Annual Report of Accomplishments and Results

Maryland Joint Extension and Research Report

On the

Maryland Joint Extension and Research Plan of Work

As Submitted July 15, 1999

For

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Summary

This document constitutes the Annual Report of Accomplishments and Results for the fiscal year 2001 (October 1, 2000 to September 30, 2001) for the research and extension activities in Maryland subject to the Agricultural Research, Extension and Education Reform Act of 1998. This includes activities of the Maryland Cooperative Extension, a joint enterprise of the University of Maryland and the University of Maryland Eastern Shore, the Maryland Agricultural Experiment Station and the research activities at the University of Maryland Eastern Shore.

Accomplishments are reported for the five goals of the US Department of Agriculture as required. The report is organized as follows:

Part A. Planned Programs

REE Goal 1.	To Achieve an Agricultural Production System that is Highly Competitive in the Global Economy
REE Goal 2.	A Safe, Secure Food and Fiber System
REE Goal 3.	A Healthy, Well-nourished Population
REE Goal 4.	Achieve Greater Harmony (Balance) between Agriculture and the Environment
REE Goal 5.	Enhanced Economic Opportunity and Quality of Life for Americans
Goal 6.	Agricultural Communications, Enhancing Customer Service/Satisfaction Information Technologies.
Goal 7.	Multicultural and Diversity Issues

Part B. Stakeholder Input Process
Part C. Program Review Process
Part D. Evaluation of the Success of Multi and Joint Activities
Part E. Multi-state Extension Activities
Part F. Integrated Research and Extension Activities
Appendix: Tables of Resource Expenditures by Planning Goal
(FORM CSREES-REPT 2/00) for:

Multistate Extension Activities
Integrated Activities (Hatch Act Funds)
Integrated Activities (Smith-Lever Act Funds)

This report of accomplishments and results organizationally corresponds with the original plan of work submitted in 1999. The plan of work can be found at the following web site:

http://www.agnr.umd.edu/intranet/plan99/powoutline.htm

Parts B-F repeat some of the working from the original plan of work for clarity of presentation. Comments and explanations on the Accomplishments and Results added for this report are shown in ***bold italics*** in Parts B-F. Each Part begins on a separate page.

Part A. Planned Programs

Outline of Example Programs

REE Goal 1. To Achieve an Agricultural Production System that is Highly Competitive in the Global Economy

1.1 Adopt management practices for agriculture production that improve profitability and increase efficiencies

Project 1.1.1 - Integrated Beef Cattle Research and Education Project
Project 1.1.2 - Using Plant Systems to Clean Up Organic Contamination In Soil
Project 1.1.3 - Monitoring Approaches and Alternative Control Tactics to Facilitate IPM for Landscape Plants
Project 1.1.4 - Using Animal-harvested Forages to Increase Farm Profits
Project 1.1.5 - Vegetable and Fruit Production

1.2 Adopt improved farm business management and marketing strategies (Key Themes – Agricultural Profitability, Risk Management)

Project 1.2.1 - The Dairy Analysis Program
Project 1.2.2 - Pro-Farm Financial Management and Computer Record Keeping Program
Project 1.2.3 - Enterprise Budgeting for Maryland Farms

1.3 Increase the use of appropriate production and marketing strategies for high value products

Project 1.3.1 - Major Program Area: Small Farm Profitability
Project 1.3.2 - The Promotion of High Value Alternative Crops for Southern Maryland Tobacco Farmers

1.4 Increase the investment in agricultural human capital (Key Themes – Managing Change in Agriculture)

Project 1.4.1 - Lead Maryland

1.5 Facilitate informed debates of public issues concerning the neighborhood effects of agriculture, such as nuisance concerns and environmental impacts.

Project 1.5.1 - Focus on the Farm
Project 1.5.2 - Working with County Agriculture Commission
Project 1.5.3 - Agronomic Crop Damage From Canada Geese
Project 1.5.4 - Modifications to the CRP/CREP

REE Goal 2. A Safe, Secure Food and Fiber System

2.1 Decrease the number of Maryland citizens at risk for insufficient food availability to meet nutrient needs

Project 2.1.1 - Allegany County. Expand Food Safety Skills and Practices to Citizens.
Project 2.1.2 - Somerset County. Citizens at Risk of Insufficient Food to Meet Nutrient Needs.

2.2 Improve consumers' knowledge and practice of safe food

Project 2.2.1 – UMES Food Safety Guidelines
Project 2.2.2 - Somerset and Wicomico Counties. Keeping Food Safe in Our Communities.
Project 2.2.3 - Twenty-One counties and Baltimore City, Food Safety Programs
Project 2.2.4 - Multi-County. Feeding the Children – SAFELY!

2.3 Improve the knowledge and practice of safe food production and handling by commercial and public food industry

Project 2.3.1 - Washington County. Feeding the Community – SAFELY.
Project 2.3.2 - Calvert County. Feeding the Community – SAFELY.

REE Goal 3. A Healthy, Well-nourished Population

3.1 Improve Maryland citizens' knowledge and practice of healthy diet and nutrition behaviors

Project 3.1.1 - Montgomery County. Diabetes Education- Clases para Diabeticos Latinos-Education y Clases de Cocina.
Project 3.1.2 - Somerset & Wicomico Counties. Good Nutrition the Key to Healthy Living.
Project 3.1.3 - Allegany County. Folic Acid Education.
Project 3.1.4 - Frederick County. Healthy Lifestyles.

REE Goal 4. Achieve Greater Harmony (Balance) between Agriculture and the Environment

4.1 Improve the application and adoption of land-applied biosolids, manure, composted materials, and other organic byproducts.

Project 4.1.1 - Recycling of horticultural products.

4.2 Improve water quality through the adoption of sound environmental stewardship practices by the public and municipalities.

Project 4.2.1 - Private Well and Septic System Management.
Project 4.2.2 - Improving Water Quality by Adopting Environmental Stewardship Practices.

4.3 Maintain a water supply capable of supporting both commercial and private needs today and in the future by protecting and conserving surface and ground water resources.

Project 4.3.1 - Ground and surface water hydrology.
Project 4.3.2 - Improve Water Quality Through Composting

4.4 Maintain a water supply capable of supporting both commercial and private needs today and in the future by protecting and conserving surface and ground-water resources.

Project 4.4.1 - Intensive Nutrient Management for Efficient Crop Production
Project 4.4.2 - Determination of Practical Approaches for Decreasing Phosphorus in Poultry Litter
Project 4.4.3 - Constructed Wetlands for Treating Dairy Wastewater
Project 4.4.4 – UMES Best Management Practices (BMPs) recommendations to improve management of P losses
Project 4.4.5 – UMES ASTM standardization process

4.5 Promote the use of rural and urban forest stewardship practices to maintain a sustainable forest resource.

Project 4.5.1 - Coverts Project.
Project 4.5.2 - Forest Stewardship

4.6 Improve fish and wildlife habitat and species diversity, as well as promote the use of new management techniques that will manage wildlife and control damage to property, crops, and people.

Project 4.6.1 - Wildlife Habitat

REE Goal 5. Enhanced Economic Opportunity and Quality of Life for Americans

5.1 Resolve differences between competing interests

Project 5.1.1 - Developing Consensus Agreements Among Stakeholders. Institute for Governmental Service (IGS).

5.2 Adopt effective and responsive policies and programs; Increase ability of Extension faculty to lead Public Issues Education programs; Increase the abilities of Extension volunteers to successfully carry out Extension programs;

Project 5.2.1 - Academy for Excellence in Local Governance. Institute for Governmental Service (IGS).
Project 5.2.2 - Strategic Planning for Jurisdictions and State Agencies. Institute for Governmental Service (IGS).
Project 5.2.3 - Local Government Personnel Management. Institute for Governmental Service (IGS).
Project 5.2.4 - Developing Working Agreements Across Jurisdictional and Agency Boundaries. Institute for Governmental Service (IGS).

5.3 Adopt effective leadership practices; Increase leadership ability of Youth, Adults, Extension Personnel

Project 5.3.1 - LEAD Maryland. Institute for Governmental Service (IGS) and Extension Ag Educator and Extension Administration.
Project 5.3.2 - Building Teens for Better Communities (BTBC). Institute for Governmental Service (IGS) and 4-H Youth Development.
Project 5.3.3 - Developing the Leadership Capacity of Citizens and Public Officials Institute for Governmental Service (IGS).

5.4 Strengthen skills and knowledge to achieve economic stability

Project 5.4.1 - Maryland Cooperative Extension Personal Finance Seminar for Professionals.
Project 5.4.2 - Anne Arundel County financial stability.
Project 5.4.3 - Baltimore City basic money classes.
Project 5.4.4 - Caroline County financial counselor training.

5.5 Develop and accept individual, parental, home, financial, and/or community responsibility through work, family and community involvement.

Project 5.5.1 - Maryland Cooperative Extension Child Care Provider Training.
Project 5.5.2 - Calvert welfare to work grant.

5.6 Enhance the attractiveness of Maryland youth to potential employers to enable youth to be productive, contributing members of a global society; Increase the ability of Maryland youth to have caring relationships with family members, peers, and others in their communities; Increase the abilities of Maryland youth to be competent youth leaders with a strong commitment to civic and social responsibility; Strengthen Maryland youth's understanding of the importance of good health and safe and healthy lifestyles.

Project 5.6.1 - Reaching Diverse Audiences: Montgomery County 4-H Helps People with Autism.
Project 5.6.2 - Baltimore Full Partners-Teen Corps

5.7 Youth Development - Character/Ethics Education

Project 5.7.1 - Carroll County 4-H Kids On The Block Program
Project 5.7.2 - Baltimore City Feeding the Hungry.

5.8 Youth Development - Jobs/Employment, Workforce Preparation

Project 5.8.1 - Focusing on the Middle: Parkland 4-H After School Program.
Project 5.8.2 - Maryland 4-H Mini-Societies.
Project 5.8.3 – Prince George's County – 4-H After School Summer and Year Round Program

5.9 Agriculture Communications, Enhancing Customer Service/Satisfaction Information Technologies

Goal 6. Agricultural Communications, Enhancing Customer Service/Satisfaction Information Technologies.

Goal 7. Multicultural and Diversity Issues

Part A. Planned Programs

REE Goal 1. To Achieve an Agricultural Production System that is Highly Competitive in the Global Economy.

Overview

There are 12,400 farms in Maryland, covering 2.1 million acres; 1.5 million acres are devoted to crops. Total land area in Maryland is 6.7 million acres. Maryland farms are typically small and farmland is expensive. With 169 acres, the average farm in Maryland is the 10th smallest in the nation. The estimated market value of land and buildings per acre is $2,911, the fifth most expensive in the nation. Even though Maryland has one of the most progressive Land Preservation Programs in the nation, three times more farmland is lost to development every year than is preserved. Between 1950 and 1999, the number of farms and acres of farmland has fallen 66 percent and 48 percent, respectively.

Total annual gross farm income in Maryland averages 1.5 billion dollars. The important commodities are poultry and eggs, nursery and greenhouse (fastest growing industry), dairy and milk products, feed/food/oil crops, meat animals, and vegetables and fruit. On average, the net income per farm in Maryland is $29,387, while off-farm income averages $20,000. Slightly more than half of the farmers describe farming as their principal occupation. A small percentage of agricultural producers account for the majority of agricultural sales. Farms with gross market sales exceeding $100,000 represent 21 percent of Maryland farms by number, but their sales represent 86 percent of the total sales.

Maryland's principal agricultural advantage is location to markets. Grain farmers benefit from the poultry industry. Fruit, vegetable, dairy, beef, swine, horticultural products, and other specialty crops are sold to the five million people in the Washington-Baltimore region. The Port of Baltimore and Baltimore-Washington International Airport facilitate the export of products.

Maryland farmers are older and aging, reflecting a national trend. Maryland farmers average 53.9 years of age, compared to the U.S. average of 53.3. Maryland residents demonstrate a strong tendency to purchase locally grown commodities and value-added products, support local farmers, and preserve open space. These residents want to preserve and protect such natural resources as the Chesapeake Bay, so environmental concerns about agriculture play an increasing and significant role in the operation of Maryland farms. Maryland’s poultry industry produces the largest dollar value in production and exports a substantial portion of its production.

The primary goals are:

- Adopt management practices for agriculture production that improve profitability and increase efficiencies.
- Adopt improved farm business management and marketing practices.
- Increase the use of appropriate production and marketing strategies for high value products.

- Increase the investment in agricultural human capital.
- Facilitate informed debates of public issues concerning the neighborhood effects of agriculture, such as nuisance concerns and environmental impacts.

Outputs
For REE Goal 1, Maryland Cooperative Extension educators developed 920 programs in 23 counties, Baltimore City, three regions of Maryland, state, multi-state, and national. Topics covered included best management practices, farm business, high value products, development of human capital in agriculture, and public issues education. These programs reached 46,461people.

Outcomes and impacts were measured in individual programs. Examples of these are in the following section.

Maryland's own assessment of accomplishments. Maryland Cooperative Extension is accomplishing the goals of their five-year report. There is a balance of educational programs among the various goals and the Extension Administration Team is pleased with the accomplishments. Evaluations of outcomes from the five-year plan are conducted at the individual program level, not at the level of an aggregated REE goal.

1.1 Adopt management practices for agriculture production that improve profitability and increase efficiencies

(Key Themes – Agricultural Competitiveness, Animal Health, Animal Production Efficiency, Grazing, Innovative Farming Techniques, Ornamental/Green Horticulture, Plant Health, Plant Production Efficiency, Precision Agriculture;)

(Key Themes from Goal 4: Biological Control, Integrated Pest Management. Sustainable Agriculture)

The Maryland Agricultural Experiment Station supports over 100 faculty and over 100 graduate students. Research is conducted both in the laboratory as well as at 10 research farms located off the main campus. Much of the research supported by the Maryland Agricultural Experiment Station has focused upon protection of the Chesapeake Bay. Nearly 40% of all research supported, is directly related to the protection and restoration of resources of the Bay. The other major focus within this goal is the maintenance of profitable agriculture in an urban environment. Maryland farmers are under extreme pressure from a growing population. Issues such as land preservation, food safety and sustainable agriculture are high priorities.

Examples of research projects include the following:

Project 1.1.1 - Integrated Beef Cattle Research and Education Project

a. Project Statement. The integrated beef cattle research and education project includes research and demonstration efforts aimed at improving the efficiency, profitability and sustainability of beef cattle production.

Predicting Future Growth Potential; a long-term study of the control of growth in beef cattle. The goal of this research is to develop a simple, rapid and inexpensive blood test to identify superior future breeding cattle at the earliest possible age.

Exploring the Use of Ultrasound; a comprehensive assessment of the use of ultrasound technology to evaluate carcass composition in live beef cattle. The goal of this work is to develop a rapid and accurate method to assess key carcass traits in the live animal, improve the accuracy of selection for superior breeding cattle, and reduce carcass variation at the time of processing.

Alternative Beef Cattle Feeding Systems; an evaluation of the use of available alternative and non-traditional feedstuffs in the diets of beef cattle. The goal of this work is to develop feeding systems which maintain animal performance, reduce total feed costs and utilize available byproduct or non-traditional feeds.

Year-Round Grazing Systems; a comparison of pasture and forage production systems to provide extended and year-round grazing opportunities for beef cattle. This includes the combined use of adapted cool and warm season grasses and interseeded legumes to extend the grazing season and provide adequate nutrient flow for all classes of beef cattle.

Assessing Emerging Animal Health Technology; an evaluation of the efficacy and economics of emerging animal health products. Studies have been conducted on the impact of a new sustained release dewormer on growth performance of nursing beef calves and on the efficacy of a complete metaphylaxis program to control bovine respiratory disease in recently weaned feeder cattle.

b. Impact.

- Earlier and more accurate selection of breeding cattle resulting in significantly reduced whole herd production costs ($300-$350/head) compared to traditional post weaning growth evaluation practices.

- Earlier and more rapid assessment of key carcass characteristics associated with added value in beef breeding bulls and heifers.

- Reduced cash feed costs at all stages of the beef production cycle equivalent to a savings of $60 to $140 per head per year.

- Improved rate of weight gain and fed efficiency in growing calves with subsequent savings of $18 to $21 per head per year.

- Reduced morbidity and mortality in young growing beef calves with an overall improvement in production efficiency and profitability.

Research focused on improved methods of early selection will reduce the number of head needed to provide future breeding stock thereby reducing feed needs, waste production and land use by individual beef producing units. Improvements in growth rate, feed efficiency and product (carcass) composition will result in a more consumer friendly product produced more efficiently at a reduced cost. The use of alterative feedstuffs and improved use of pastures and forage will reduce animal competition for human foods such as grains. Advances in the control and maintenance of animal health will reduce the therapeutic use of animal health products, improve beef quality assurance and increase consumer confidence in the safety and integrity of the food supply.

c. Source of Federal Funds: Maryland Agricultural Experiment Station, Private Donor Support

d. Scope of Impact: National

Project 1.1.2 Using Plant Systems to Clean Up Organic Contamination In Soil

a. Project Statement. Intrusions of a broad range of chemical contaminants via soil into vulnerable ecosystems is a serious problem in the State of Maryland, as it is in the region, the nation and, indeed the world. The diverse nature of chemicals that are released into the environment in Maryland reflects the State's broad natural resource base, and geopolitical location, and hence its wide ranging social, economic and national security activities and institutions. Thus, chemicals from agriculture, manufacturing, mining, recreation as well as defense industry activities, have all recently been implicated in environmental degradation issues within the State. Traditional disposal methods such as excavation and subsequent land filling or incineration are no longer acceptable options for treating contaminated soils. These methods are prohibitively expensive and usually only represent contaminant relocation, or transfer to another matrix without guarantee of permanent destruction. On the strengths of research, and technology development and demonstration over nearly two decades, biologically-based treatment methods, collectively known as *bioremediation*, are now recognized as cost-effective and environmentally more responsible alternatives for the cleanup of many organic contaminants. One biologically-based method, *phytoremediation* takes advantage of plant systems for cleaning up contaminants in soil and water. This approach is particularly appealing because it employs a well-known system, plants to accomplish environmental cleanup. Using a Maryland Agricultural Experiment Station grant, we recently investigated the feasibility of using forage crops to clean up organic contaminants including PCBs, PAHs and TNT in soil. Our results show that some grasses and legumes do indeed possess potentials for enhancing the removal of organic contamination including contamination by PCBs which are considered to be among the most recalcitrant environmental pollutants. Investigations are continuing to

enable understanding of the mechanisms and processes that are involved in contaminant removal by specific plant species, and strategies that may be used to enhance the processes further.

b. Impact. Technologies and practices that take advantage of naturally occurring, biologically-based approaches for remediating polluted soils are usually orders of magnitude less expensive than traditional methods that depend on containment, or removal, transfer and disposal (so-called dig, haul, bury, or burn) methods. This is one driving force in industry's acceptance of these approaches.

Environmental degradation caused by chemicals from agriculture, manufacturing, mining, recreation as well as defense industry activities is a major problem in the State of Maryland, as it is in the region and indeed the world. Traditional methods for dealing with pollutants have long involved containment, or transfer and disposal strategies. It is now well recognized that these approaches do not always ensure destruction of pollutants; rather they usually only delay the time that contaminants will eventually intrude into vulnerable ecosystems, possibly with more severe impacts. Technologies and practices developed from these research activities offer permanent, cost-effective and more acceptable alternatives to current methods of dealing with environmental contamination.

Naturally based systems for dealing with pollution issues are now well accepted by the public, private industry and government agencies as alternatives to traditional pollutant cleanup methods. This development is a result of vigorous research over nearly two decades, and relatively recent successful demonstrations of various biologically based technologies alone, or in combination with other practices to safely and permanently clean up pollution. The use of plant systems for eliminating or mitigating environmental pollution is receiving particularly high levels of acceptance because of the aesthetics and relative simplicity of using well-known systems (plants) to address pollution in place (i.e., *in situ*), thereby avoiding the disruptive processes (removal, transportation, shutdown of operations) and liabilities associated with traditional cleanup methods.

c. Source of Federal Funds: MAES Competitive Grant

d. Scope of Impact: International

Project 1.1.3 - Monitoring Approaches and Alternative Control Tactics to Facilitate IPM for Landscape Plants

a. Project Statement. This research develops management approaches that reduce the reliance on synthetic pesticides to manage insect pests in landscapes and nurseries. We have investigated the roles of the fertilization, irrigation, exposure to sunlight, colonization, vegetational complexity and the impact of natural enemies in contributing to the pest status of the azalea lace bug on azaleas. Fertilization, irrigation, exposure to sunlight and colonization events contributed little to the

population dynamics of this pest. Vegetational diversity and natural enemies are the major determinants of the status of this insect as a pest in landscape habitats. A second project evaluates boxwood cultivars for their levels of resistance to the boxwood leafminer. This project was conducted at the US National Arboretum and Longwood Gardens and significant levels of resistance to the boxwood leafminer were detected. The mechanism of resistance appears to be antibiosis rather than antixenosis or tolerance. An evaluation of pheromone lures was performed for clearwing borers common in the mid-Atlantic region. A checklist of borers caught by commercially available lures was completed. Several formulated biological control agents are under evaluation in nursery and landscape settings.

b. Impact.

