Natural Resources and Environment

Natural Resources and Environment

V(A). Planned Program (Summary)

1. Name of the Planned Program

Natural Resources and Environment

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	5%		10%	
102	Soil, Plant, Water, Nutrient Relationships	10%		10%	
112	Watershed Protection and Management	10%		10%	
123	Management and Sustainability of Forest Resources	10%		10%	
124	Urban Forestry	5%		0%	
131	Alternative Uses of Land	10%		10%	
133	Pollution Prevention and Mitigation	10%		10%	
134	Outdoor Recreation	5%		0%	
135	Aquatic and Terrestrial Wildlife	5%		10%	
403	Waste Disposal, Recycling, and Reuse	10%		10%	
511	New and Improved Non-Food Products and Processes	10%		10%	
605	Natural Resource and Environmental Economics	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	20.9	0.0	123.8	0.0
Actual	19.9	0.0	59.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
663102	0	1333636	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1253883	0	4926110	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1214969	0	5174377	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Production of agricultural and forest products in an environmentally sustainable manner continues to be a priority of PA AES and CES programs. Research on cover crops to improve soil health under PA conditions have yielded recommendations that are being implemented by PA CES and USDA-NRCS; nearly 500 acres of leguminous and brassica cover crops were established in Centre Co., PA, in 2007 as part of a cover crop project supported by this work. The PA Nutrient Management Act was revised to require farmers to use cover crops for winter manure application where residue cover is less than 25 percent. Studies in no-till cropping systems also supported advice to the Chicago Climate Exchange on ratios of C sequestration in no-till vs. conventional crop production. A widely available test for N content was demonstrated to provide erroneous nitrogen fertilizer recommendations in 37 percent of cases. A new chlorophyll meter N test was validated and has been adopted to guide fertilizer decisions in PA corn production. PA government adopted a phosphorous index based upon research from PA AES projects in previous years; this index has been modified based on new research on P loss in runoff from agricultural fields. Land use decisions have become critical in PA. A study of failing on-lot septic systems resulted in SepticMap, an on-line septic management and tracking system for use by PA municipalities. This system was also used to examine the land base available for residential development in 24 PA counties, and results suggest that some regions may need to rely more heavily on higher-cost systems for marginal soils. Continued participation in the National Atmospheric Deposition Program provides data that elucidate long-term trends in precipitation chemistry. While acidity and sulfate and nitrate concentrations all declined, PA continues to exceed records from nearly every other long-term monitoring site in this program. These data are critical for assessment of the 1990 Clean Air Act amendments and for evaluation of atmospheric deposition as a non-point nitrogen source important in Chesapeake Bay eutrophication. An Agricultural and Environment Science and Policy Center was established to lead outreach efforts across the state on nutrient management and the application of science to environmental decision making. Renewable energy has changed the complexion of our consideration of natural resources (and agricultural systems in general) in recent years. The Biomass Energy Center is an initiative that has coordinated research and extension efforts for the state, providing needed research to fill data gaps for agricultural producers trying to balance food and fuel production.

Cooperative Extension has a broad base of educational programs designed to address the breadth of natural resource and environment issues in the state such as: environmental stewardship of land and water resources, sustaining forest systems, agronomic production, horticulture and green industry production, and managing wildlife and fisheries.

2. Brief description of the target audience

The target audience in this planned program consists of agricultural producers, private forest landowners, wood products producers, and natural resource managers. Non-governmental organizations, local, state, and federal government agencies, and policy makers will also benefit from activities in this planned program. Extension educators translate information and products developed under this planned program to stakeholders.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	54000	0	0	0
2007	33349	436026	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007:	1

Patents listed

Serial No.:60/939,726; Filed: 05/23/07; Title: Lignin Modification

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	316

V(F). State Defined Outputs

Output Target
Output #1

Output Measure

Number of invention disclosures

Year	Target	Actual
2007	1	0

Output #2

Output Measure

Number of participants (contacts) in programs related to watershed management and forest management

Year	Target	Actual
2007	50000	48256

Output #3

Output Measure

Number of research projects completed on natural resources and environmental issues

Year	Target	Actual
2007	21	14

V(G). State Defined Outcomes

O No.	Outcome Name
1	Number of participants who were evaluated and demonstrated increased knowledge and skills related to enhancing water quality and sustainability of private forest lands
2	Number of participants who were evaluated in a follow up and who implement/adopt practices related to enhancing water quality and sustainability of private forest lands

Natural Resources and Environment
Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

Year	Quantitative Target	Actual

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

V(H). Planned Program (External Factors)

External factors which affected outcomes

Natural Disasters (drought,weather extremes,etc.)
Appropriations changes
Public Policy changes
Government Regulations
Competing Public priorities
Other (extramural funding)

Brief Explanation

A variety of factors influence potential outcomes in Natural Resources and Environment. This is an area where public policy and regulations can influence the research needs and the delivery of research results to stakeholders through Cooperative Extension. Focus on renewable energy has a profound impact on identification of priorities and action on those priorities. Unexpected natural climate variation continues to influence priority identification. Changing demographics and land use decisions are key drivers for natural resource management. Runoff from rain events can influence water quality in ponds and percolation into private wells. Changing criteria to protect major waterways and watersheds in Pennsylvania change the degree of program demand and where programs are offered. Appropriations could have impact (positive or negative) on recruiting and retention of AES and CES personnel.

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

1. Evaluation Studies Planned

After Only (post program)
Before-After (before and after program)
Other (direct observation)

Evaluation Results

The most germane aspects of the evaluation results are shown in the results sections as number of participants increasing knowledge or implementing new practices or methods.

Key Items of Evaluation

See results sections.