Key Items of Evaluation