Economic. By understanding the effect of vegetational diversity on pest occurrence landscapes can be designed to reduce the potential for pest populations to reach outbreak levels. This in turn reduces the maintenance costs associated with landscape management. By producing boxwood that are resistant to their major insect pests nursery growers can realize a significant competitive advantage. Consumers who use these resistant cultivars lower their maintenance costs. Plant growers and landscape managers who use pheromone traps will treat clearwing borers in a more efficacious manner thereby reducing losses in production and maintenance. Using microbial biological agents reduces the reliance on synthetic pesticides in nurseries and landscapes.

Product Quality. Product Quality is improved through pest resistant landscape design, use of resistant plant cultivars, and pinpoint application of insecticide treatments will result on better plant quality.

Environmental

Reduced use chemical insecticides to produce plants and maintain landscapes will reduce adverse impacts on beneficial insects and non-target organisms found in nurseries and landscapes. Reduced insecticide inputs reduce the risk of environmental contamination in the sensitive ecosystems surrounding the Chesapeake Bay.

Human/Animal Health

A reduction in insecticide sprays to control insect pests reduces exposure of humans and animals to dangerous insecticides thereby reducing health risks. The use of biological control agents instead of these insecticides further reduces risks to animals and humans.

Social

Maintaining the beauty of landscape plants increases the aesthetic quality and value of home, commercial, and institutional landscapes.

c. Source of Federal Funds: Hatch Project MD-H-188

d. Scope of Impact: National

Maryland Cooperative Extension educators developed 610 programs that were held in 23 counties, Baltimore City, three regions in Maryland, statewide, multi-state, and national. Topics covered were best management practices for plant, poultry, and animals systems; geographic information systems and biotechnology; optimizing pasture and forage resources on the farm; economically sound alternatives that mitigate runoff of nutrients and pesticides from the farm; and the use of nutrient management plans on small farms. These programs reached 30,416 people.

Examples of educational programs include the following:

Project 1.1.4 - Using Animal-harvested Forages to Increase Farm Profits

a. Project Statement. The objective of this Extension program is to increase farm profitability through the reduction of farm expenses with a secondary objective of attracting the next generation to the farm by improving the farm family's quality of life.

Farmer-to-farmer discussion groups such as pasture walks provide a viable means of disseminating information. These two-hour workshops take place on farms currently practicing management-intensive grazing (MiG). Producers are able to witness first-hand, the practices that make MiG effective. This year, 259 producers participated in 10 walks in Frederick County. This represents a 164% participation increase over 2000. An additional 198 producers and agriservice representatives (35% increase over 2000) were reached with research-based information on grazing systems during farmer workshops in Frederick and Howard Counties and the mid-Atlantic Crops School in Ocean City. During 2001, ten dairymen have requested individual assistance in setting up at least a portion of their operation into grazing. This is one more than last year, illustrating the continued need for producers to cut production cost to remain competitive.

b. Impact

Based on financial data from 33 Maryland farms, of which 10 are grazing operations, graziers have $9,547 more net farm profit with fewer cows and lower milk production compared to confinement operations. Most of this increase comes in the form of decreased purchased feed expenses. On a per hundred pounds of milk sold (cwt) basis, net farm profit of the graziers is 68% higher than that of confinement herds ($3.38 vs. $2.01 per cwt).

Quality of life also improves on the farm that converts to MiG. Farmers using MiG have time to spend with their spouses and children away from the farm since the cows are now doing most of the work. The children can safely help around the farm since large pieces of machinery are not frequently used. Two of our farms continue seasonal milking, giving them two months each year that they do not milk cows. This has allowed extended family vacations. The young people on these farms enjoy being

on the farm and look forward to the time when they can farm as well. Older generations still present on the farm that were skeptical of the change to MiG, indicate that if they would have known 40 years ago that dairy farming could be done like this, they would have switched to grazing a long time ago.

Ag Agents, have continued grass variety trial research at the WMREC. Two years of data collection from replicated plots is completed. To simulate grazing, these plots are harvested every 13 to 30 days. Nearly 3,000 lunch bag sized-samples have been collected, weighed, dried and weighed again as part of this project. Date analysis will be completed following the 2002 harvest season.

Work in grass research has resulted in two referred journal articles in 2001, both as co-author. Agent also developed Got Grass? The Use of Annual and Perennial Grasses in Livestock Production, a 52-slide, 50-minute PowerPoint presentation that is used with agriservice professionals and dairy and livestock producer audiences to illustrate the nutritional and economic advantages of grass-based operations.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: Multi-County Specific

Project 1.1.5 - Vegetable and Fruit Production

a. Project Statement. Strawberries Annual Plasticulture, "Frost protection and environmental modification plasticulture strawberries" $1,000 small extension grant SEEA 01/9 using a satellite based local field weather forecast and a web based information reporting system was successfully tested at WREC. Information on this system was highlighted at the following:

- Wye Strawberry Twilight
- Wye Research and Education Center Field Day
- Mid-Atlantic Vegetable Workers Conference, Newark Delaware
- Cumberland-Shenandoah Fruit Workers Conference, Winchester Virginia
- Southeast Strawberry Fruit Expo North American Berry Conference, Research Triangle Park North Carolina
- 30th National Agricultural Plastics Congress, San Diego California

b. Impacts. Results and outcomes include the following:

- 6 strawberry growers have indicated an interest in field testing the Skybit strawberry frost package for 2002
- Over 700 growers and industry people have been exposed to Skybit strawberry frost product and work on frost protection being done at Wye.
- Specialist wrote frost protection section in EB 242 (Small Fruit Guide) in press

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: Multi-County Specific

1.2 Adopt improved farm business management and marketing strategies

(Key Themes – Agricultural Profitability, Risk Management)

Maryland Cooperative Extension educators offered 251 programs in 20 counties, Baltimore City, three regions in Maryland, state, multi-state, and national. Topics included improving profitability, liquidity, solvency of farm operations through improved record-keeping systems; increasing the use of information systems; improving short and long-run business planning; managing agricultural enterprises through a better understanding of tax policies, federal programs, and other federal/state policies; and reducing financial risks through forward pricing, crop insurance mechanisms, and diversification of farm level enterprises. These programs reached 4,476 people.

Examples of educational programs include the following:

Project 1.2.1 - The Dairy Analysis Program

a. Project Statement. Farm Financial Management. The objective of this program is to help Maryland farmers improve their business management skills to improve management productivity, increase profitability, and fulfill their long-term goals. It is accomplished through workshops, seminars, and individual on-farm consultations involving farm business management, strategic and tactical planning, record keeping, financial analysis and computer applications for farm managers, educators, lenders, and others. Workshops and seminars are prepared and conducted at the request of, and in teamwork with Extension Educators, Specialists and others. This program has a major focus on dairy farms and small farms. The program involves adaptive research on business planning techniques, crop and livestock enterprise analysis, farm machinery economics, crop insurance, computer use in agriculture, economics of alternative agricultural enterprises and economics of sustainable agriculture methods. The program is also carried to the College Park campus through the AREC 306 Farm Management course. The program methods and results are described below.

b. Impact

Business Planning for Maryland Agribusinesses - This method was developed in 1998 and continued through 2001. Its objective is to provide managers of commercial farms, small farms, greenhouses, and nurseries with education and assistance in developing effective business plans for their businesses. A business plan is a detailed written document that will help them manage their operations in the short-term and long-term. It is an organized collection of all the important ideas that include mission statements, annual goal statements, resource inventories, marketing plans, production plans, financial plans and business structure plans. A business planning seminar was presented to 15 farm managers as part of the Frederick County Small Farm education series. Business planning was included as part of the Farm Service Agency workshops and international program described below. Business planning was a

major component of AREC 306 Farm Management taught by Johnson to 41 students at College Park. Hardcopy and electronic materials on business planning are available to Maryland farm managers. In 2001, Johnson updated these materials that were developed in 1998.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: Multi-County Specific

Project 1.2.2 - Pro-Farm Financial Management and Computer Record Keeping Program

a. Project Statement. This method helps farm managers improve their record keeping and financial management skills so that they can enhance the profitability, liquidity, and solvency of their farm businesses. A secondary objective of the program is that farm managers will improve their computer skills and incorporate computer technology into the management of their farm operations. These objectives are accomplished by conducting two types of workshops. The first type of workshop is 2-4 hours in length and involves stepping the participants through the financial record keeping and analysis process through the use of fact sheets. They learn to develop monthly record keeping systems, balance sheets, income statements and cash flow budgets. Two of these workshops were conducted for 41 farm managers in 2001.

The second type of workshop is 6-9 hours in length spread over 2-3 days. Farm managers learn the "Six Easy Steps to Farm Financial Management which include: balance sheet, projected cash flow, weekly record keeping, projected vs. actual cash flow comparison, inventory adjusted income statement and enterprise analysis. " Farm managers are taught how to do these steps on a computer using the "Quicken" and "Quickbooks" record keeping programs and the Excel spreadsheet. Five of these workshops were conducted for 48 farm managers in 2001. Team teaching with Extension Educators is used in conducting these workshops. Johnson develops and provides materials and teaching time is equally divided between Johnson and Extension Educators. Farm managers attending the workshops report that they have upgraded from using hand record keeping systems to using computers. Most are using the Quicken, Quickbooks or Excel programs and others have purchased more comprehensive computer accounting programs. This Extension method has been conducted since 1994. This effort has contributed to a high percentage of computer use among Maryland Farm Managers. According to a survey conducted by the National Agricultural Statistical Service, Maryland ranks 6th in the nation for the percentage of Farm Managers that own or lease computers (43%). Maryland ranks 4th in the nation for the percentage of Farm Managers who use computers for the farm business (33%). Maryland ranks 3rd in the nation for the percentage of Farm Managers that have internet access (25%).

b. Impact:

Farm managers attending the workshops report that they have upgraded from using hand record keeping systems to using computers. Most are using the Quicken, QuickBooks or Excel programs and others have purchased more comprehensive computer accounting programs. This Extension method has been conducted since 1994. This effort has contributed to a high percentage of computer use among Maryland Farm Managers. According to a survey conducted by the National Agricultural Statistical Service, Maryland ranks 6th in the nation for the percentage of Farm Managers that own or lease computers (43%). Maryland ranks 4th in the nation for the percentage of Farm Managers who use computers for the farm business (33%). Maryland ranks 3rd in the nation for the percentage of Farm Managers that have internet access (25%).

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: Multi-County Specific

Project 1.2.3 - Enterprise Budgeting for Maryland Farms

a. Project Statement. This method involves (1) identifying alternative crop, animal, and recreational enterprises for Maryland Farm Managers, (2) estimating output levels, output prices, input requirements, input prices, and profits from alternative enterprises, and to (3) estimating labor, management and financial requirements for different enterprises. This Extension program is being conducted by a team of faculty from the Department of Agricultural and Resource Economics including Johnson. Johnson's roll in this project is to help develop the crop and livestock enterprise budgets and tools to analyze these budgets. Johnson taught one seminar on enterprise budgeting to 17 farmers in 2001.

b. Impacts.
As a result of this seminar, the farmers had a working knowledge of how to develop and use enterprise budgets for their own farm businesses. This program resulted in Maryland farm managers having objective methods for evaluating alternative enterprises that they are considering. There were numerous requests for these budgets during the year 2001.

c. Source of funds: Smith-Lever 3b&c and state general funds

d. Scope: Multi-County

1.3 Increase the use of appropriate production and marketing strategies for high value products

(Key Themes – Adding Value to New and Old Agricultural Products, Diversified/Alternative Agriculture, Niche Market, Organic Agriculture, Small Farm Viability).

Maryland Cooperative Extension educators offered 102 programs in 14 counties, three regions in Maryland, state, multi-state, and national. Topics included increasing access to markets by profitably selling high-quality ornamental horticultural products; practicing post-harvest handling techniques to increase product quality and improving market access; adding value to traditional agricultural products; and increasing economic bargaining power of small and part-time farmer by cooperative bargaining. These programs reached 5,612 people.

Examples of educational programs include the following:

Project 1.3.1 - Major Program Area: Small Farm Profitability

a. Project Statement. According to the 1997 U.S. Census of Agriculture, the number of full-time farms decreased 12 percent from 1992 to 1997. The USDA defines a small farm as one having a gross farm income of less than $100,000 per year; therefore 85 percent of the farms in Frederick County are small farms. The future of agriculture and Extension depends on the sustainability of these farms as agricultural small businesses. Educating new farm operators on the basics of agriculture, farm/business management, and marketing is essential to their financial success.

The Beginning a Successful Small Farm Operation educational series was developed in 1996 by this Agent to provide an opportunity for small farm operators to obtain basic education in agriculture, marketing, and business. Since 1996, the educational series has consistently maintained a strong participation by the small farm segment of the agricultural community in Central Maryland. Between 1996 and 2000, 483 small farm operators from around the Central Maryland region have attended 10 basic farming small farm series and three specialty courses on enterprise development.

b. Impact.
In 2001, Agent developed 13, two-hour classes for the continuing "Beginning a Profitable Small Farm Operation". Agent taught 6 of the 13 classes while MCE regional and state specialists, FCS and AGNR educators taught the others. The small farm series was attended by a total of 63 persons in 2001.

In post-program evaluations, the series participants rated all of the classes as excellent. Results of a follow-up survey conducted at the end of the year show that the 32 respondents: *Gained a Better Understanding of Farm Operation 4.5 (5-Best), Utilized Information Taught 4.3 (5-Best), More Knowledgeable About Agriculture 4.9 (5-Best), More Clearly Defined Farming Operation 4.4 (5-Best).* Ten respondents reported that farm enterprises developed by them as a result of attending the small farm series grossed an average of $12,000 in income. Nine respondents, who participated in the three specialty courses, reported that they developed small animal enterprises averaging $6,500 in income.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: Multi-County Specific

Project 1.3.2 - The Promotion of High Value Alternative Crops for Southern Maryland Tobacco Farmers

a. Project Staement. As a result of the tobacco buyout program and the changing land use in Southern Maryland, there is a critical need for the development of alternative agricultural enterprises. This year over 80% of tobacco producers opted for the buyout option, thus creating a critical need to provide assistance in transitioning to alternative crops. The purpose of this program is to provide producers choices and the ability to evaluate those choices on their farm. The major components of this program include the evaluation and feasibility of alternative crops based on market and production potential, educating farmers about the availability of potential crops and working with other agencies to promote needed infrastructure for alternative crops.

b. Impact.
From the following research projects, programs have spawned to enable local producers to comfortably engage change:

- Blueberry Production and Research: Many of Southern Maryland soils, if amended with organic matter, would prove to be adequate for economical yields of high bush blueberries. In 2000, a research study was initiated via a $1,000 MCE competitive award to examine high bush blueberry production on poultry litter amended silt loam soils. The research is being conducted at the Upper Marlboro REC, and will allow teaching and demonstration of high bush blueberry production. This project will allow farmers the opportunity to gather first hand knowledge of another cropping alternative by attending production clinics and field days.
- "Opportunities for Profit" Trade Fair was held November 3, at the St. Mary's County Fairgrounds, with 300 in attendance. Conversations with farmers and other area agencies showed a critical need for tobacco farmers to find profitable enterprises in which to transition.
- The Tri- County Council coordinated a series of vegetable marketing roundtables for area farmers. The marketing roundtables provided farmers with the opportunity to meet with produce buyers throughout the area and discuss needs and possible opportunities for selling local produce.
- 508 citizens of Howard County and Maryland were taught about conventional and alternative agricultural production. Markets for local products were improved, and farmers increased their ability to meet these markets.
- As a result of efforts in 2000/2001 by this Extension Educator, a former Calvert County tobacco farmer was encouraged to obtain a contract in January, 2001 with a wholesale nursery to produce bedding plants in a greenhouse that had previously been used for tobacco transplant production. This has allowed the second largest tobacco farmer in Calvert County to begin making the transition to other enterprises. Also, the former largest tobacco farmer in Calvert County has begun to make the transition to producing alfalfa and grass hay for sale to pleasure horse owners.

- As a result of efforts by this Extension Educator, six former tobacco farmers in Southern Maryland are seriously considering planting wine grapes within the next two years.
- The Small Farms Institute Coordinator provided expertise, technical assistance, and support primarily to Maryland small farm operators, and to small business entrepreneurs. Over 450 field visits were made to identify and enroll limited-resource farmers in the MCE programs, assess their needs, and solve problems in the areas of farm management, marketing, horticulture, environment, and soil conservation. The Coordinator responded to over 850 phone calls, e-mail messages, and walk-in clientele-related inquiries. Small farmers were advised on diverse programs, including alternative and value-added enterprises, niches and specialty markets.
- The Small Farms Institute Coordinator increased the participation of minority farmers in MCE programs by 50% through innovative outreach techniques. Outcomes, results, and impacts of the SFI programs include needs assessment of minority and small farmers, outreach of unreachable small farm operators, on-farm research trials, small farm cooperative establishment, beginning and new farmer services, and grant development for small farmers. These new/innovative approaches helped enhance small farmers' well being, promote stewardship, and foster the development of strong and stable communities.
- Apple and Peach Research and Demonstration Orchard: The Upper Marlboro research and demonstration apple and peach orchard, now in its second year, has successfully provided excellent venue for four fruit production clinics and field days in 2000. Growers have expressed eagerness to follow the orchard into its upcoming production years. This project will continue to show the value in fruit production as a viable alternative industry for Southern Maryland farmers.
- Southern Maryland Vineyard Project: The Educator in 2000, and two other Southern Maryland Educators, has organized a vineyard research team in order to develop a research vineyard at the Upper Marlboro REC. This vineyard project has been awarded a grant from the Southern Maryland Tri-County Council for the development of a mechanism to create alternative crops and agriculture industries capable of replacing the loss of tobacco in Southern Maryland. The vineyard team has selected the site and planted the site with approximately 32 varieties of grapes.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

1.4 Increase the investment in agricultural human capital (Key Themes – Managing Change in Agriculture)

Maryland Cooperative Extension educators offered 12 programs in 6 counties, three regions in Maryland, state, multi-state, and national. Topics included farmers understanding issues facing agriculture and improving their leadership skills; improving management and personnel skills; and farm families improving the transfer of

management skills from one generation to the next. These programs reached 2,100 people.

Examples of educational programs include the following:

Project 1.4.1 - Lead Maryland

a. Project Statement. Maryland's increasing urbanization puts new pressures on agriculture, at the same time that farms and agribusinesses struggle to remain economically viable, environmentally friendly, and good neighbors. To meet these challenges, leaders committed to the future of Maryland agriculture must be able to resolve complex problems successfully in skillful, thoughtful and innovative ways. In 1997, Maryland Cooperative Extension initiated a study group, with representatives from the major agricultural organizations in the state, to explore what could be done to strengthen leadership within the agricultural community. Eighteen months later a partnership including the University of Maryland College of Agriculture and Natural Resources, the Maryland Department of Agriculture, the Maryland Farm Bureau, the Maryland Grain Utilization Board, and the Maryland Agricultural Education Foundation was formed. From the beginning it was expected that this partnership would be only a starting point and that many other organizations would contribute to the program. In September 1998, an executive director was hired to lead Maryland's first agricultural leadership program – LEAD Maryland. Twenty percent of the program costs were to be supported by tuition and the remaining costs were to be covered by public and private donations.

In February 1999, the first class of LEAD Maryland was instituted. Twenty-three Fellows were selected for the 18-month program. The students completed 8 three day seminars, a three day trip to Washington DC, and a ten day international trip to look at the European market. Teaching methods included field visits, assessments, panels, case studies, presentations, and self-discovery. At the last seminar, a Kellogg Foundation representative met with the Fellows and published a written report commending the program. In September 2000, all 23 Fellows were recognized for the completion of the 37-day program. Since then, three of the Fellows were elected to the LEAD Maryland Advisory Board. LEAD Maryland's Class II, consisting of 23 new Fellows, started in February 2001 and the graduates of Class I continue to be involved in nurturing the program and mentoring the new Fellows. LEAD Maryland's second class was successfully recruited and funded and is in progress with a goal of visiting Cuba.

b. Impact. LEAD Maryland has attracted support from over 15 local, state and national organizations and is recognized statewide as a premier leadership program. The start-up summary of LEAD Maryland will serve as a reference and guide for the start up of other ag leadership programs.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

1.5 Facilitate informed debates of public issues concerning the neighborhood effects of agriculture, such as nuisance concerns and environmental impacts.

(Key Themes – relevant themes were not listed in Appendix)

Maryland Cooperative Extension educators offered 80 programs in 15 counties, three regions in Maryland, state, and multi-state. Topics included increasing the knowledge of citizens to better participate in community decisions; better understanding of the role of agriculture in providing them a safe, affordable supply of food and fiber; and public officials making better informed decisions about the neighborhood effects of agriculture. These programs reached 6,775 people.

Examples of educational programs include the following:

Project 1.5.1 - Focus on the Farm

a. Project Statement. Focus On The Farm is an ongoing cable television show designed to provide non-farm audiences an awareness and understanding of production agriculture and insight into local and national agricultural issues. The 30-minute shows are framed in a talk show format intertwined with video footage shot on location. This agent serves as Host and Executive Producer of the show. My duties included planning the central theme, writing scripts, narration over video footage, guest interviews and shooting video footage at remote locations.

b. Impact.
A total of twelve 30-minute shows were filmed and aired in 2001. "Focus On The Farm" can be seen on the local access cable television channel. Each show airs on Monday at 10:30am, Tuesday at 4:30pm, and Thursday at 8:30pm and Saturday at 5:30pm on Cable Channel 21. Over 400,000 Montgomery County households have cable television access. The themes of shows taped in 2001 included: The Corn Production Process; The Montgomery County Farm Tour and Harvest Sale; Biotechnology and Agriculture; USDA Farm Programs; Greenhouse Farming; The American Farmland Trust; Farmland Preservation Programs; Freezer Beef Production; The Art and Science of Making Hay; Growing Christmas Trees; Sheep Farming; and The Local Equine Industry. Since the inception of the program in 1997, 52 shows have aired.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d**. Scope of Impact:** Multi-County Specific

Project 1.5.2 - Working with County Agriculture Commission

a. Project Statement. This Extension Educator participated as an advisor to the Calvert County Agricultural Commission in planning and conducting a farm tour (advisor, planning team, exhibitor). This Extension Educator set up a backyard composting exhibit at the farm tour, with approximately 50 children and adults participating. In a team effort with the FCS Extension Educator, this Extension Educator conducted the Brainy Grainy Game at the Calvert County Fair with 250 children and adults participating. This activity was supported with a $1000 grant (co-writer) received from the Maryland Grain Producers Utilization Board. This Extension Educator conducted a tomato-planting project at Maryland Day (College Park) with 300 children and adults participating.

b. Impact: The public has a better understanding of agriculture. Over 900 members of the public visited at least one of the three farms on the Calvert County Farm Tour. The tour received favorable publicity in local newspapers. This tour continues to be a useful mechanism for promoting agricultural awareness among the public.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

Project 1.5.3 - Agronomic Crop Damage From Canada Geese

a. Project Statement. Canada and resident geese cause major damage to over-wintering small grain. Farmers were not able to control goose damage by allowable means (scare-tactics) because they had become so tame as a result of not being hunted. (Goose populations had dropped to low levels due to various reasons including poor nesting conditions in Canada.) A hunting moratorium had been put in place to help build populations that have since increased. Educator conducted a forum for farmers and other interested parties, cooperating with regional Natural Resources Specialist and Farm Bureau as well as speakers from the Department of Natural Resources (DNR), and Wildlife Damage Control Specialists and a farmer. This allowed designated speakers to communicate the situation and gave farmers an opportunity to voice their concerns regarding damage. Specialist facilitated an action agenda. Thirty-eight attended.

b. **Impacts:** After the meeting, a committee volunteered to convene to write letters to make suggestions to decision-makers. This meeting gave farmers an opportunity and venue to respond and air their concerns and provide suggestions. Farm Bureau signed & sent letters to decision makers and received a response from the Secretary of the Department of Natural Resources. A new secretary was appointed shortly thereafter. According to reports, the suggestions contained in the letters to policy makers had an effect on the resulting reinstitution of the Canada goose hunting season.

Policy was amended to reflect concern and a longer hunting season was extended with a larger bag limit for resident geese.

c. Source of Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Statewide, with emphasis on the Eastern Shore.

Project 1.5.4 - Modifications to the CRP/CREP

a. Project Statements. After listening to farmers' concerns regarding the CRP/CREP program (a program designed to pay landowners to take land out of production and plant it to buffer strips - acronym: Conservation Reserve Program/Conservation Reserve Enhancement Program) educator began the planning process to conduct a forum with policy makers at the state level and cooperating directly with local Soil Conservation District manager. Program is for the lower shore. This forum will allow farmers to express their concerns about the program. CREP was initially designed to take non-productive farmland out of production and provide water quality benefits by providing buffers around sensitive fields. In return landowners were paid an annual rental fee and had to maintain the buffer. Through the state enhancement program, allowable land in this program has expanded to take in productive farmland. This program is affecting farmers who rent land for farming, taking away some of their source of income. Key issues were farmers renting land were not notified by the landowner about the land being enrolled in CREP, federal regulations require landowner to notify farmer renting the farm; no farmer representation on state planning committee; and 300' buffers are too wide and only impact wildlife not water quality.

b. Impacts: Educator's planning initiative has already resulted in one of the affected farmers suggesting that this issue be brought up at the MASCD annual meeting. (Maryland Association of Soil Conservation Districts). This forum was held and initiatives passed at this meeting. Educator is planning a forum with state policy makers and farmers as speakers cooperating with Farm Bureau, Soil Conservation District and regional Natural Resources Specialist.

As a result, 5 farmers were added to the state CREP planning committee and a formal process to notify farmers who rent farmland will be discussed at future state meetings.

c. Source of Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Statewide

REE Goal 2. A Safe, Secure Food and Fiber System

Overview

There is a need to improve food safety at all points in the food production and distribution chain. Although few data are available specifically for Maryland, the issues in our state are similar to the national issues outlined in the Food Safety Initiative. These issues affect everyone from food producers and processors to retailers, food service handlers, and consumers. HACCP (Hazard Analysis Critical Control Points) is a systematic way of implementing preventative measures to ensure food safety and includes contamination prevention, detection, and ongoing monitoring. As a part of HACCP and new food safety inspection initiatives, rapid pathogen detection and food borne illness monitoring programs will be needed from the farm to the processing plant to the retailer. Model HACCP programs for these various clientele need to be available. Extension and Experiment Station research programs need to develop better pathogen detection and monitoring techniques. The HACCP, Good Manufacturing Practices (GMP), and Sanitation Standard Operating Procedures (SSOP) requirements must be met, but the average small to medium food producer, processor, direct marketer, distributor, and retailer in Maryland will need support and training to do so.

Consumers are frequently unaware of basic tenets of food safety: the importance of cooking and storage temperatures and the need to wash hands and utensils frequently. Consequently, as much as 50 percent of food borne illness is estimated to be caused by improper handling or preparation by the consumer.

The primary goals are:

- Decrease the number of Maryland citizens at risk for insufficient food availability to meet nutrient needs.
- Improve consumers' knowledge and practice of safe food handling.
- Improve the knowledge and practice of safe food production and handling by commercial and public food industry.

Outputs.
For REE Goal 2, Maryland Cooperative Extension educators developed over 400 educational programs which were held in 23 counties, Baltimore City, all three regions in Maryland, state-wide, multi-state, and national. Topics covered were food insecurity and hunger, food safety for consumers and food safety for commercial enterprises. These programs reached over 11,000 people.

Outcomes and impacts were measured in individual programs. Examples of these are in the following section.

Partners in these programs included Maryland Food Council, Center for Poverty Solutions, Maryland Food Bank, Capitol Area Food Bank, Maryland Food Hospitality Education

Foundation, Restaurant Association of Maryland, school systems, county health departments, the Maryland Department of Health and Mental Hygiene, county social services departments, the Maryland Department of Human Resources, the Eastern Shore Health Education Center. Cooperation with other members of the land grant system included VA, West VA, DE, NJ, and PA.

Maryland's own assessment of accomplishments. Maryland Cooperative Extension is accomplishing the goals of their five-year plan. There is a balance of educational programs among the various goals and the Extension Administration Team is pleased with the accomplishments. Evaluations of outcomes from the five-year plan are conducted at the individual program level, not at the level of an aggregated REE goal.

2.1 Decrease the number of Maryland citizens at risk for insufficient food availability to meet nutrient needs

(Key Theme – Food Security, Food Resource Management)

Maryland Cooperative Extension educators developed at least 95 programs which were held in 18 counties, Baltimore City, three regions in Maryland, state-wide, multi-state, and national. With a goal of increasing awareness and application of knowledge and practice of safe food handling, all nutrition education classes reflected a food safety component. Topics covered were food sources and availability, purchasing and preparation. These programs reached approximately 3,200 people.

Examples of educational programs include the following:

Project 2.1.1 - Allegany County. **Expand Food Safety Skills and Practices to Citizens.**

a. Project Statement. Because food safety is a vital community concern, four classes, lasting three hours each, were conducted for 115 individuals. MCE's 'Feeding the Community Safely' program was adapted for use with childcare providers, school food service association members, and community groups who handle food. A week long safety display was designed and exhibited in local grocery stores to promote National Food Safety Education Month. Over 500 'Fight Bac' brochures and other locally produced educational handouts were distributed during these events.

a. **Impact.** Pre and post assessments indicated an improvement in food safety knowledge since pre-test scores averaged 4.7 out of 8 in comparison to 7.1 on the post-test. At pre-test, 57.1 % of the participants knew that foods had to be reheated to 165 degrees F, in comparison to 94.4% at post-test time. Over 92% reported they planned to change food preparation strategies to prevent foodbourne illnesses leading to health care cost savings.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: County Specific

Project 2.1.2 - Somerset County. Citizens at Risk of Insufficient Food to Meet Nutrient Needs.

a. **Project Statement.** The local educator worked with EFNEP Assistants on a weekly basis to provide training with 131 families. The educators produced a Co8nty Calendar to be used as a teaching tool featuring nutrition information, shopping and consumer information, cooking and safe food preparation facts and tips, and nutritional recipes for low resource families.

b. **Impact.** 250 calendars were produced and distributed in the county. Follow up evaluation on the use and application of the calendar has indicated that the calendar has been used as a 'tool' to increase consumer shopping and decision making skills, to use new recipes which stretch the budget while still providing nutritious meals by 86% of the families who received the calendar.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: County Specific

2.2 Improve consumers' knowledge and practice of safe food handling

(Key Theme – Food Safety)

The effects of washing with 10% salt and phosphate solutions on physical, sensory, and microbial properties of frozen chicken breasts were studied. Washing with trisodium phosphate (TSP) or sodium tripolyphosphate (STPP) significantly improved microbial, textural, and sensory properties of frozen chicken breasts.

Examples of educational programs include the following:

Project 2.2.1 – UMES Food Safety Guidelines

a. Project Statement. Inoculated chicken breasts with *Salmonella* and *Campylobacter* were washed with salt and various phosphate solutions, including TSP, STPP, and TKPP. Injury and survival of *Salmonella* and *Campylobacter* during storage were measured. Water-binding ability, shear force, ice crystal formation, and the change of myofibrils of washed frozen chicken breasts were also measured.

b. Impact. This study provides much-needed food safety guidelines for poultry products, both in retail markets and in the consumer's kitchen as well as helped to improve the quality of frozen poultry products produced by U.S. poultry industry that competes in foreign poultry markets. The results were shared with a local poultry industry and presented at at the 2001 National Food Technology Conference.

c. Source of Federal Funds: USDA/CSREES, Evans-Allen. ($80,488)

d. Scope of Impact: national and regional.

Project 2.2.2 - Somerset and Wicomico Counties. Keeping Food Safe in Our Communities.

a. **Project Statement.** This program reached 626individuals in a series of food safety and nutrition education programs. The objective was to enable participants to recognize the causes of foodbourne illness and learn to make appropriate changes to insure a healthy and safe food supply.

b. Impact. A follow-up evaluation study of 156 of the total participants revealed the following: 138 (85%) gained new knowledge of food safety practices, 127 (82%) implemented one or more new practices recommended at a food safety seminar, and 122 (78%) stated they would attend another program on food safety

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: Multi-county Specific

Maryland Cooperative Extension educators developed over 200 programs, which were held in 21 counties, Baltimore City, three regions in Maryland, statewide, multi-state, and national. Topics covered were proper food storage, safe food handling practices, sanitation, and environmental issues relative to food safety. These programs reached over 5,000 people.

Examples of educational programs include the following:

Project 2.2.3 - Twenty-One counties and Baltimore City, Food Safety Programs

a. Project Statement. Food safety incidence and awareness have been increasing in recent years and consumer confidence in the safety of food has declined. Programs were developed to educate participants on the risks, occurrence and prevention of food-borne illness. Participants in food safety programs were taught about the incident rates of food-borne illness, bacterial growth, handwashing and safe purchasing, storage and preparation of food. Class format involved hands-on activities, lecture, and group discussion. Participants have included foster parents, day care employees, Women, Infants and Children (WIC) recipients, EFNEP staff and EFNEP participating families, FSNEP staff and FSNEP participants, Family Studies teachers, public school students, food bank employees. Regional farmers were also instructed on safe handling, storage and shipping of fresh fruits and vegetables.

b. Impact. In one county alone, one FCS Educator reached over 400 individuals in 20 educational programs. One six-month evaluation mailed to 25 individuals had a

response rate of 45%. Ninety percent indicated at least one lifestyle change since the program. Overall, most changes included increased awareness of the danger of food at room temperature ("the two hour rule"), and increased hand washing and prevention of cross contamination. Most indicated that they had an increased awareness of methods to prevent food borne illness. End-of-the class evaluations were conducted for one class. One hundred percent indicated that the hand washing information and activity was useful, 95% indicated increased knowledge about handling and storage of high-risk food items and 90% indicated increased knowledge of bacteria and 100% indicated that they would make at least one change in how they handled and/or stored food.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: State-wide and Baltimore City

Project 2.2.4 - Multi-County. Feeding the Children – SAFELY!

a. Project Statement. This is an offshoot of the *Feeding the Community – Safely!* That was developed in fy 2000. In fy2001, a need was identified in the child-care prviders training program for food safety education, and thus the original food safety program underwent a major revision to meet the requirements for licensure of child-care providers. A six-person Extension team developed the new program.

b. Impact. A CD Rom containing the complete *Feeding the Children – Safely!* program was developed and has ben externally reviewed by several food safety professionals. They suggested monor changes which have been made in the final version of this product. The new package was presented to all FCS Educators in Maryland at a state –wide training. All state Educators were given a copy of the CD containing the complete program.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: State-wide

2.3 Improve the knowledge and practice of safe food production and handling by commercial and public food industry

(Key Theme – HACCP, Foodborne Illness)

Maryland Cooperative Extension educators developed dozens of educational programs which were held in most counties , Baltimore City, three regions in Maryland, state-wide, multi-state, and national. Topics covered were Hazard Analysis Critical control Points (HACCP), Good Manufacturing Practices (GMP), and Sanitation Standard Operating Procedures (SSOP).

Examples of educational programs include the following:

Project 2.3.1 - Washington County. Feeding the Community – SAFELY.

a. Project Statement. Eight programs were developed and taught for 156 licensed Child Care providers, Department of Social Services Assisted Living Care Home providers, local churches kitchen workers, and the Western MD Hospital Food Service Staff using the MCE sponsored Community Food Safety program and kit.

b. Impact. The results of a pre- and post-assessment tool indicated that learning of important food handling practices were adopted. Average number of correct answers on the pre-test was 6.95; and on the post teat was 8.0, on a scale of 10.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: County Specific

Project 2.3.2 - Calvert County. Feeding the Community – SAFELY.

a. Project Statement. In response to a county outbreak of 30 cases of hepatitis caused from improper hand-washing the previous year, this county educator in cooperation with the County Health Department, initiated and conducted four food safety workshops for restaurant managers and employees. At least one County Food Sanitarian was involved and present at each class. 84 food service/restaurant employees from 17 county businesses and 9 churches participated. This Educator taught three additional food safety classes that reached 48 child care providers, 21 welfare recipients who needed certification for job credentialing, 6 DSS (Dept. of Social Services) group home managers, 6 Home Visiting Nurses, and 17 'high-risk' high school students who were interested in food service employment.

b. **Impact.** Identical pre and posttests comprised of 12 questions were given to the restaurant employee and child care provider classes. Only 9% of the class participants passed the pre-test; 92% passed the post-test. A certificate of attendance was mailed to persons who passed the post-test. A follow-up evaluation sent to 67 (restaurant) participants who passed the post-test was returned by 18 (27%). As a result of attending the MCE program on food safety, 100% said the workshop and certificate helped them in their food service job, 100% said they have a better understanding of the types of foods that cause food borne illness, 100% said they more often wash their hands with soap and water for 20 seconds before handling food, 89% said they more often cool foods quickly through the danger zone (most common problem in food borne illness), 100% said they had a better understanding of how important their actions were in food service.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: County Specific

Part A. Planned Programs (continued)

REE Goal 3. A Healthy, Well-nourished Population

Overview.

Consumers need to choose healthier food behaviors because heart disease, cancer, excess weight and obesity, and osteoporosis lead to increased morbidity, lower quality of life, and, ultimately, premature death. People need to understand food composition and preparation techniques to select and prepare nutritious foods. Otherwise, they may avoid nutritious foods and use more expensive and less nutritious foods or mistake the description "low fat" for "low calorie." Consumers need integrated food and nutrition education programming, which must address the interaction of nutrition, diet, fitness lifestyle issues, and physical fitness, in order to be successful in reducing chronic disease risk, excess weight and obesity.

As a result of MCE programs, it was expected that an increased number of consumers would:

- Follow the recommendations of the U.S. Dietary Guidelines and Food Guide Pyramid, including the consumption of five fruits and vegetables per day.
- Correctly use food labels to follow the U.S. Dietary Guidelines and the Food Guide Pyramid.
- Access Extension information on diet, nutrition, and healthy lifestyles.
- Reduce their incidence of diet-related health problems by evaluating their eating patterns and lifestyle practices relative to cardiovascular disease, cancer, diabetes, obesity, and osteoporosis risk and identifying low-risk dietary and lifestyle factors to minimize cardiovascular disease, cancer, diabetes, obesity, and osteoporosis incidence.
- Limit their fat intake to 30 percent or less of energy intake.
- Increase their consumption of calcium-rich food sources.
- Increase physical activity and physical fitness and achieve or maintain a healthier weight.

Outcomes and impacts were measured in individual programs. Examples of these are in the following section.

Partners in these programs included county health departments, the Maryland Department of Health and Mental Hygiene, county social services departments, the Maryland Department of Human Resources, the Eastern Shore Health Education Center, most school systems, the UMCP Department of Health and Human Performance, FSNEP and EFNEP programs. Cooperation with other members of the land grant system included VA, West VA, DE, NJ, and PA.

Maryland's own assessment of accomplishments. Maryland Cooperative Extension is accomplishing the goals of their five-year plan. There is a balance of educational programs among the various goals and the Extension Administration Team is pleased with the accomplishments. Evaluation of outcomes from the five-year plan are conducted at the individual program level, not at the level of an aggregated REE goal.

3.1 Improve Maryland citizens' knowledge and practice of healthy diet and nutrition behaviors

(Key Theme – Human Nutrition, Human Health)

Outputs. For REE Goal 3, Maryland Cooperative Extension educators developed and delivered over 1,000 educational programs which were held in all 23 counties, Baltimore City, three of the three regions in Maryland, state-wide, multi-state, and national. Topics covered were U S Dietary Guidelines, Food Guide Pyramid, consumption of five fruits and vegetables per day, use of food labels, lifestyle practices relative to disease and physical fitness. These programs reached over 40,000 individuals

Examples of educational programs include the following:

Project 3.1.1 - Montgomery County. Diabetes Education- Clases para Diabeticos Latinos-Education y Clases de Cocina.

a. Project Statement. There is a need in Montgomery County to provide information and practical instruction to people with diabetes in the Latino community. A large number of Latinos in the county have no health insurance and therefore do not have access to health and nutrition education. Collaboration was formed with the Montgomery County Health Department and the Spanish Catholic Center. *Clases para Diabeticos Latinos* was planned, advertised, and executed by the 3-person team. An animated power point presentation (35 slides) was developed, nutrition lessons planned, and recipes and handouts developed, tested and translated. Flyers and displays were placed at the Wheaton Library and the Spanish Catholic Center. The program was advertised on a local Spanish radio station. A nurse conducted follow-up Hemoglobin A1C tests (definitive blood test that indicates how well the blood glucose levels have been controlled for the past 2-3 months), and initial surveys were completed to provide base line date for evaluation. The classes covered general information on diabetes, problems associated with the disease and the methods of controlling it. Food and nutrition demonstrations provided a means of reinforcing and applying the recommendations given in the classes.

b. Impact.

- -The four part series of classes were conducted in February, June, September and October 2001. A total of 46 patients and 20 family members participated.
- The mean reduction of Hemoglobin A1C levels was 1.7%. (A 1% increase in Hemoglobin A1C values is associated with a $600-$2000 greater per person treatment cost).
- The package program was internally and externally reviewed. 8 Universities have requested the program on a CD-ROM in fy01.
- Results were presented at 2 National conferences and at MCE Annual conference in fy2001.

- -The program was featured in the peer reviewed National Extension Association of Family and Consumer Sciences (NEAFCS) summer 2001 Communiqué.
- -The program was presented at a Maryland Food Stamp Nutrition Education Program (FSNEP) Diabetes Training in May 2001 to FCS educators.
- -The program was featured in the University of Maryland College AGNR Annual Report and Calendar.
- -The project was nominated and accepted as a Program of Excellence by USDA in December 2001.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: County Specific

Project 3.1.2 - Somerset & Wicomico Counties. Good Nutrition the Key to Healthy Living.

a. **Project Statement.** It is important for families to maintain a healthy lifestyle and eat well-balanced meals. Six programs were conducted during the year reaching over 398 participants. The topics included Understanding the Food Guide Pyramid and Dietary Guideline, Food Labels! What is the Secret, Cooking For One or Two, Food Facts for Older Adults and What's Eating You! During these programs the participants (1) developed an understanding of the Food Guide Pyramid (2) learned to use food labels when shopping for food (3) developed an understanding of serving sizes and (4) learned how to develop daily recipes for a well-balanced meal.

b. Impact. A follow-up evaluation of 121 of the participants revealed: 87% developed a better understanding of the Food Guide Pyramid, 98% learned to read the food labels, 92% develop a new understanding of serving sizes and 78% learned to develop recipes to help them with daily menu planning.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-county Specific

Project 3.1.3 - Allegany County. Folic Acid Education.

a. Project Statement. Objective: Improve the folic acid knowledge and increase the folic acid consumption among Allegany County women of childbearing age to prevent birth defects.

Evaluation of community needs assessment data indicated that a need existed within the Expanded Food and Nutrition Education Program (EFNEP) to educate women of childbearing age about proper nutrition prior to and during pregnancy. The focus needed to be on folic acid consumption since a pilot study done by the Educator

showed that only 3.3% of EFNEP participants knew what foods were high in folic acid and only 23.3% ate leafy green vegetables daily.

Three folic acid lessons comprised the curriculum. This March of Dimes grant-funded program was incorporated into the existing EFNEP curriculum as three separate, individual lessons taught over the 11-month period. Lessons focused on the importance of folic acid related to the prevention of birth defects, folic acid food sources, and supplementation. All three lessons were taught to 101 females of childbearing age. Human subjects approval was obtained from the institutional review board for the project.

b. Impact. A pre- and post-test research design was used to assess the effectiveness of the folic acid educational intervention on the knowledge and behaviors of participants. Prior to the intervention, only 48.5% of respondents claimed they understood the important function of folic acid in comparison to 98% at post-test. Only 29.7% of the participants were able to correctly identify good sources of folic acid in comparison to 92% at post-test. The effect that the intervention had on participants' behaviors was shown in that 34.7% of the participants claimed they did not eat any dark green leafy vegetables in any given week at pre-test compared to only 17.8% at post-test.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: County Specific

Project 3.1.4 - Frederick County. Healthy Lifestyles.

a. Project Statements. Objective: Strengthen Maryland youths' understanding of the importance of good health and safe and healthy lifestyles. Health and diet-related conditions are the second leading cause of death in the United States. Escalating rates of obesity are considered a health problem nationwide, as well as in Maryland. Unfortunately, the increasing number of obese Americans is not limited to adults alone; researchers estimate that 25-30% of all children in the country are overweight or obese. Empowering youth through education about healthy lifestyle choices and how they can directly influence family decisions regarding diet and health can help address this problem. Specifically, using monies from an FSNEP grant, 4-H nutrition education programs were conducted in summer and after-school enrichment programs. These programs were held in collaboration with the Board of Education, YMCA and Big Brothers/Big Sisters. Objectives of the program included introducing youth to safe food-handling practices, trying new or unfamiliar healthy foods; providing healthy snacks that youth help to prepare; increasing consumption of calcium-rich foods and encouraging more physical activity. Making healthy choices was reinforced through other 4-H programming, including Mini College, Summer Youth EFNEP, Kids Growing with Grains and residential camping programs where classes were taught on a variety of nutritional topics.

b. Impact. Through teacher observation and evaluation, the following outcomes were noted: 1) approximately 90 percent of the youth practiced increased hand washing; 2) nearly 80 percent of the youth were aware of the food-safety dangers of cross contamination; 3) approximately 75 percent of the youth showed improved knowledge about healthy eating habits and knowledge of healthy food choices; and, 4) nearly 90 percent of the children improved their skill in preparation of healthy foods through hands-on food preparation activities.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: County Specific

Part A. Planned Programs (continued)

REE Goal 4. Achieve Greater Harmony (Balance) between Agriculture and the Environment

Overview

Maryland has abundant water resources. Surface water provides more than 80 percent of the state's water supply; however, ground water supplies approximately 85 percent of the total water used in Southern Maryland and the Eastern Shore. Studies have shown that both ground and surface waters contain high levels of the nutrients nitrogen and phosphorus (N and P), which adversely affect water quality, aquatic organisms, fisheries, and human health.

Under the Chesapeake Bay agreement, there is to be a 40 percent reduction in nutrient loading into the bay by the year 2000. In agriculture areas, there are concerns about the management of inorganic and organic sources of nutrients and chemicals. In urban areas, nutrients and pesticides enter Maryland's water supply through excessive use of pesticides and fertilizers in horticultural landscape applications (commercial, public, and private). According to the 1990 census, one in five residences in Maryland have private septic systems bringing the state's total to 316,000. It is estimated that 60 percent of these systems are failing and that they contribute substantial amounts of nitrate to ground water. Other water-related issues include salt water intrusion in coastal areas caused by high water demand and competition for finite supplies of water among residential, agricultural, and industrial uses.

Economic and demographic changes have led to a continuing loss of agricultural and forest land. These losses raise concerns about the continuing viability of agricultural and forest industries, green ways, open space for wildlife, recreational areas, amenities, and environmental quality in general. And the losses are likely to continue to the year 2020 at a rate of over 10,000 acres per year.

Maryland's population is expected to reach 5.5 million by the year 2000. This population growth and redistribution, as well as commercial and industrial development, will consume farm, horticultural, and forest land. At the same time, this growing population also will demand more services and products from agricultural, horticultural, and forest industries. Conflicts between agricultural and urban land uses and their impacts on natural resources occur as development takes place in once-rural areas. As development occurs, farm and forest land is fragmented and/or lost, reducing the open space and biological diversity of the area. This forest and habitat fragmentation reduces our ability to manage and maintain the resources of a healthy state. Currently, land-use planning and management issues are being addressed by a wide variety of public and private organizations, which often lack coordination and consistency among their programs and policies. Integrated resource management and landscape diversity are key components of land-use planning, but are often not considered.

The contamination of surface and subsurface water supplies due to non-point source agricultural runoff is among the most serious environmental problems facing American

agriculture today. About 60% of the rivers and lakes in the United States are polluted by agricultural runoff; rivers primarily by sediments, and lakes by nutrients. Additionally, surface and groundwater are contaminated by a variety of pesticides, and nutrient sources such as fertilizers and manure. Non-point load of nutrients to surface waters in different regions of the U.S.A. is among the highest priorities in the country. One of the challenges for developing economically sustainable agriculture is to simultaneously reduce non-point source pollution problems and maintain farm and rural industrial incomes at reasonable levels. One solution is watershed-scale planning and management which makes it possible to target Best Management Practices (BMPs) for the greatest improvement in water quality even though watershed planning is much more complicated than field or farm scale planning.

As an 1890 Land Grant institution, UMES is committed to continue the services and applied research we provide our area farmers, watermen and resort residents (Eastern Shore tourism industry). We expect to bridge the agricultural, environment, and renewable natural resource programs and find ways that farmers and businessmen can be economically enhanced while not harming the environment and do so with concern and sensitivity to all facets. Presently many of our scientists (and those at College Park) are seeking solutions to resolve a recent Delmarva disaster that placed farmers, watermen and environmentalists at odds, and resulted in what is believed by the poultry industry to be a rush to judgment by politicians. During the summer of 1997, Delmarva made national news because of fish kills and lesionous fish in the Pocomoke River. The river provides a habitat for numerous fish species and other aquatic organisms and it serves as a source of revenue and recreation for the inhabitants of its watershed. Pfiesteria Piscidia has been implicated as the cause of the lesions and subsequent death of hundreds of fish. Toxins produced by this microbe are also thought to be deleterious to human health. The primary goals are:

- Adopt management practices for agricultural production that enhance natural resources.
- Improve the application and adoption of land-applied biosolids, manures, composted materials, and other organic byproducts.
- Improve water quality through the adoption of sound environmental stewardship practices by the public and municipalities.
- Maintain a water supply capable of supporting both commercial and private needs today and in the future by protecting and conserving surface and ground-water resources.
- Promote environmentally sound land use plans that manage growth and value the benefits to society of farms and forest lands.
- Increase recycling and appropriate product disposal.
- Promote the use of rural and urban forest stewardship practices to maintain a sustainable forest resource.
- Improve fish and wildlife habitat and species diversity, as well as promote the use of new management techniques that manage wildlife and control damage to property, crops and people.

Outputs

For REE Goal 4, Maryland Cooperative Extension educators developed 389 programs in 23 counties, Baltimore City, three regions of Maryland, state, multi-state, and national. Topics

covered included water quality, water supply, land-use, recycling, forestry, and fish & wildlife. These programs reached 25,438 people.

Outcomes and impacts were measured in individual programs. Examples of these are in the following section.

Maryland Cooperative Extension is accomplishing the goals of their five-year plan. There is a balance of educational programs among the various goals and the Extension Administration Team is pleased with the accomplishments. Evaluation of outcomes from the five-year plan are conducted at the individual program level, not at the level of an aggregated REE goal.

4.1 Improve the application and adoption of land-applied biosolids, manure, composted materials, and other organic byproducts.

(Key Themes – Agricultural Waste Management, Nutrient Management, Soil Quality, Yard Waste/Composting)

Maryland Cooperative Extension educators developed 125 programs in 23 counties, three regions of Maryland, state, multi-state, and national. Topics covered included farmers increasing their use of nutrient management plans; farmers avoiding the over-application of phosphorus on soils already deemed to be overloaded; and the farmers and citizens properly applying composted materials, manure, and other organic products to the land. These programs reached 5,980 people.

Examples of educational programs include the following:

Project 4.1.1 - Recycling of horticultural products.

a. Project Statement. Recycling of horticultural products, the composting of municipal wastes, and the incorporation of composted materials and products into substrates or landscape soils: Research and education projects investigating the a) use of composted materials as part of a soil-less substrate in an environmentally conscious nursery production system for herbaceous and woody plant materials, b) the incorporation of composted organic wastes into ground cover landscapes as a substitute for conventional fertilizers, and c) comparison of two methods of trickle irrigation of nursery stock grown in composted organic modified nursery substrates were completed.

County Nutrient Management Program: Work continued in enrolling new agricultural businesses in the Nutrient Management program during January 2001, through December 2001, bringing the total number of nutrient management plans to four hundred with over 14,000 acres of cropland. All of the agricultural businesses were provided a written nutrient management plan with one-on-one technical service provided by the Nutrient Management Advisor.

Sixty-eight clientele, representing agricultural business, farmers, and government agencies, received eight hours of classroom instruction in a series of two four-hour seminars. The clientele were instructed in basic soil sciences, animal waste and sludge management, and the implications of the 1998 Maryland Water Quality Act. Seventeen of the participants took the examination to qualify as a certified Nutrient Management Consultant. Nine individuals passed the examination. This agent, along with an extension educator from a neighboring county and the nutrient management advisor, were the instructors.

b. Impact. Twenty-seven clientele participated in a nutrient management field day. The participants learned the procedures and techniques of planning, organizing and generating, a phosphorus site index analysis for cropland. This in-depth analysis will be needed on cropland that phosphorus exceeds the recommended levels as prescribed by the Water Quality Act of 1998. Thirty-three clientele were provided one-on-one or small group instruction and technical assistance on the utilization of animal waste on their cropland. Clientele increased their knowledge and adopted best management practices. Seven articles on the Nutrient Management Program were written and published in the weekly newspaper column "Garrett County Farm-O-Gram".

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

4.2 Improve water quality through the adoption of sound environmental stewardship practices by the public and municipalities.

(Key Themes – Biological Control, Integrated Pest Management, Pesticide Application, Riparian Management, Soil Erosion, Water Quality: Key Themes from Goal 1: Home Lawn and Gardening)

Maryland Cooperative Extension educators developed 145 programs in 23 counties, Baltimore City, three regions of Maryland, state, multi-state, and national. Topics covered included proper applications of nutrients and pesticides by homeowners; increase knowledge of septic systems; municipalities adopt environmentally sounds practices of water and nutrient management; green industries practice bay-wise techniques; developers, loggers, and landowners reduce soil erosion; and increased installation of riparian buffers by landowners. These programs reached 13,299 people.

Examples of educational programs include the following:

Project 4.2.1 - Private Well and Septic System Management.

a. Project Statement. The goal of this program is to educate homeowners on the importance of the maintenance of their private drinking water and on-site sewage systems. It is important for homeowners to understand how water moves through the

earth and how a failing or neglected septic system could contaminate the water they get from their wells and directly affect personal and environmental health. The National Environmental Training Center for Small Communities invited the Regional Specialist to consult with them, and offer training of the program to a national audience of educators. Other educators are now using the Regional specialist's training materials and program nationally.

For the last several decades, water quality programming has been directed at agriculture and industry. However, many Maryland residents lack education on their role in water quality degradation, even though mismanagement of homes and yards can contribute to water quality problems. This program has been designed to educate homeowners on how they directly affect water quality. Private septic systems are known polluters of the environment. Most homes with on-site wastewater treatment systems also have private wells for drinking water. It is imperative that both systems are maintained when they are in close proximity. The Maryland Department of Environment estimated that more than 30,000 of the existing 424,000 septic systems in the state are known to be failing, with estimates of 60% suspected to be failing! Yet, thousands more are being installed each year. Most of these failures are due to neglect, as the systems have not been properly maintained. In addition, urban residents are moving to more rural areas and are not familiar with the maintenance requirements of s septic system or well. Realtors and builders selling the homes do not provide information on these systems. Worse, the word-of-mouth information people pass along is usually incorrect.

Thirteen workshops were presented to more than 400 homeowners throughout the State of Maryland and neighboring states. Participants are taught ground and surface water hydrology, how they affect water quality, and well and septic system maintenance.

b. Impact. Surveys handed out during the workshops are returned by more than 70% of the participants. A sampling of 121 survey results from 5 programs show that 100% of the attendees found the program to be informative. 94% of respondents say the workshop increased their knowledge a great deal on the topics presented. The topics are: natural factors (precipitation, geology) which affect the quality of well water and septic system operation; human activities or conditions that can cause ground water contamination; the purpose, function, and maintenance of septic systems; the function structure, and maintenance of water wells; reasons for protecting ground water, and the value of periodic testing of private drinking water; the function, comparison, and purchase of treatment devices for water quality problems; where to go for additional information and where to locate records on their well and septic system. 68% have had or will have their water tested, and 79% have had, or will have their septic system pumped.

The Maryland State Realtors Commission, in accordance with the Maryland Realtors Continuing Education Program, has approved and recommended the Regional Specialist's program for continued education credits. Out of 95 Realtor participant

surveys, 95$ stated they left the workshop with above average or extensive knowledge on the subjects presented. All 95 (100%) indicated the presentation met the stated objectives, was understandable, interesting and valuable. 100% indicated their intention to personally use the information presented, as well as provide the information to their clients. Reaching thousands of Realtors throughout the state, an effective front line for dispersal of this information, will allow a more efficient transfer of this knowledge to the hundreds of thousands of homeowners with these systems. To date, over 450 Realtors, from four regional associations, have attended this program. The program will continue to expand to all county Realtor Associations in the coming years.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: City Specific

Project 4.2.2 - Improving Water Quality by Adopting Environmental Stewardship Practices.

a. Project Statement. Even though the program on "Riparian Buffer Systems" was developed in 1998, there is still a demand for programs and resource materials. Two new fact sheets and a magazine were developed in 2000 to support these continuing demands for educational materials. In cooperation with an extension specialist, two fact sheets were developed, entitled, "When a Landowner Adopts a Riparian Buffer-Benefits & Costs" and "Riparian Buffer Financial Assistance Opportunities". Over 1,000 copies have been distributed since their printing (Spring 2000). Also in cooperation with an extension specialist, a magazine was developed, entitled, "Riparian Buffers-Linking Land and Water". Nationwide, VA, VT, ME, KS, OH, WVA, NC, TN, GA, and Canada (Nova Scotia) have requested training materials, fact sheets, and videos. Seven states (PA, NJ, KY, NY, CT, MN, CA) have adopted our two-day training program model to initiate a training program in their state. The audience includes professional resource managers, such as foresters, wildlife biologists, extension agents, planners, engineers, and landowners. Over 6,000 of our seven fact sheet series on riparian buffers and over 5,000 copies of our video entitled, "Riparian Buffers - The Link Between Land & Water", have been distributed world wide, to include Puerto Rico, Germany, Albania, and England. In addition to the 1,400 participants in our satellite-training program held in 1998/99, it is estimated an additional 4,000 professionals have been trained through the adoption of MCE educational materials and training models. The web site www.riparianbuffers.umd.edu received over 2,000 hits and is considered the central location for riparian buffer information by MD, DNT and USDA-NRCS. Surveys to evaluate the effectiveness of our training programs held in 1998/99 will be sent out in January 2001. These surveys/evaluations were not completed in 2000 due to the time dedicated to the research project noted below.

b. Impact. As a result of this overall educational program, it is estimated over 200 miles of buffer in MD have been balanced or enhanced. MD goal is 600 miles. This

was a cooperative effort between an extension assistant and this regional specialist. This regional specialist's role was to design, coordinate and develop educational materials and training curriculum. This regional specialist presented three landowner based educational programs to 125 participants and one program for five visiting scholars from Argentina. Self-appraisal pre and post-tests given also indicated the level of knowledge increased by 1.5-2, on a scale of 1-5. In addition, the Montgomery County Planning Commission used the video in an educational program broadcast over a county cable network to schoolchildren in Montgomery County. The video and fact sheets are also used as part of the environmental science curriculum at Bowie High School. This regional specialist was also invited by EPA to participate in a Mid-Atlantic Watershed Roundtable discussion in New York. Our Riparian Buffer program was being used as a model for educational programming. Assisted in developing, designing and implementing a field-focused research project on assessing riparian buffers in cooperation with four campus-based faculty members. Developed field collection criteria and assisted in training field crews in data collection. 300 field sites were evaluated. In the second component of the research project, this regional specialist assisted in developing procedures and questions for a telephone survey reference to riparian buffer adoption and values of educational materials in motivating landowners to install a buffer. This project is part of a 4-year research program, with 2001 being the final year. This regional specialist will be evaluating the impact of educational materials in motivating landowners to install a buffer.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

4.3 Maintain a water supply capable of supporting both commercial and private needs today and in the future by protecting and conserving surface and ground water resources.

(Key Themes – Drought Protection and Mitigation, Water Quality)

Maryland Cooperative Extension educators developed 74 programs in 12 counties, 3 regions in Maryland, state, multi-state, and national. Topics covered included communities and individuals adopting water conservation practices; and communities and municipalities officials receiving training in ground-water protection standards under the National Drinking Water Act. These programs reached 2,345 people.
Examples of educational programs include the following:

Project 4.3.1 - Ground and surface water hydrology.

a. **Project Statement.** Maryland's water resources are affected by each citizen of the state. Understanding the relationship between water resources and our actions is necessary in order to be able to relate our everyday activities to the consequences they present on water quality. The objective of this program is to educate the citizens of

Maryland on ground and surface water hydrology, how human and animal activities can affect hydrology and water quality, and the measures that can be taken to protect our water resources.

Using a ground water flow model as the main teaching tool, participants are able to visualize ground and surface water interaction. Demonstrations on how quickly surface contamination can reach groundwater, such as inappropriate and excessive fertilizer and herbicide applications, reckless disposal of motor oil and other hazardous materials, along with contamination from landfills, leaking underground storage tanks, septic systems, etc., drive home the impact each individual has on water quality.

b. Impact. Fifteen seminars were presented to just over 1,000 Maryland residents. School children of every age have been taught throughout the state, along with farmers, greenhouse and nursery operators, lawn care company employees, environmental and community groups, local government officials and 4-H youth. Exit surveys from a total of 75 greenhouse and nursery growers who attended 6 different programs in the past 3 years gave the Regional Specialist the highest rating available. (5, on a scale of 1 to 5.) 94% of the participants rated the program as interesting and informative. 94% said they anticipated using the information given, and 93% said the speaker presented the material effectively.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

Project 4.3.2 - Improve Water Quality Through Composting

a. Project Statement. Improve the application and adoption of land-applied biosolids, manures, composted materials, and other organic byproduct. Nursery and greenhouse crop producers, landscapers and ground maintenance firms will increase the proper application of composted materials, manure and other organic products to the land.

b. Impact. Program results and outcomes:
32 participants in the Better Composting School, October 2001 participated in lab course on compost quality taught by Regional Specialist and marketing compost to the horticulture industry. 110 compost producers, nursery crop growers, environmental and regulatory agency representatives became familiar with Vermicomposting, marketing, environmental and related issues on composting through the Annual Meeting of the Mid – Atlantic Composting Association Annual Meeting on Sept. 28th at Chesapeake College. Regional Specialist served as conference chair and program coordinator.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County.

4.4 Maintain a water supply capable of supporting both commercial and private needs today and in the future by protecting and conserving surface and ground-water resources.

(Key theme - Water Quality)

Overview - Research

The contamination of surface and subsurface water supplies due to non-point source agricultural runoff is among the most serious environmental problems facing American agriculture today. About 60% of the rivers and lakes in the United States are polluted by agricultural runoff; rivers primarily by sediments, and lakes by nutrients. Additionally, surface and groundwater are contaminated by a variety of pesticides, and nutrient sources such as fertilizers and manure. One of the challenges for developing economically sustainable agriculture is to simultaneously reduce non-point source pollution problems and maintain farm and rural industrial incomes at reasonable levels. One solution is watershed-scale planning and management which makes it possible to target Best Management Practices (BMPs) for the greatest improvement in water quality even though watershed planning is much more complicated than field or farm scale planning.

As an 1890 Land Grant institution, UMES is committed to continue the services and applied research currently provided to area farmers, watermen and resort residents (Eastern Shore tourism industry). We expect to bridge the agricultural, environment, and renewable natural resource programs and find ways that farmers and businessmen can be economically enhanced while not harming the environment and do so with concern and sensitivity to all facets.

Primary Goals

- Adopt management practices for agricultural production that enhance natural resources.
- Improve the application and adoption of land-applied biosolids, manaures, composted materials, and other organic byproducts.
- Improve water quality through the adoption of sound environmental stewardship practices by the public and municipalities.
- Maintain a water supply capable of supporting both commercial and private needs today and in the future by protecting and conserving surface and ground-water resources.
- Promote environmentally sound land use plans that manage growth and value the benefits to society of farms and forest lands.
- Increase recycling and appropriate product disposal.

- Promote the use of rural and urban forest stewardship practices to maintain a sustainable forest resource.

- Improve fish and wildlife habitat and species diversity, as well as promote the use of new management techniques that manage wildlife and control damage to property, crops and people.

Adopt management practices for agricultural production that enhance natural resources.

Because of the intense competition between farming and the urban population in Maryland, much of our work has focused upon the reduction of chemicals and other exogenous inputs to farming systems. In particular, Maryland leads the nation in the development of nutrient management programs for control and reduction of nutrients on cropland. This effort began with the Pfiesteria outbreak of 1997 and has focused on the reduction of phosphorus to farmland. Further, due to the high cost of land and labor in Maryland, we have examined ways to reduce costly pesticide use on both cropland and in the greenhouse. Many of the best programs for reduced pesticide use in the US were developed in Maryland.

Examples of research projects include the following:

Project 4.4.1 - Intensive Nutrient Management for Efficient Crop Production

a. **Project Statement.** Research program explores the fate of nutrients in agroecosystems. Efficiency of nitrogen and phosphorus utilization during different phases of numerous crop rotation systems and the evaluation of the potential for nutrient losses from production soils are the primary objectives of this research program. Nutrients applied to agricultural lands, either as purchased synthetic fertilizers, animal manures, or biosolids have three alternative fates: be utilized by the growing crop; be retained in the soil as components of dynamic nutrient cycling processes; or be lost from the soil by water transport or atmospheric volatilization processes. Nutrient losses from soil can result in detrimental impacts on surrounding natural waters including accelerated eutrophication, aquatic habitat degradation, and impairment of drinking water quality. The goal of our research is to maximize the efficiency of crop nutrient utilization while minimizing the potential for nutrient losses from agricultural land.

b. Impact

The overwhelming majority of the 2 million acres of cropland in Maryland are fertilized with either purchased synthetic fertilizers or animal manures. These nutrient inputs contribute to the cost of production of all commodities. Efficient use of applied nutrients is essential to minimize production costs and sustain farm profitability. Evaluation of nutrient application rate and timing in Maryland's

numerous crop production systems permits identification of the most agronomically and economically efficient nutrient management practices. Refinement of soil testing and other methods used to evaluate soil nutrient availability to crops enables managers to more accurately determine the quantity of fertilizer nutrient input necessary to optimize production and yield.

Adequate nutrient availability to agronomic crops is essential for both maximum production quantity and commodity quality. Grain and forage quality is affected by the balance of nutrients available to the crop during its growth. Soil and plant analyses are useful diagnostic tools for evaluation and management of nutrient availability that in turn determines commodity quality.

Although applied nutrients are essential in Maryland's crop production systems, over application of nitrogen and phosphorus may pose an environmental risk. Nitrogen and phosphorus transport from agricultural soils to surface waters can contribute to the eutrophication of these natural water bodies and spark declines in water quality. Nitrogen leaching through soil to groundwater has been documented as a human health hazard as well as an environmental hazard. Management of nitrogen and phosphorus inputs to cropping systems that ensure adequate nutrient availability to the growing crop while minimizing the potential for excess or residual nutrients to runoff the soil surface or be leached out of the crop root zone has been a primary research focus. Management of soils that have historically received over applications of phosphorus and reducing the potential for phosphorus losses to adjacent water resources is a rapidly expanding research priority.

Preservation of a sustainable agriculture industry in the rapidly urbanizing mid-Atlantic seaboard is a daunting social challenge. Sustainable agriculture is not possible without the use of sustainable nutrient management practices. Environmental protection, habitat preservation, and water quality issues are part of our society's daily conservation and agricultural nutrient management plays a premier role in this social debate.

c. Source of Federal Funds: Hatch Project MD-B-182

d. Scope of Impact: National

Improve the application and adoption of land-applied biosolids, manures, composted materials, and other organic byproducts.

Project 4.4.2 - Determination of Practical Approaches for Decreasing Phosphorus in Poultry Litter

a. Project Statement. **The primary focus of the research work being done in my laboratory is on ways to reduce phosphorus in poultry litter through nutritional and bird management changes. A project entitled "Feed Changes to Reduce Phosphorus Retention in Broilers" is a long-term project through which we seek to find answers in five key areas:**

1. Phosphorus requirements of broilers in a four phase feeding program (starter, grower, finisher, and withdrawal)

2. Determination of the best combination of feed additives (phytase, other enzymes, organic acids, probiotics, vitamin D metabolites, etc.) that minimize litter phosphorus at the least cost.

3. Through collaborative work determine the effect of the use of feed additives not only on total litter phosphorus but also on the solubility, run off characteristics and plant availability of the phosphorus in the litter.

4. Determination of management changes that could help improve the retention of phosphorus and other nutrients and decrease phosphorus and other nutrients in litter.

5. Develop a cost benefit compute model that will allow for the determination of the best combination of feed additives and management changes that minimize phosphorus in litter at the lowest cost under different sets of circumstances (feed additives cost and availability, phosphorus application limits, ingredient costs, broiler prices, etc).

To maximize the use of the technology developed for broilers we will also apply this technology to minimize phosphorus in manure of other monogastric animals such as fish (stripped bass) and pigs.

Another area of interest is to develop nutritionally sound feed management programs that supply the needs of exotic animals.

b. Impact

Minimizing waste from broiler production: The economic well being of animal agriculture depends in part on the development of strategies that give producers the ability to meet new environmental regulations. Over the last 10 years, environmental issues have focused producer, legislative, and public attention on optimizing animal waste management. New legislation in several states has limited the amount of phosphorus and nitrogen application to soils. Recently, legislation has shifted from a nitrogen to a phosphorus base (i.e. limiting excess phosphorus application to soil

based, in part, on soil phosphorus content). This shift can limit the amount of manure applied to any given cropland by nearly 50 to 70%. In areas of intensive animal agriculture (Delmarva Peninsula, North Carolina, etc.) this has resulted in an insufficient amount of cropland for application of manures and may result in the added expense of manure transport out of these regions.

Maximizing the amount of diet phosphorus by poultry as well as feeding poultry at requirement levels will result in a large reduction of phosphorus in poultry litter. This lower phosphorus content will allow for increased and better litter use rates and will reduce environmental pollution and eutrophication caused by excessive soil P content.

The goal of this research is to find economically viable options that allow for poultry production to maintain current productivity numbers but greatly decrease phosphorus in litter. This benefits consumers, the environment, poultry growers and poultry companies.

Impact of work done on Exotic Animal Nutrition: The aim of this work is to find diets that meet the needs of different exotic animals. A part of this work focuses on endangered species (such as the maned wolf). Many of these species are endangered because of loss of habitat in the wild. Species Survival programs seek to promote reproduction of these species in captivity with the hope that these animals can, in the future, be released into protected wild habitats. Finding diets that promote health and reproduction in these endangered species will take us a step closer to preserving these species for future generations.

c. Source of Federal Funds: Maryland Dept. of the Environment; Delmarva Poultry, Industry, Inc.; Maryland Agricultural Experiment Station

a. Scope of Impact: International

Improve water quality through the adoption of sound environmental stewardship practices by the public and municipalities.

Project 4.4.3 - Constructed Wetlands for Treating Dairy Wastewater

a. Project Statement. The focus of this research is to evaluate the effectiveness of wetlands constructed for treating dairy milkhouse waste. We are collecting monthly data on a suite of water quality parameters from various locations within wetland-

based treatment systems. The parameters we analyze include biological oxygen demand (BOD), chemical oxygen demand (COD), nitrogen (ammonia, nitrate, nitrite, and total nitrogen), phosphorus (ortho-phosphate and total phosphorus), total suspended solids (TSS), pH, electrical conductivity, dissolved oxygen, and temperature. These data allow us to quantify the treatment effectiveness of the various components of the systems. Additionally, we are monitoring vegetation in the wetlands to assess changes in community structure in response to wastewater constituents. Vegetation characteristics we are monitoring include species composition and abundance in permanent plots, the species composition of buried seeds (i.e., the seed bank), and standing biomass of dominant species. Because of the importance of peat formation in the retention of certain nutrients (phosphorus in particular), we are initiating studies of the decomposition rates and nutrient retention capacity in various wetland plant species.

b. Impact

On a regional scale, it is generally less expensive to implement measures for nutrient and solids control rather than to restore ecosystems damaged by these substances. On a local scale, constructed wetlands may be less expensive to operate than conventional wastewater treatment systems. Additionally, with a trend toward having more animals per unit area of farmland, these systems may also have the benefit of requiring smaller land area than some waste management practices.

A better understanding of the factors controlling the effectiveness of wetland-based treatment systems will improve their design and implementation.

Milkhouse wastes contain high concentrations of solids and nitrogen and phosphorus compounds. These substances can result in eutrophication of downstream water bodies, damaging or altering aquatic ecosystems and the socioeconomic values that depend on them. Wetlands naturally remove solids and nutrients from water flowing through them, and we are harnessing this capacity to remove potentially damaging substances from wastewater before it is discharged to the environment. We have found that constructed wetlands significantly reduce concentrations of nutrients, solids, and oxygen demanding substances in dairy wastewater.

Reducing the quantities of nutrients and solids discharged to aquatic ecosystems will improve the health of aquatic animals. Lower nutrient levels may also prevent outbreaks of microorganisms dangerous to human health such as the dinoflagellate *Pfiesteria piscicida*.

Constructed wetlands offer an alternative to energy- and labor-intensive conventional technologies that may be more socially acceptable in some areas.

c. Source of Federal Funds: MAES, USDA/SARE

d. Scope of Impact: International

Outcomes and impacts were measured in individual programs. Examples of these follow.

This project attempted to determine the effects of treating soils with agricultural gypsum (GYP); fluidized bed combustion fly ash (FBC) and anthracite refuse ash (AFA) to control phosphorus (P) loss from P-enriched soils on the Eastern Shore of Maryland. It also monitored possible groundwater contamination and, the loss of Nitrogen (N) and P due to surface run-off following the application of poultry litter to P enriched soils on the Eastern Shore of Maryland.

Project 4.4.4 – UMES Best Management Practices (BMPs) recommendations to improve management of P losses

a. Project Statement. Forty-eight surface runoff boxes (amended with five gallon collection containers inserted in the soil) were treated with GYP, FBC and AFA. Treatments were applied to the top two inches of soil (5.08 cm) at four rates (0, 10, 20, and 40 g kg^{-1}) to minimize P loss from soils. Corn (*Zea mays*) was planted in collection boxes to determine if the levels of available P not bound by GYP, FBC and AFA would be sufficient to produce standard corn yields. Twenty-four lysimeters were also installed at two depths (30 and 60 cm) and treated with the above amendments to minimize P leaching from the soil profile into ground water. Kentucky 31 *fescue* was planted to the soil of each lysimeter. Soil, water and sediment, and plant samples have been collected for the first year of the study and are being analyzed. Similar activities and data collection will continue for years two and three. Results from this study will be used to provide farmers with Best Management Practices (BMPs) recommendations to improve management of P losses from soils amended with poultry litter due to surface runoff and leaching.

b. Impact. The further establishment of evidence that low cost coal combustion by-products have the ability to bind and complex phosphorus (P) in soils treated with high amounts of poultry litter over long periods of time. This will make a significant contributions to helping mitigate P run-off and P deposition into ground water that eventually find its way into the Chesapeake Bay, other coastal bays and, ground water aquifers.

c. Source of Funds: Capacity Building/CSREES/Evans- Allen ($80,475)

d. Scope of Impact: Regional-Delmarva Peninsula and Arkansas

Project 4.4.5 – UMES ASTM standardization process

a. Project Statement. - Maryland was responsible for the providing the guidelines and materials for the inter-laboratory study conducted by New York, Illinois and Maryland. This was a part of the ASTM standardization process for the pipette method. The ASTM draft was approved by the sub-committee and has been submitted to ASTM F23 Main Committee for balloting. A draft has also been submitted to ISO to be considered as an ISO standard. In addition, Maryland worked with National Institute of Occupational Health (Spain) and Federal Agricultural Research Center (Germany) to compare the proposed ASTM pipette test method with gutter and atomizer methods to measure protection provided by textile materials against liquid pesticides.

b. Impact. The new standard test method has the potential to be used by researchers, industry, and organizations in the US and other countries to measure the performance of textile materials against liquid pesticides. Better screening methods will be developed, and workers will be better protected.

c. Source of Federal Funds: Evans-Allen- 1890 ($43,691)

d. Scope of Impact: National

4.5 Promote the use of rural and urban forest stewardship practices to maintain a sustainable forest resource.

(Key Themes – Forest Resource Management, Natural Resources Management)

Maryland Cooperative Extension educators developed 45 programs in 10 counties, 3 regions in Maryland, state, multi-state, and national. Topics covered included forest landowners, youth, urban citizens, and conservation groups gaining knowledge in forest stewardship; forest landowners developing and implementing a forest management plan; forest landowners gain knowledge about alternative income enterprises; and natural resource professions will gain knowledge and enhance skills in forest management, alternative income enterprises, technological applications, and public policy conflict resolution. These programs reached 3,814 people.

Examples of educational programs include the following:

Project 4.5.1 - Coverts Project.

a. Project Statement. Volunteer program trains opinion leaders how to improve wildlife habitat through sound forest management practices. Volunteers share information with others in their communities:

This agent provides leadership and makes critical decisions for the Coverts Project, organized the 3.5 training workshop with 18 inside sessions and two half-day field tours, and teaches 11 of the inside sessions and both field sessions. Entire program is linked to the DNR Forest Stewardship Program. Under direction of the agent, the

project assistant, maintains regular communication with cooperators by E-mail and other means, develops newsletters, and provides follow-up and support for cooperators. The extension assistant maintains the database.

About 700 applications were mailed to recruit 45 qualified applicants, of which 30 were selected for the 3.5-day training workshop. A reference manual, signs, business cards, brochures and other aids were developed for program.

b. Impact. Cooperators reported an average knowledge gain of 1.7 points on a scale of 1 to 5 when comparing knowledge level prior to, and after completion, of the training workshop (an increase from 1.4 the previous year). Three newsletters were developed by the project assistant under agent direction to communicate regularly.

- Since 1990, 287 cooperators have been trained - 24 cooperators in 2000. The agent, V. M. Schultz, and cooperators organized a one-day refresher course attended by 23 cooperators that focused on walking a forest property with a consultant forester to discuss marketing and management considerations and how to share information with others.
- The annual 2000 survey was sent to 240 active cooperators with 74 being returned from cooperators. Results indicated the following: 5,985 people received information on forest/wildlife management or the Coverts project from all efforts, with 739 of those being personal contacts. 65% had organized some event that included forestry or wildlife information, many were field tours. 12% used the media to inform people and 31% distributed written information. 80% took steps in managing their own properties on a total of 3,265 acres mentioned. About 42% reported that other woodland owners had sought professional management assistance as a result of their efforts. Cooperators reporting 2,071 hours devoted to outreach to friends, neighbors and community. 12,387 hours were spent by cooperators managing their own properties. 88% of cooperators indicated they would like to continue as cooperators.

- A large number of cooperators are now involved in leadership roles in state and local natural resource organizations and give credit to Coverts for motivating this interest. The Governor's Task Force on Forestry (report distributed in December 2001) was initiated by a Coverts cooperator and two cooperators sit on the panel. This has contributed to a task force recommendation to the Governor for $50,000 in state funding to support the Coverts Project.

c. Scope of Federal Funds: Smith-Lever 3b&c and state funds.

d. Scope of Impact: Multi-County Specific

Project 4.5.2 - Forest Stewardship

a. Project Statement. This regional specialist approached the Maryland Environmental Trust (MET) and private land trusts to continue an ongoing educational program on incorporating forest stewardship into conservation easements. Lack of long-term forest stewardship is a major concern in the forestry community.

MET asked agent to be part of a panel at the Mid-Atlantic Land Trust conference to share his ideas.

b. Impact: As a result of the ongoing educational efforts the last four years, in 2001 MET developed and is testing special legal easement language that incorporates forest stewardship into a conservation easement. Agent has met with MET and the state foresters office to work out problems with enforcement and monitoring. This has led to discussions with other large regional land trusts. A training program for land trust members on this topic is being planned for 2001 with the agent a major partner.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

4.6 Improve fish and wildlife habitat and species diversity, as well as promote the use of new management techniques that will manage wildlife and control damage to property, crops, and people.

(Key Themes – Wildlife Management)

Maryland Cooperative Extension educators developed 72 programs in 5 counties, 3 regions in Maryland, state, multi-state, and national. Topics covered included rural landowners gain knowledge of wildlife management and improve wildlife habitat; urban citizens improve knowledge of urban wildlife management; natural resource professionals gain knowledge and improve their skills in wildlife management; urban and rural homeowners and agricultural businesses increase knowledge and understanding of deer and other problem wildlife species and employ wildlife damage control techniques; and local governments gain knowledge about deer and develop successful management strategies. These programs reached 2,615 people.

Examples of educational programs include the following:

Project 4.6.1 - Wildlife Habitat

a. Project Statement. This regional specialist provided training to five 4-H youth in wildlife management in support of the Nat'l 4-H Wildlife Judging contest. Designed the field exercise and management planning questions for the state wildlife-judging contest. Presented a program on wildlife management to twenty-five 4-H youth at the Lower Shore 4-H winter fair. As a result of this program, two 4-H'rs participated in the state wildlife contest held at Keedysville. Also in response to 4-H youth interest in wildlife judging, this regional specialist developed a draft MD wildlife-judging manual. This manual will be edited and printed in 2002. In cooperation with an extension educator, developed and wrote a fact sheet entitled, "Wildlife Plantings-Food & Cover Plants". This fact sheet incorporates food and cover plantings,

fertilizer recommendations and planting rates for a variety of wildlife species. Over 1,000 copies have been distributed since it's printing in the spring of 2000.

b. Impact. Based on conversations with farmers, wildlife biologists, and extension agents, an estimated 35 farmers have adopted wildlife planting as a result of this fact sheet. This regional specialist taught a class on ecology and ecosystem services to 25 Master Gardeners at Adkins Arboretum. End of class evaluations were high (4.7) for teaching effectiveness and delivery (4.7).

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: Multi-County Specific

REE Goal 5. Enhanced Economic Opportunity and Quality of Life for Americans

Overview.

Maryland youth, families, and communities are the core components in increasing quality of life and economic opportunity. Currently, 13 percent of Maryland children ages 18 and under live in poverty. A single parent heads more than one fifth of families with children. Increases in parenting outside of marriage continue to create difficult consequences for women, children, and taxpayers.

The current welfare-to-work effort in Maryland requires families to develop the skills and resources needed for independent living by placing a 60-month maximum time limit for welfare benefits. As parents leave welfare to go to work, additional childcare providers are needed.

The process of public decision-making is currently a significant issue for Maryland citizens and policy makers alike. Land use, food safety, and childcare are examples of potential issues involving public decision-making. Because of the inherent difficulty of the situation, it is not uncommon for critical public decisions to be postponed, indefinitely tabled, or solved in uninformed ways.

Societal and governmental needs are growing more complex, fractionated, and global. Increasingly, citizens are asked to share leadership roles in their communities. New and replacement intergenerational leaders must be prepared for these civic challenges. Youth and adult leaders must have the skills, confidence, and ability to lead diverse groups in difficult situations involving polarization of opinion, civic disengagement, and conflict.

Volunteers provide educational, economic, and social benefits to families, individuals, organizations, and communities. Over 4,000 adults and 2,000 older teen leaders serve as Extension volunteers. Effective selection, training, involvement, and management are essential steps in maintaining and strengthening all volunteers.

The primary goals are:

- Resolve differences between competing interests/conflict management.
- Increase ability of Extension faculty to lead public issues education programs.
- Increase the ability of Extension volunteers to successfully carry out Extension programs.
- Adopt effective leadership practices and strengthen leadership competencies.
- Strengthen skills and knowledge to achieve economic stability.
- Develop and accept individual, parental, home, financial, and/or community responsibility through work, family, and community involvement.
- Enhance the attractiveness of Maryland youth to potential employers to enable youth to be productive contributing members of a global society.

- Increase the ability of Maryland youth to have caring relationships with family members, peers, and others in their communities.
- Increase the ability of Maryland youth to be competent youth leaders with a strong commitment to civic and social responsibility.
- Strengthen Maryland youth's understanding of the importance of good health and safe and healthy lifestyles.

Outputs.
Maryland Cooperative Extension educators developed approximately 3,500 programs, which were held in all 23 counties, Baltimore City, all three regions in Maryland, statewide, multi-state, and national. Topics covered were youth development, volunteer leadership and development, strengthening family life, family economic stability, parenting and child-care, welfare-to-work, public issues education, training of local officials, and resolving differences. These programs reached over 140,000 people.

Outcomes and impacts were measured in individual programs. Examples of these are in the following section.

Partners in these programs included the financial industry, many youth-serving agencies and groups, childcare provider organizations, National 4-H Council, county health departments, the Maryland Department of Health and Mental Hygiene, county social services departments, the Maryland Department of Human Resources, the Eastern Shore Health Education Center. Cooperation with other members of the land grant system included VA, West VA, DE, NJ, and PA.

Maryland's own assessment of accomplishments. Maryland Cooperative Extension is accomplishing the goals of their five-year plan. There is a balance of educational programs among the various goals and the Extension Administration Team is pleased with the accomplishments. Evaluations of outcomes from the five-year plan are conducted at the individual program level, not at the level of an aggregated REE goal.

5.1 Resolve differences between competing interests
(Key Theme – Conflict Management)

Maryland Cooperative Extension educators developed 36 programs which were held in 12 counties, Baltimore City, all three regions in Maryland, state-wide, multi-state, and national. Topics covered were identifying policy alternatives and their consequences, negotiating skills, identifying common ground, planning and implementing steps to reduce friction, appraising community benefits resulting from resolution of differences. These programs reached approximately 900 people.

Examples of educational programs include the following:

Project 5.1.1 Developing Consensus Agreements Among Stakeholders, Institute for Governmental Service (IGS).

a. **Project Statement**. In June of 1999 the Governor's Chesapeake Bay Cabinet created the Maryland Public Drainage Task Force to develop recommendations that would enhance the environment and protect the agricultural community by considering changes to public drainage ditches. The Maryland Departments of Agriculture and Natural Resources chose diverse members for the Task Force – including one Extension Educator -- to reflect the interests, experience, and expertise among stakeholder groups. The departments also asked an Extension Specialist from IGS to facilitate the Task Force. Two additional Extension Specialists also provided expert information to the Task Force. After monthly meetings, over more than a year's time, the Task Force negotiated a consensus set of seven recommendations. These recommendations are included in a report titled "Moving Water" and were presented to the Bay Cabinet on February 14, 2001. At that meeting, the Bay Cabinet agreed, unanimously, to implement the recommendations in the report.

b. Impact. The consensus agreement will have far-reaching and long-term effects on academic research, design, maintenance, and governance of Maryland's Public Drainage Ditches. For example, the agreement calls for: (1) a new framing of the issue – to acknowledge both the need to protect the economic well-being of people who depend on effective land drainage, while at the same time enhancing the environment that is affected by public ditches; (2) research on and application of Best Management Practices (with State budget support) for designing and maintaining public ditches; (3) a shift in the responsibility for the costs of land development on public ditches away from Public Drainage Associations and toward the land developers who create such costs; (4) an interagency group to oversee implementation of the agreement.

c. Source of Federal Funds. Smith-Lever 3 b&c and state general funds. Two Federal Agencies – specifically the NRCS/USDA and Army Corps of Engineers – served on the task force and are expected to help implement the recommendations.

d. Scope of Impact: State of Maryland, particularly the Eastern Shore. The Task Force Report may be useful to other states that face similar conflicts over drainage.

5.2 Adopt effective and responsive policies and programs; Increase ability of Extension faculty to lead Public Issues Education programs; Increase the abilities of Extension volunteers to successfully carry out Extension programs;

(Key Theme – Community Development, Public Issues Education)

Maryland Cooperative Extension educators developed over 400 programs, which were held in 23 counties, three regions in Maryland, statewide, multi-state, and national. Topics covered were policy development, public issues processes, conflict management, negotiating, and collaboration skills, framing public policy issues and including public issues education (PIE) in scope of work. Also, strategic planning processes, financial management, performance measures, and organizational climate, assessing local needs,

evaluating the effectiveness of programs as part of the "Excellence in Governance Certificate Program." These programs reached approximately 13,000 people.

Examples of educational programs include the following:

Project 5.2.1 Academy for Excellence in Local Governance. Institute for Governmental Service (IGS).

a. Project Statement. The Academy is a voluntary certificate program open to all local officials in Maryland. It is a collaborative partnership involving IGS, the Maryland Municipal League, the Maryland Association of Counties, and the Maryland Local Government Insurance Trust. An Extension Specialist initiated the program and chaired the organizing committee for the first 5 years of development. Fellows must complete 6 core classes and 6 electives for a total commitment of 25 instructional hours. The official program was initiated in 1998 and now has 400 Fellows, of which approximately 65% are elected county and municipal officials. Because of its growth, IGS has hired a part time coordinator to manage the program.

b. **Impact.** The second class of 70 Fellows graduated in June 2001;
A *Resource Guide for Small Jurisdictions – Where Can I Find Help* was published.

c. Source of Federal Funds: Smith-Lever 3b&c and state extension funds; tuition from Fellows

d. Scope of Impact: State of Maryland.

Project 5.2.2 Strategic Planning for Jurisdictions and State Agencies. Institute for Governmental Service (IGS).

a. Project Statement. At the request of jurisdictions and state agencies, IGS provides strategic planning assistance, which generally results in a strategic plan for the organization. The assistance involves conducting a SWOT analysis, visioning, identification of issues, and writing goals and action plans. The activity can be as brief as one day but generally takes place over a series of meetings over several months. A written report lays out the plan, which provides direction to the organization over the next several years. In FY 2001, Extension Specialists provided strategic planning assistance to 3 jurisdictions with total populations of 28,722 and one state agency.

b. Impact. The Town of Bel Air completed a strategic planning process and drafted a plan. The City of Hyattsville and the City of Seat Pleasant completed phases of strategic planning. The Maryland Environmental Service – a quasi-public state agency -- drafted a strategic plan, which is now in final review status.

c. Federal Funds: Smith-Lever 3b&c and state extension funds; small fee charged to jurisdictions and agency.

d. Scope of Impact: State of Maryland.

Project 5.2.3 Local Government Personnel Management. Institute for Governmental Service (IGS).

a. Project Statement. At the request of small local governments, IGS provides technical assistance to municipalities to help local officials improve the management of their jurisdictions. In FY 2001, Extension specialists provided assistance to several Maryland communities. The assistance involves meeting with local officials and drafting manuals. The materials drafted are reviewed by elected officials and often put into law.

c. Impact. The Town of Capital Heights has adopted the Personnel Rules and Regulations as part of their town ordinance. The Towns of Rising Sun and St. Michaels have adopted the Personnel Rules and Regulations as part of their towns' ordinances.

c. Federal Funds: Smith-Lever 3b&c and state extension funds; small fee charged to towns.

d. Scope of Impact: Town of Capital Heights, Town of Rising Sun, and Town of St. Michaels.

Project 5.2.4 Developing Working Agreements Across Jurisdictional and Agency Boundaries. Institute for Governmental Service (IGS).

a. Project Statement. In the summer of 2000, the Maryland Department of the Environment requested the creation of an Anacostia Trash Committee, to include representatives from the Federal Government, District of Columbia Government, Maryland State Government Agencies, Prince George's County (Maryland) Government, Montgomery County (Maryland) Government, Washington Regional Public Agencies, and Nongovernmental Organizations concerned about trash in the Anacostia River. An Extension Specialist from IGS is facilitating the development of a strategic plan, for trash removal and prevention, and a policy statement to be signed by the Mayor of the District, Governor of Maryland, and Montgomery and Prince George's County Executives. The Committee has met over the past eight months and concluded its work in mid 2001.

b. Impact. The plan and policy agreement will significantly affect public funding for education for trash pollution prevention, investments in infrastructure -- such as screens for storm sewers -- and public services such as street sweeping and the policing of the illegal trash-dumping.

c. Source of Funds: Smith-Lever 3 b&c and state general funds. One Federal Agency – the National Park Service – serves on the Committee.

d. Scope of Impact: DC and the State of Maryland in the Anacostia Watershed.

5.3 Adopt effective leadership practices; Increase leadership ability of Youth, Adults, Extension Personnel

(Key Theme – Leadership Training and Development)

Maryland Cooperative Extension educators developed over 200 programs which were held in 23counties, Baltimore City, three regions in Maryland, state-wide, multi-state, and national. Topics covered were assessing leadership skills, team building, conflict management, communication, personnel and volunteer management, motivation, and team building. These programs reached over 4,000 people.

Examples of educational programs include the following:

Project 5.3.1 LEAD Maryland. Institute for Governmental Service (IGS) and Extension Ag Educator and Extension Administration.

a. Project Statement. In February 1999, the first class of LEAD Maryland, an agricultural leadership program, was instituted. Partners in the program include the College of Agriculture and Natural Resources, the Maryland Department of Agriculture, the Maryland Farm Bureau, the Maryland Grain Utilization Board, and the Maryland Agricultural Education Foundation. The purpose of LEAD is to provide men and women interested in agriculture the opportunities to improve leadership, develop a network of diverse people, and increase understanding of critical issues. Twenty-three Fellows were selected for the 18-month program. An executive director was hired. The students completed 8 three day seminars, a three day trip to Washington DC, and a ten day international trip to look at the European market. Teaching methods included field visits, assessments, panels, case studies, presentations, and self-discovery. In September 2001, 23 Fellows were recognized for the completion of the program. Following completion of an application process and interviews, 23 new Fellows were selected to start Class II in February 2002.

b. Impact. All 23 Fellows of Class I completed the 37-day program. At the end of the program, Kellogg Foundation met with the Fellows and published a written report commending the program. Three of the Fellows were elected to the LEAD Maryland Advisory Board. All of the graduates continue to be involved in nurturing the program and mentoring the new Fellows. The program has attracted support from over 15 local, state and national organizations. An international trip to Cuba is being planned for 2002.

c. Source of Funds. Smith-Lever 3b&c and state extension funds and over $220,000 from non-profits and foundations in the state and country; tuition from Fellows.

d. Scope of Impact. State of Maryland

Project 5.3.2 Building Teens for Better Communities (BTBC). Institute for Governmental Service (IGS) and 4-H Youth Development.

a. Project Statement. BTBC began as a tri-state effort to test the youth as partners approach with the implementation of a small-scale community development project. Four teams of 26 youth and eight adults learned and practiced leadership skills, developed new perspectives on community and worked on a community project. An additional 15 teens and 3 adults participated in the latter phase of the program. The teams came from diverse backgrounds including a rural church group, a suburban 4-H teen council, a newly formed teen association in an urban working class community, and a teen group in an urban public housing project. The 18-month project included focus groups, two regional conferences, site visits, and assessments. Cooperating with IGS and the Maryland Cooperative Extension were the Maryland 4-H Tech Corps, Maryland Safe and Sound Program, Rutgers Cooperative Extension, Center for Innovation for Community and Youth Development at the National 4-H Center, Hagerstown Boys and Girls Club, Hagerstown Housing Authority, Baltimore County Recreation and Parks, Maryland Save Our Streams, and the NJ Kids Educational Enrichment Programs.

d. **Impact.** Three of the four teams successfully completed their community projects. Assessments done at the beginning of the project and the end indicate the teens changed positively in terms of their perceptions of self-empowerment, ability to talk to outside groups, and planning skills. Two new teams were started. A handbook, *Building Teens for Better Communities Tool Box*, was published and distributed to Extension across the country. Two workshops were presented at the National 4-H annual meeting and abstracts published. *Municipal Maryland* accepted an article for publication for the spring of 2001. Currently, this publication is selling well across the states for use by numerous youth development organizations.

c. Source of Funds: Smith-Lever 3b&c and state extension funds and two Maryland Cooperative Extension Program Development grants and Northeast Regional Rural Development Center grant.

d. Scope of Impact: MD, DE, NJ, WV

Project 5.3.3 **Developing the Leadership Capacity of Citizens and Public Officials Institute for Governmental Service (IGS).**

a. Project Statement. Since January 1999, Extension Specialists at IGS have coordinated and provided most of the teaching for a leadership program called the Water Resources Leadership Initiative (WRLI). During that period, 43 individuals have become active Fellows in WRLI. While most WRLI Fellows are Marylanders, a person from VA (a local Extension Educator) and a person from PA are also in the

program. WRLI Fellows meet with IGS faculty and with other teachers for six three-day sessions during their first year of the program. During their second year, the Fellows complete applied practicum projects. Thirteen Fellows have completed their practica and graduated; fourteen are working on their practica; and fifteen have completed the first of their six sessions.

b. Impacts. Fellows increase their leadership capacity by enhancing their knowledge and skills about water policy development, collaborative group processes, and leadership knowledge and skills. In addition, they are creating a network of people – across state, agency, and organizational boundaries – for working together to solve water issues.

c. Source of Funds: Smith-Lever 3 a&b and state general funds. Start-up funds provided by the Economic Development Administration through the Rural Development Center, University of Maryland Eastern Shore. The program has become self-supporting. Federal agencies that are participating in the program include: EPA and NRCS/USDA.

d. Scope of Impact: MD, PA and VA, to date. We have also visited and interacted with people in NC and DE, and WV.

5.4 Strengthen skills and knowledge to achieve economic stability

(Key Theme – Estate Planning, Family Resource Management, Retirement Planning)

Maryland Cooperative Extension educators developed over 600 programs, which were held in 23 counties, Baltimore City, three regions in Maryland, statewide, multi-state, and national. Topics covered were basic money management, credit use, insurance coverage, estate and retirement planning, savings and investments. These programs reached approximately 13,000 people.

Examples of educational programs include the following:

Project 5.4.1. Maryland Cooperative Extension Personal Finance Seminar for Professionals.

a. Project Statement. Financial educators and counselors have an increasing need to keep current with an ever- changing body of knowledge. Since 1989, Maryland has offered an annual financial education seminar to meet the needs of educators in the employment of the financial industry, Land Grant Universities and the military. Nine hours of general sessions were presented by nationally recognized authors**. Fifteen** concurrent sessions were held to meet the needs of military personnel as well as the university and industry representatives. A focus on the scams and frauds, which plague the under-educated and the impoverished, spotlighted the program with many of the presenters from governmental agencies.

b. Impact. Evaluation from the 17-hour seminar attended by 125 participants (85 evaluations returned) indicated that the participants felt presentations were excellent (4.4-4.1 on a 5-point positive Likert Scale). They "learned a great deal" (4.4 to 4.1), and felt it was "very useful in my work" (4.4 to 4.2). Participants rated the seminar at 4.5 in "well worth my time to attend**.** Participants reported that they counseled or educated in excess of 41,000 clients/families per year.

c. Source of Funds: Smith Lever 3b&c and state general funds. This project is self-funded through registration fees. Human Resources allocation ranged from one month of educator time (25 days) for the Chair to one day's time for facilitators.

d. Scope of Impact: National. Participants came from U.S. military, credit unions, housing non-profits, housing management agencies, financial institutions, six State Cooperative Extensions and credit counseling non-profits.

Project 5.4.2. Anne Arundel County. Financial Stability.

a. **Project Statement.** Consumers will gain knowledge and strengthen skills in order to improve management of their financial resources and obtain financial stability. Economic stability issues include credit management and basic money management.

Outcomes: Forty-one classes were attended by 1,642 participants in the area of financial stability. Continued a 3-year partnership with the Employee Assistance program of the National Security Agency and taught16 sessions of the series Financially Fit to 527 employees. This four-part curriculum provides a comprehensive money management program and has helped participants identify money management problems before they become unmanageable.

b. Impact. Pre-Post tests (N= 421) showed: 73% developed a spending plan; 52% requested a credit report; 48% increased savings, and; 31% completed a net worth statement. Power Pay computer analysis was completed for 108 class participants and consumers. This analysis tool allows families to evaluate different options for repaying debt. Each family specifies how much beyond the required minimum they would like to pay towards debt. The program generates a print out that shows the savings that can be realized. The average savings, per family in 2001 that completes the proposed debt repayment schedule is $1,286. Financial Counselors and Employee Assistance personnel that have attended Power Pay training indicate 32 employees have utilized their computer resource lab to complete power pay, and they have completed an additional 87 requests for individuals unable to access the computer lab. Money Transitions was a program developed to address the money management needs of individuals transitioning to other employment, re-entering the work force, facing early retirement or experiencing downsizing. This program was presented 6 times for military members, at 2 welfare to work sites and for 2 local employers offering early retirement. Only 18% of those attending the programs had an emergency fund. Spending plans were used by 12% of the audience prior to the

sessions. End of meeting evaluation showed that 84% identified 3 or more ways to maximize their financial resources.

Credit classes on were offered at 9 different locations and attended by 206 participants. These classes included mandatory credit management classes targeted for employees who were in danger of possible job loss due to credit management impacting their security clearances. Families were also reached in cooperation with the following community partners: YWCA Workforce Preparation Program, Military Family Service Centers and the Department of Social Services. End of Meeting evaluations, (N=63) showed: 86% increased their knowledge of the annual percentage rate of credit; 74% identified unfavorable credit practices; and, 68% planned to obtain a credit report.

Learning about Your Money on the World Wide Web, was developed for the Pascal Senior Center Computer lab and was attended by 12 seniors. Coordinated with two computer volunteers to assist individuals on data entry. As a result of the class 100% completed a risk tolerance inventory, 60% used savings bond wizard to inventory their savings bonds and 50% completed a net worth statement. Two additional classes are planned for 2002 due to excess registration.

c. Source of Federal Funds: Smith-Lever3b&c and state extension funds

d. Scope of Impact: County Specific

Project 5.4.3 Baltimore City.

a. Project Statement. Taught and designed basic money classes with over 600 participants. Some of the target audiences included those who were restructuring their lives: transitional housing residents, welfare to work recipients, and recovering addicts. Parents and community leaders also participated in the program. Teaching was conducted in neighborhoods where participants lived by this educator. This educator to meet audience needs and comprehension modified class materials.

b. Impact. Impact information was obtained with the aid of program coordinators from some of the institutions served. Designed an evaluation form used with 100 participants which showed: 50 used a spending plan; 64 tracked expenses; 57 organized financial records; 52 set up an emergency fund; 63 obtained their credit report; and 51 shopped for the best credit terms.

c. Source of Federal Funds: Smith-Lever 3b7c and state general funds.

d. Scope of Impact: City Specific

Project 5.4.4. Caroline County

a. Project Statement. Coordinated 18 hours of financial counselor training and taught for 15 hours to three agency personnel and one licensed realtor. Community organizations and agencies (AARP Volunteer Income Tax Assistance, Caroline Department of Social Services Energy Assistance Program and Caroline Mental Health) provided three hours of instruction. At the end of the 18-hour training, three customers returned evaluations. After the training, customers felt confident in: 1) (33%) establishing goals and analyzing the debt situation; 2) (66%) setting up a spending plan and establishing the need for an updated will; and 3) (100% organizing records, reviewing insurance coverage, reviewing income tax forms, encouraging savings, and counseling others on what they learned.

b. Impact. Eight months later, two volunteer Financial Counselors returned a questionnaire. 186 families had been assisted with financial counseling. Of those families, 124 had received assistance in developing a money management plan, 37 had received assistance in developing a debt repayment plan, and 123 had requested and reviewed their credit report. If the 186 families saved just $25 late fee on one credit card, that is a total savings of $4650.

c. Source of Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: County Specific

5.5. Develop and accept individual, parental, home, financial, and/or community responsibility through work, family and community involvement

(Key Theme – Child Care/Dependent Care, Parenting)

Maryland Cooperative Extension educators developed 384 programs, which were held in 2**3** counties, Baltimore City, three regions in Maryland, statewide, multi-state, and national. Topics covered were care giving, understanding children and their development, modeling appropriate behavior, nurturing family members, advocating for families. These programs reached **over 24,000** people.

Examples of educational programs include the following:

Project 5.5.1. Maryland Cooperative Extension Child Care Provider Training

a. Project Statement. Regulated childcare providers in Maryland are required to have continuing education hours in health and safety and child development and curriculum to maintain their licensure. These hours are reviewed every year and must come from approved trainers in the state. Maryland Cooperative Extension has been an approved trainer since 1994. Family childcare providers and child care center directors and teaching staff is the primary audience for MCE's training. Others who attend include parents; Head Start and public school teachers and unregulated child

care providers. Training covers topics in child development, curriculum, health and safety, business management and topics of professional development (such as stress management). Topics are offered at beginning, intermediate or advanced levels of professional development, depending on the needs of the audience. MCE frequently partners with other child care/early childhood groups to conduct training, thereby broadening our reach and enhancing the quality of our programs.

b. Impact. Each year MCE trains approximately 2000 regulated providers in the state. FTE commitment to our training varies, but an Extension educator in each county offers, on average, 3 hours per month. Evaluation data from 6 hour continuing training conferences attended by 30 to 150 participants, reveals that participants feel more competent in their work with children and feel more committed to the profession of child care. In addition, participants report more contacts with others in their field, and a greater sense of support for their work from other professionals and from parents.

b. Source of Federal: Scope of Impact – State Specific. Collaborators include Child Care Administration, Maryland Committee for Children (state), and local childcare resource and referral and professional child care associations.

Project 5.5.2 Calvert County

Project Statement. The welfare to work grant started in 1997 and now includes Life Skills classes and mentoring program. During FY2001, 324 hours of Life Skill classes were taught. 33 clients started the 54-hour course, which was offered every 2 months.

c. **Impact.** 15 (45%) completed all requirements for the course. The 18 who did not complete the course either started a paid job, left because of health problems, imprisonment, etc. All participants took a pretest and identical posttest comprised of 40 questions. For the 10 students who took both tests, the point difference in the means was 15 representing a 75% increase in knowledge. Although follow-up info. from W2W participants is difficult to obtain due to frequent address changes, follow-up information was obtained through the mentor program. As a result of taking this course, most (80%) felt more confident about managing work, family and home, all used one or more of the time management tools (appt. book, home filing system, etc.), all made progress toward achieving the personal/financial goals set in class.

d. **Scope of Impact:** County Specific

e. Source of Federal Funds: Smith-Lever 3b&c and state general funds. d.

5.6 Enhance the attractiveness of Maryland youth to potential employers to enable youth to be productive, contributing members of a global society; Increase the ability of Maryland youth to have caring relationships with family members, peers, and others in their communities; Increase the abilities of Maryland youth to be

competent youth leaders with a strong commitment to civic and social responsibility; Strengthen Maryland youth's understanding of the importance of good health and safe and healthy lifestyles.

Maryland Cooperative Extension educators developed over 400 programs that were held in all 23 counties, Baltimore City, all three regions in Maryland, statewide, multi-state, and national. Topics covered were enabling youth to be productive, contributing members of a global society; have caring relationships with family members, peers and others; competent youth leaders with a strong commitment to civic and social responsibility; and understanding of the importance of good health and safe and healthy lifestyles. These programs reached over 100,000 people.

Examples of educational programs include the following:

(Key Themes – Children, Youth, and Families at Risk)

Project 5.6.1 Reaching Diverse Audiences: Montgomery County 4-H Helps People with Autism.

a. Project Statement. The Maryland Public Law 94-142 Mainstream program has increased the awareness of disabled youth needs for the 4-H program. This 4-H horticulture project engages students and staff from Maryland Community Service for Autistic Adults and Children (CSAAC), the Montgomery County 4-H educator and the extension master gardeners.

The CSAAC serves children and adolescents with autism between the ages of 9 to 21 years of age. CSAAC participants reside in the county and attend community schools. The staff member of CSAAC and the extension educator saw potential in horticulture therapy and designed the program to teach horticulture/gardening skills and basic food and nutrition. The extension educator arranged for the program to be conducted at the Agricultural History Farm, Montgomery County extension garden site.

CSAAC, located in suburban Maryland, started the horticulture program for students with autism in 1998. These severely mentally challenged youth have the support of one staff person. The 4-H program uses its hand-on approach to teach horticulture and gardening skills that include soil preparation, planting and garden maintenance. The CSAAC staff and the extension master garden volunteers work under the leadership of the extension educator. The master gardeners provided the student with four 4'x 18' demonstration plots on the grounds of the extension office. The students and their teacher spend approximately 56 hours annually from April to October tending the gardens and participating in experiential education programs such as nutrition, safety, arts and crafts, horticulture and related environmental issues. The master gardeners teach safe and effective methods of managing gardens. The skills and experiences gained in horticulture and gardening are valuable career development opportunities that provide the mentally challenged with insight and exposure to the industry. This team effort provides a rich and practical experience for the target audience. The 4-H

educator spends approximately .10 % FTE annually coordinating the program. The program was selected by the CSAAC staff to achieve the students' career objectives. The extension educator and the master gardeners designed the project to correspond with the students' abilities and personal needs. The 4-H office, the master gardeners and the extension horticulture unit provide gardening tools and seeds for the project. The students make weekly visits to the garden to weed, water and harvest the vegetables.

b. Impact. The students work with great interest and enthusiasm in the gardens. The CSAAC staff shared that the weekly gardening experience is a highlight for the students; gardening skills and work in a non-formal setting were cited as benefits of the program. The master gardeners enjoy working with the students and gain great personal satisfaction observing their progress. The 4-H program increased its awareness of autism and need for other programs for the mentally and physically challenged. For three years, twenty students with autism and one teacher participated in the horticulture gardening program. The program will be continued in 2001 because of its value to the students. Severely mentally challenged youth:

Learned skills in growing, cultivating and harvesting a garden.
Increased skills in preparing nutritional meals at the site and home.
Exhibited vegetables, flowers and crafts at the county fair.
Increased their self-esteem by receiving cash awards and ribbons at the fair.
Used and improved fine motor skills with 4-H projects.
Displayed enthusiasm and interest in all projects.
presented the 4-H educator and the master gardeners their "Outstanding Community Support Award."

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: County Specific

Project 5.6.2 Baltimore Full Partners-Teen Corps.

a. Project Statement. There is a need to develop programs that engage youth, the community, and organizations to work in partnership to build safe, healthy and sustainable communities. The Baltimore Full Partners (Maryland Cooperative Extension-Baltimore City 4-H, Fellowship of Lights Youth and Community Services, and The Safe and Sound Campaign for Children and Youth) collaborate to strengthen Baltimore City communities through partnerships and increased opportunities for youth. This comprehensive leadership development program involves 40 youth and 30 community volunteers. Training areas consisted of leadership development, entrepreneurship, conflict resolution, team building, service learning and organizing. The Educator provides support weekly to the youth and adult volunteers by assisting in developing lesson plans, researching resources, and supervising monthly Teen Corps meetings.

Youth and adult volunteers from the BFP are located in eight community sites throughout Baltimore City. They are engaged in community mapping and asset-based

activities to determine the types of resources and interests of the members in their community. As a result, tutorial, science, entrepreneurship, service learning, public speaking and training activities/clubs have been established. Each month during Teen Corps meetings youth and adults from the eight communities meet at a local recreation center to report on their accomplishments, receive training, and develop action plans for collective community activities.

b. Impacts. As a result of efforts, youth and adults in Baltimore City develop, share, and demonstrate skills in leadership development, entrepreneurship, service learning, and community organizing. It exemplifies the best practices of Community Youth Development. Community Youth Development is a method for involving youth and adults together in creating social change. It harnesses the power of youth to affect community development, and similarly engages communities to embrace their role in the development of youth.

- Twenty youth and twenty adults were trained as Study Circle facilitators (a problem solving and action planning technique). As a result, ten youth and ten adults partnered to facilitate study circles on race relations and community development to 80 youth at the state 4-H Teen Focus Conference.
- Thirty youth and thirty adults developed and implemented the largest National Safe Night USA (a crime and violence prevention program) in Baltimore City, involving 200 youth between the ages of 12-15.
- Two youth and two adults presented the BFP model at the NAE4-HA Conference in Pittsburgh, Pa.
- Youth and adults partnered to sponsor a tribute to Martin Luther King Day celebration involving 120 youth.
- Fifteen youth and fifteen adults partnered to supervise and teach eighty-three 8-13 year old residential campers from Baltimore City in leadership, conflict resolution, team building, cultural diversity, environmental science, and entrepreneurship skill development.
- Fifteen youth and eight adults were trained as entrepreneurship facilitators. As a result, four youth and two adults facilitated a workshop entitled "Strategies for Engaging Youth in Entrepreneurship" at the 7th National Youth Entrepreneur Symposium, King of Prussia, Pa.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds. Extension Educator co-authored and implemented the Baltimore Full Partners Action Plan and outcome models and submitted them to the national partners (National 4-H Council, National Network for Youth, and the Academy for Educational Development). As a result, the program received a total of $21,000.

d. Scope of Impact: City Specific. Collaborators: Fellowship of Lights Youth and Community Services, and the Safe and Sound Campaign for Children and Youth.

5.7 Youth Development

(Key Themes –Character/Ethics Education)

Project 5.7.1. Carroll County 4-H Kids On The Block Program.

a. Project Statement. The Carroll County 4-H Kids On The Block Disability Awareness Puppeteering Program is designed to provide youth with the knowledge to interact positively with all individuals. The Carroll County 4-H Youth Development Program and County Public Schools have cooperated to provide this program, which began as a result of Maryland's Public Law 94-142 (main streaming) that increased the number of disabled youth in the 4-H program as well as the local school system.

The program presents four disabilities/differences that are coordinated each year with the school's second and fourth grade health curriculum. Current topics are blindness, downs syndrome, multiculturalism and deafness for second grade and cerebral palsy, cancer, diabetes and learning disabilities for fourth grade. This program is presented to over 4,000 youth each year. In 2001, 30 teens volunteered as puppeteers.

This program is designed to be interactive and hands-on. At the end of each script, students have the opportunity to ask questions directly to the puppets. The puppeteers remain in character and answer the questions reinforcing important points of the particular disability/difference. In addition, there are demonstrations on real-life instruments used by the disabled in their day-to-day lives to show students so they are able to increase their knowledge about the disabilities.

b. Impact. A pre/post test determined if the youth were learning about disabilities--94% of the students improved their individual scores on the post-test. Another evaluation determined that in 6 of the 8 situations, students had a changed reaction to encountering a person with that disability. These results indicate that not only are students learning about specific disabilities, but they are also learning how their reactions can make a difference. In addition, a packet of hands-on activities was distributed to the teachers, designed to allow students to experience what life is like for an individual with a disability. The teachers incorporated the activities into their class curriculum.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds

d. Scope of Impact: County Specific

Project 5.7.2 Baltimore City.

a. Project Statement. While the economic status of many in America has improved, there are still many people who are in need of food. The rural areas and some neighborhoods in the inner cities are especially hard hit. Additionally, a large amount of food is being wasted. Statistics for 1996 indicate that over 120 million tons of food was wasted in this country. According to the Maryland Food Committee, the growing number of needy individuals is overwhelming food providers and soup kitchens.

Many are turned away each day because there is not enough food to give. More and more children (at least 40,000 in Baltimore alone) go to bed hungry each night.

Working in conjunction with the Baltimore Area Gleaning Network, the Center for Poverty Solutions, Heritage United Church of Christ, and the Unity United Methodist Church, Baltimore City 4-H'ers, parents and volunteers are gleaning and distributing fresh produce to those in need of food. Additionally, 4-H'ers are baking, on a monthly basis; 6-three pound Macaroni and Cheese Casseroles for Our Daily Bread Soup Kitchen. Gleaning is done one Saturday morning per month. 4-H'ers with adult volunteers leave as early as 6:30 a.m. Produce is picked for Baltimore and/or Washington D.C. Food Banks. The 4-H'ers also pick produce to bring back and distribute directly to persons in need in the city.

b. Impact. Baltimore City residents are enjoying the fresh produce that the 4-Her's have gleaned and the casseroles that they prepare. They are gifts of food and caring. In addition, their efforts have merited a grant. Extension Educator assisted the volunteer and youth in writing a "2000 Feeding the Hungry Grant". Kraft Foods, Inc. funded this grant for $ 1250.

c. Source of Federal Funds: Smith-Lever 3B&C and state general funds

d. Scope of Impact: City Specific

5.8 Youth Development

(Key Themes –Jobs/Employment, Workforce Preparation)

Project 5.8.1 Focusing on the Middle: Parkland 4-H After School Program.

a. **Project Statement.** Parkland Middle School is an urban school with more than 1200 students in the 6^{th}, 7^{th}, and 8^{th} grades. The enrollment is 34.4% Hispanic, 28.6% white, 23.8% African American, 13.0% Asian and .3% American Indian. The ESL/International student population is at 29% and growing. More than 51% of the students are eligible for free and reduced meal 1999-2000. The 4-H after school program had a three-fold objective: (1) to recruit and mobilize community volunteers, (2) to create and conduct activities with appeal to the age level and (3) to contribute to the cognitive and social growth of the students. Programs were presented after school for one hour and fifteen minutes. One extension specialist and one extension educator each gave approximately .10% of FTE to the project. Approximately 175 students participated. The "hands-on" 4-H programs reinforced basic education principles and taught important life skills.

b. Impact. Students found 4-H activities interesting, challenging and enjoyable. The 4-H program provided opportunities and achievements for students not involved in other activities. Teachers were amazed with the interest and work of students who displayed little enthusiasm to the school curriculum. The after school program

provided a consistent program and a safe environment with caring adults. The 4-H experiential activities reinforced the school curriculum, developed important leadership skills, self-esteem, increased project and life skills, and introduced wholesome activities for hobbies and fun. An advisory council was formed composed of teachers, community agencies, church, parents, and interested adults and students. The linkage to the faith community, and the school community and volunteers was greatly enhanced by the 4-H connection. One church provided approximately one-half of the thirty-five volunteers in the program. They also provided approximately 200 sweaters, jackets, and coats for refugee children. A fund was created to purchase shoes for students.

The rapport and partnership with the principal and teachers at Parkland provide a strong foundation to expand comprehensive programs to the classroom and after school program for 2000-2001. A group of retired chemical engineers spent the summer designing a science program for after school that will be funded with a grant from their professional organization. Plans with the guidance department will add a career program to the classroom that will culminate with the first career day for the middle school. Coordination with Linkages to Learning will extend the program to include economic and social issues faced by students and their parents.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds.

d. Scope of Impact: County Specific

Project 5.8.2 Maryland 4-H Mini-Societies.

b. **Project Statement.** The Maryland 4-H Mini-Society is a 4-H outreach to under-served youth. The programs are in three counties in the Baltimore-Washington corridor and Baltimore City, the major urban areas of Maryland. Mini-Society taps a large diverse population to include African-Americans, El Salvadorans, Koreans, Chinese, Japanese and others of Hispanic and Asian heritage creating awareness that entrepreneurship is a viable option of employment. This experiential education program engages the target audience in creating a society to include currency, government, flag and civil servant jobs that they apply, interview and conduct. The youth created a wide variety of businesses and services that increased their skills in law, government, ethics and economics. Critical thinking, problems solving and other life skills of youth are enhanced. One hundred two youth ages eight to thirteen participated in four mini-societies in Montgomery County and Baltimore City.

b. Impact. Children are captivated with the power and responsibilities they have in Mini-Society. Participants expressed satisfaction in the program in these ways, "It was fun especially when running the business." "In 4-H Mini-Society you have fun and at the same time you learn." "It was the best time learning." One community partner in a subsidized housing development said, “This is a great program. The skills that they learned will be very useful. We need more programs like this.” Extension Educators are ecstatic about the enthusiasm and interest the participants displayed in

Mini-Society. Parents felt the program provided insight about the workings of economics and decisions required in society. Youth are players in the educational process of Mini-Society creating many teachable moments. They formed corporations, advertisements, market surveys, and dealt with issues like, scarcity, competition, supply and demand, and the legality of contracts. They learned and used new terms in town meetings, trials and other businesses. Youth increased their skills in math, writing, spelling and vocabulary in the program. Leadership skills and team effort were greatly increased as the youth developed products and services to sell.

c. Source of Federal Funds: Smith-Lever 3b&c and state general funds. Approximately .10 % FTE each for one specialist and four extension educators. Ewing Marion Kauffman Foundation Grant for $20,125.

d. Scope of Impact –Multi-county Specific. Collaborators included: Anne Arundel County: Hot Spots (Governor's Program on Crime Prevention)Baltimore City: Edgecombe Circle Elementary School and the 4-H Residential Camp Howard County: Community Homes Housing Development and Howard Co Board of Education Montgomery County: Rock Creek Terrace Housing Development and Parkland Middle School

Project 5.8.3. Prince Georges County. **4-H After School Summer and Year round Program**

a. Project Statement. The University of Maryland Cooperative Extension, Prince George's County 4-H Youth Development Program is the recipient of a grant award totaling $190,000.00 awarded by the Prince George's County Department of Families Services (Division for Children, Youth and Families). The 4-H Youth Development Program proposed to provide structured Summer and Fall after-school enrichment opportunities to 337 students, ages 8 – 12, residing in the Landover, Glenarden, Kentland, Capitol Heights and Seat Pleasant communities. Both Summer and Fall Enrichment Program is entitled: "Believing In Yourself, Yes I Can Read". The proposed project is implemented in consideration of the following goals: to increase and improve character development and character building skills; to enhance and improve civic pride, involvement, education and leadership skills; and to improve academic skills, such as reading, reading comprehension, math and writing.

b. Impact. The Summer I Program consists of eight weeks of programming June-August, 2001. Program structure consists of five days of programs per week Monday –Friday. Three "hot spot" communities were identified with the Landover corridor. Eighty-five youth were contracted in the program scope, however the program planning and implementation was so well received that 115 youth were enrolled. A twenty-four week fall program is funded to enroll 337 minority low-income youth September 2001 to December 2001. Additional funding has been obtained to continue through the next program year. Program -structure consists of five days of programs per week Monday –Friday as well as several Saturday locations. Program curriculum and structure includes: three anchor days per week will focus on academic

assistance, athletics, and character development two non-anchor days per week will focus on a variety of programs such as computer science and technology, nutrition and health education, adventures in science and conflict resolution a module which will focus on reading/language arts and math, arts education, athletics and computer science /technology, enhancing and improving civic pride, involvement, education and leadership skills. As a result of experiences gained in each module, through a formal evaluation (pre-test and post-test) designed by Dr. Rosemarie Downer, program results will show youth will improve academic skills, such as reading, reading comprehension, math and writing.

Part A. Planned Programs (continued)

Goal 6. Agriculture Communications, Enhancing Customer Service/Satisfaction Information Technologies

All of these goals and themes are being addresses by the Communications and Information Technology (CIT) unit. Which has recently been restructured and realigned to better serve the information and technology needs of the entire College, including instruction, Extension, research and international programs. The new structure includes 4 major areas, each headed by a unit coordinator reporting directly to the Associate Dean for CIT: media services, marketing/media relations, information technology, and distance learning. CIT is not an academic department, rather a service and program unit working directly with campus and field faculty to further the outreach mission of the College.

Within CIT, there is an increased awareness of teamwork, mutual respect, open communication and respect for cultural differences. Currently, 23% of the staff is African American and 52% female. Strategies used to achieve a heightened awareness of mutual respect, teamwork, and open communications have included:

- Statewide focus group meetings and listening sessions
- Full staff retreat to discuss focus group findings and explore group strategies
- Individual team meetings
- Regular staff meetings held at two locations, both campus and Riverdale, the site our printing facilities
- Open door policy encouraging casual drop ins for information sharing and problem solving
- On-line anonymous suggestion box
- Weekly coordinators meetings in an informal setting for information sharing on projects and problem solving.

A major goal of CIT is to continue to encourage open communications, trust and mutual respect among staff and between staff and faculty who seek our services. Quality media products are derived from creative and motivated minds. To achieve true success, CIT must strive for an organization climate where each member is valued and rewarded not only for quality work but for teamwork and mutual respect as well.

Major initiatives for CIT, include:

- Implementation of new college web site for seamless entry and access to information, template designs for each county
- Migration from reliance on print media to web-based media products and distribution
- Increased faculty development for field faculty in information technology and distance learning applications
- Increased emphasis on marketing Extension to new and underserved audiences
- Implementation of satellite based Internet programs (funded by NSF)
- Three sites have been established.

- Upgrading bandwidth and technology resources at each regional research and education center.
- Implementing videoconferencing projects using IP (H.323)

Part A. Planned Programs (continued)

Goal 7. Multicultural and Diversity Issues

MCE is using diversity management principles and practices to implement an initiative aligned with the AGNR and UMCP Diversity Initiatives and Strategic Plans.
The plan's purposes are 1) attracting and retaining a more diverse work force, 2) creating a positively charged work climate, and 3) attracting new audiences to extension programs.

Accomplishments/ Key Outcomes

In its startup year, the initiative plan was written and the following outcomes were achieved in MCE:

- Established State Search Committee and trained them to recognize intercultural qualifications of prospective job candidates, resulting in positive screening for diverse candidates
- Developed informal internal EEO/AA resolution process for MCE and fielded a trained corps of twenty-four faculty EEO/AA Advisors.
- Streamlined Internal Compliance Review Process with updated data collection through MCERS Reporting System.
- Developed and implemented new Program Accessibility and Media Statement policies, including a "Making Programs Accessible" guide furnished to all county offices.

In the current reporting year, the following have been accomplished:

1. Implemented diversity/audience expansion training for MCE at Annual Conference (3-01).
2. Integrated diversity-related outcomes and activities into individual and county plans of work.
3. Worked with region and county directors to establish meaningful diversity-related goals including employment and programs, establish baseline measures, and evaluate progress.

Part B. Stakeholder Input Process

The College of Agriculture and Natural Resources following the lead of the University of Maryland began the process of developing a strategic plan for the college including both Maryland Cooperative Extension and the Maryland Agricultural Experiment Station. The process was completed and the plan is now available to faculty, staff, students and stakeholders. The information from the Key Informant process described below was used as an input in the plan development process. The strategic plans are available as follows:

For the University: http://www.inform.umd.edu/provost/Strategic_Planning/Plan.html

For the College: http://www.agnr.umd.edu/Dean/index.cfm?ID=106

Administrative Committees

The Dean's Leadership Council met during the reporting period and provided important feedback from the client groups they represent. In addition the Dean and Director is able to seek specific input from this group as need arises.

Extension Advisory Councils

County Extension Advisory Councils (EAC) meet on a regular basis in most of Maryland's counties and Baltimore City. The EAC's provide insight into and support for the local extension programming. The Regional Extension Directors meet with the EAC's for the counties in each region on a regular basis. In addition the Assistant Directors/Program Leaders and Associate Director occasionally meet with these EACs. Maryland Extension Advisory Council (MEAC) did not meet during the reporting period. The MEAC has been found to be less than efficient in providing desired input into the programs of the state. Reorganization of the MEAC is underway with a goal of reviving meetings in fall of 2003.

Outcomes 2002

The planning document, Outcomes 2002: A Framework for Our Future, drafted in 1997 continues to serve as a guide for extension programming in Maryland.

MCE Planning Process

MCE began a strategic planning process in the fall of 2002. This process is expected to result in a revision of the Outcomes 2002 document. The new document is currently being called Outcomes 2008.

Key Informant Process

A Key Informant Survey was designed to acquire input from stakeholders. The goal was to hear from Maryland residents who are not part of the usual clientele of Maryland Cooperative Extension and the Agricultural Experiment Station. In the fall of 1999, two questionnaires (community and food systems) were developed and pilot-tested with the Maryland Extension Advisory Council. During the winter, three counties pilot-tested the process and questionnaire. From April until October, MCE personnel collected data from over 200 persons who represented selected sectors of the community and food system. All counties and Baltimore City were represented. It is expected that in the coming year, the results will be shared within the College and with community groups, local and state officials, and other interested groups. MCE will use the information as it continues the planning process for its next five-year plan.

Customer Questionnaire

No customer questionnaires were used during the reporting period.

User Input Through WWW

The WWW was not used for user input during the reporting period.

Part C. Program Review Process

Merit Review Process

Maryland Cooperative Extension like most other Cooperative Extension System institutions has not historically developed a wide-ranging merit review process in the past. The Plan of Work is an articulation of MCE's approach to Merit Review.

Local Program Reviews

Each MCE Extension Educator is required to develop or update and Individual Extension Plan (IEP also called a Job Description in some MCE documents) each year. These IEP's are updated annually and review internally by Region Extension Directors and State Program Leaders for 4-H Youth Development; Family and Consumer Sciences; and Agriculture and Natural Resources. IEP are shared with the Educator's County/City Extension Advisory Council for merit review and comment. The EAC's are widely representative of the clientele of the county or Baltimore City. ***This update of IEPs continues as described for the current reporting period.***

Each county has developed (and annually updates) a unit plan of work (UPOW). This UPOW is developed and updated with the local Extension Advisory Council. All academic departments with MCE Specialist faculty also develop similar unit plans of work. The MCE State Program leaders and administration review these plans to determine the level of conformity with the County/City UPOWs. These will be available for review on the MCE internal web site. ***This effort continues but on an irregular basis. Efforts will be made to renew this process in the coming year.***

State Program Reviews

Ideas and issues arising from local and departmental UPOWs are developed into a state plan of work (SPOW). The State Plan of Work takes on two separate forms; the Joint Extension/ Research Plan of Work as submitted to the US Department of Agriculture and a local document (currently identified at Outcomes 2002). The SPOW is sent to select 1862 and 1890 extension administrators for merit review. The Northeast Region's Extension Directors have agreed to participate in a shared review of State Plans of Work. ***Review efforts have not been completed as of this reporting period.***

MCE will ask selective individuals to provide a review of the Joint Extension/Research Plan of Work to establish their evaluation of the merit of the Plan. Selected individuals will include Cooperative Extension program leaders in other states, an 1890 administrator from another state and selected clientele members in the state. The merit review process will focus on the three primary programming areas of MCE; Agriculture and Natural Resources, Family and Consumer Sciences and 4-H Youth Development. ***This review has been postponed.***

Comprehensive Program Reviews

MCE will conduct a comprehensive and detailed program review of each of the program areas listed above at least every 4 to 6 years. An outside review panel selected specifically for the purpose of the review will conduct these reviews. This panel will seek input from local and state stakeholders as well as well faculty as they assess the overall program in the selected area. The first such review occurred in MCE in the fall of 1996 when a detailed review of the 4-H Youth

Development program was conducted. This review, conducted by a panel of 4-H Youth Development professionals from other states, resulted in a review document that is currently being used to guide major changes in the program directions of the program. A 4-H Review Summary is provided as a part of this Plan of Work. ***During the reporting period a strategic plan was completed for the 4-H Youth Development programming area.***

MCE will initiate similar program reviews in Agriculture and Natural Resources and Family and Consumer Sciences programming areas over the next five years. These reviews while costly provide considerable guidance to the administration on formulating programming responses to the plan of work. ***No action has been taken on these reviews as of this reporting period.***

Peer Review Process
Peer Review has long been a part of the Maryland Agricultural Experiment Station's approach to funding research as required under the Hatch Act. This process will be continued on all specific projects. ***All aspects of this review process continue during the reporting period. Additional efforts are underway to more completely define the efforts of the Northeast region as defined below.***

Hatch Projects.
Peers in compliance with the guidelines of USDA review all state research projects funded by federal formula funds externally.

Regional Research Projects.
A peer committee in compliance with the guidelines of USDA reviews all regional research projects funded by federal formula funds.

Northeast Research, Extension and Academic Programs.
A peer committee in compliance with the guidelines of USDA reviews all NREAP and related projects funded by federal formula funds.

MAES/MCE Competitive Grants.
All projects funded through the MAES/MCE Competitive Grants program are reviewed in accordance with the federal guidelines for project review by a panel of scientist from UMCP, UMES and other research institutions located in Mid-Atlantic region including USDA-BARC, Johns Hopkins University, University of Delaware and Virginia Polytechnic Institute and State University.

In addition, this specific Plan of Work will be sent to panel of agricultural scientist to assess the proposed research plans.

Several units of the College have undergone external review processes that include Extension and Research efforts of the unit. The Department of Biological Resources Engineering was reviewed for accreditation in the fall of 1999. The Department of Agricultural and Resource Economics was reviewed in 2001 and the Department of Veterinary Medicine was reviewed in 2000. The Landscape Architecture program of the Department of Natural Resources Sciences and Landscape Architecture was evaluated and approved for accreditation. The Department of Nutrition and Food Science has established an accredited dietetics program a few years earlier while recently being approved by the American Dietetics Association to hold and offer an internship program. This program has yet to be accredited.

Part D. Evaluation of the Success of Multi and Joint Activities

Substantial cooperation exists between research and extension in Maryland's two land-grant institutions. This cooperation starts with the administrative level linkages and includes joint appointments and a competitive grants program.

UMCP Administration. This cooperation is directed by the administration of Maryland Cooperative Extension and the Maryland Agricultural Experiment Station which are managed by Dr. Thomas A. Fretz, Dean of the College of Agriculture and Natural Resources, Director of Maryland Cooperative Extension and Director of the Maryland Agricultural Experiment Station, and his designated Associate Directors. They form a single management team of agriculture research, extension and education at the University of Maryland, College Park.

UMES Administration. The UMCP administrative team and the agricultural extension and research administrative team of the University of Maryland Eastern Shore work closely in developing programs for Maryland. Dr. Henry Brooks is the Administrator of 1890 Extension Programs at UMES where extension is a campus wide effort. Dr. Henry Brooks reports directly to the UMES President. He is also a part of the MCE administrative team. Dr. Carolyn Brooks is the Dean of the School of Agricultural and Natural Sciences at UMES. She also works closely with MCP administrative team to bring closer ties to MAES.

Joint Appointments. MCE and MAES jointly fund a number of UMCP academic department faculty members. These joint appointments provide for integrated approaches to applied research and extension. Most State Specialists (all faculty members in academic departments) with MCE appointments have at least a partial appointment in MAES. Scientist/Specialists with such appointments are in a position to assess the needs of agricultural and related clientele through personal contacts or through MCE field faculty (Extension Educators). They can with these assessments design both applied research approaches and extension education programs to meet the identified needs. The strength of joint appointments in academic departments is the synergy of work relationships with research scientist working on more basic research needs.

Competitive Grants Program. MAES provides primary funding for and manages a competitive grants program for agricultural and natural resources research scientists in Maryland. Funding is open to any University of Maryland System institution. The competitive grants program is jointly managed by UMES and UMCP. The program encourages cooperative research/extension submission. Faculty members with primarily MCE appointments have been major recipients of funding through these grant efforts. Each year a set of funding priorities is established which seek to address priority needs in the state. Field faculty are encouraged to participate in the program and often collaborate with research scientists and extension specialists to request funding.

The efforts identified above continue to provide for effective collaboration among institutions and disciplines --- research and extension --- in Maryland. Collaborations among campus and field faculty are increasing, as are multi-disciplinary approaches to problems solving research. This is evident in some of the Planned Activity reports in Part A of this report. Critical needs are being met using "multi" approaches in the area of land use, animal waste management and farm profitability. Additionally, MCE has increased its research base for programs in Family, Youth and Communities by placing MCE funded positions in primarily research and instruction based departments of Nutrition and Food Sciences (in AGNR) and Family Studies (College of Health and Human Performance). These efforts closely link research efforts (not all funded by MAES) with the needs of communities in the state.

Multi-state programming efforts are also strong in the Northeast region. Maryland is a participant in these efforts. This is especially true in agricultural Extension programs. Maryland and Delaware continue to seek ways of sharing resources across boundaries. Efforts have begun with Virginia to seek ways of sharing programming resources, where appropriate, more effectively between the states.

Part E. Multi-state Extension Activities

Multi-State Collaboration
Maryland's two Land-grant institutions have sought to collaborate with other states in providing the highest of quality research and extension education programs possible. These efforts are essential to efficient use of resources and in establishing sound research methodology. Maryland has been a participant in the Northeast Regional Research program for a number of years. Joint Research programs have been developed using the regional research approach. These projects are well established in the region.

- Northeastern Groups
  - NorthEast Research Association (NERA)
  - NorthEast Extension Directors (NEED)
- Northeast Region Joint Research-Extension Plan
- Regional Projects
  - NorthEast Research Extension Project (NEREP)
  - NorthEast Research Project (NERP)
  - NorthEast Research Extension and Academic Projects (NEREAP)
- 1890 Region

  Association of Research Directors : ARD was formed and incorporated in 1972 to coordinate most of the food and agricultural research activities among the 1890 Land-grant Universities, USDA, and other colleges and universities. Through this body, regional research projects are formulated whereby several interested institutions participate. Over the years three such efforts have occurred and supported by several 1890 Land-Grant universities on high priority issues.
- 1890 Extension Directors'

Multi-state extension efforts are extensive for MCE. As a small state with many bordering states and counties, efforts are often targeted to clients in Delaware, New Jersey, Pennsylvania, and West Virginia as well as Maryland. These programs (usually in the agricultural sciences) are often done in cooperation with extension educators in the adjoining states. Recent efforts include workshops on precision agriculture, computer use, risk management, greenhouse IPM, nursery nutrient management, vegetable production and family life. In addition, biosecurity efforts in the poultry industry extend throughout the Delmarva Peninsula states of Maryland, Delaware and Virginia. While evaluation is still underway, these programs appear to have met client expectations in many areas of concern.

These efforts decrease the need for duplicative faculty (especially Specialists) in the various states resulting in greater efficiency of program delivery. In some programming areas, the clients from several states may be required to develop a critical mass for program delivery.

Part F. Integrated Research and Extension Activities

Integration of Research and Extension efforts are described to some extent in a previous section. MCE and MAES programs are both managed by administrators in the College of Agriculture and Natural Resources housed only a few feet apart. These arrangements, along with the joint funding efforts described above, are paramount in developing a close and effective integration of research and extension. Not all aspects of Extension or Research have a counterpart in the other unit. For example, historically MAES has provided little funding in the areas of human sciences resulting in a low level of research output in this critical area. Research results were sought from other institutions to assist the Extension areas. MAES recently funded an important applied research effort in human sciences that will be carried out by in part by Extension specialist in MCE.

The effective utilization of joint appointments provides much of the integration of Research and Extension. Extension Specialists at the campus level are rarely hired without a joint appointment in either research or academic programs. Most new hires are well versed in research methodologies and expect to collaborate with other researchers in developing both Extension and Research programs. This is an effective integration process.

Appendix: Table of Resource Commitments by Planning Goal

The following three pages contain the required FORM CSREES-REPT (2/00) in facsimile form for:

Multistate Extension Activities
Integrated Activities (Hatch Act Funds)
Integrated Activities (Smith-Lever Act Funds)

The forms are submitted in electronic form and are not signed.

U. S. Department of Agriculture
Cooperative State Research, Education and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Multistate Extension Activities and Integrated Activities

Institutions University of Maryland
University of Maryland Eastern Shore
State Maryland

Check one: _x_ Multistate Extension Activities
___ Integrated Activities (Hatch Act Funds)
___ Integrated Activities (Smith-Lever Act Funds)

	Actual Expenditures				
Title of Planned Program/Activity	FY2000	FY2001	FY2002	FY2003	FY2004
Goal 1 - To Achieve an Agricultural production system that is highly competitive in the global economy	$295,994	$288,928			
Goal 2 - A safe, secure food and fiber system	$35,307	$34,674			
Goal 3 - A healthy, well-nourished population	$116,272	$117,051			
Goal 4 - Achieve greater harmony (balance) between agriculture and the environment	$213,177	$209,115			
Goal 5 - Enhanced economic opportunity and quality of life for Americans	$110,974	$113,292			
Total	$771,724	$763,060			

_____ May 1, 2002_
Director Date

Form CSREES-REPT (2/00) Facsimile

U. S. Department of Agriculture
Cooperative State Research, Education and Extension Service

Supplement to the Annual Report of Accomplishments and Results
Multistate Extension Activities and Integrated Activities

Institutions University of Maryland
University of Maryland Eastern Shore
State Maryland

Check one: ___ Multistate Extension Activities
_x_ Integrated Activities (Hatch Act Funds)
___ Integrated Activities (Smith-Lever Act Funds)

	Actual Expenditures				
Title of Planned Program/Activity	FY2000	FY2001	FY2002	FY2003	FY2004
Goal 1 - To Achieve an Agricultural production system that is highly competitive in the global economy	$438,858	$433,593			
Goal 2 - A safe, secure food and fiber system	$27,460	$25,588			
Goal 3 - A healthy, well-nourished population	$41,190	$38,382			
Goal 4 - Achieve greater harmony (balance) between agriculture and the environment	$270,438	$268,683			
Goal 5 - Enhanced economic opportunity and quality of life for Americans	$2,296	$2,296			
Total	$780,242	$768,543			

_____ May 1, 2002
Director Date

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U. S. Department of Agriculture
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Multistate Extension Activities and Integrated Activities

Institutions University of Maryland
University of Maryland Eastern Shore
State Maryland

Check one: ___ Multistate Extension Activities
___ Integrated Activities (Hatch Act Funds)
_x_ Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures FY2000	FY2001	FY2002	FY2003	FY2004
Goal 1 - To Achieve an Agricultural production system that is highly competitive in the global economy	$470,142	$468,717			
Goal 2 - A safe, secure food and fiber system	$27,324	$24,430			
Goal 3 - A healthy, well-nourished population		$36,645			
Goal 4 - Achieve greater harmony (balance) between agriculture and the environment	$226,613	$228,107			
Goal 5 - Enhanced economic opportunity and quality of life for Americans	$7,348	$7,715			
Total	$772,413	$765,614			

_____ May 1, 2002
Director Date

Form CSREES-REPT (2/00) Facsimile