Environmental and Water Quality Impacts

Environmental and Water Quality Impacts

V(A). Planned Program (Summary)

1. Name of the Planned Program

Environmental and Water Quality Impacts

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	0%	0%	12%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	22%	
112	Watershed Protection and Management	0%	0%	25%	
131	Alternative Uses of Land	0%	0%	10%	
133	Pollution Prevention and Mitigation	0%	0%	20%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	11%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	29.0	0.0
Actual	0.0	0.0	40.6	0.0

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

Extension		Research	
Smith-Lever 3b & 3c 0	1890 Extension 0	Hatch 925351	Evans-Allen 0
1862 Matching 0	1890 Matching 0	1862 Matching 4029174	1890 Matching 0
1862 All Other 0	1890 All Other 0	1862 All Other 646630	1890 All Other 0

V(D). Planned Program (Activity)

1. Brief description of the Activity

We are developing economic and policy data by accessing existing sources, generating data from computer models, and surveying market participants. This data is analyzed using appropriate statistical and econometric methods. Watershed scale model assessments are conducted utilizing field-level estimates of alternative management practices (AMPs). Changes in water quality in impaired watersheds resulting from the evaluation of AMPs are measured. The cost of meeting different water quality standards at different points within a watershed and the potential impact of different environmental policies on Tennessee's agriculture are evaluated. A model used to project land use change estimates the probability of land development of individual parcels as a function of parcel-level attributes.

Soil research is fundamental to our environmental program.The erosion, sediment transport, and contaminant transport capabilities of the RUSLE2 soil erosion model continue to be refined as the model's use increases nationally and around the world. Soil samples are thoroughly characterized in terms of elemental composition, particle size, mineralogy, and other soil chemical and flow characteristics using standard techniques. New methods for decreasing the expense of measuring soil properties by agricultural producers and fellow researchers are developed.

As new waste treatment approaches are introduced, we provide research-based evaluation of appropriate technologies for Tennessee. Background information on water quality is collected in various watershed areas, including one where baseline environmental data is being used to evaluate the impact of a dairy production unit on the area.

2. Brief description of the target audience

This is currently a research-only targeted program, so the target audience is weighted toward basic/applied research clients.

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	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	**Target**
Plan:	0
2008:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	30	
2008	0	20	0

V(F). State Defined Outputs

Output Target
Output #1

Output Measure

Reduce water-flux measurement error of heat-pulse probe, percent error.

Year	Target	Actual
2008	20	30

Output #2

Output Measure

Proof of concept of biodegradable polymer mulch from lactic acid as bioproduct of making ethanol from cellulosic materials.

Not reporting on this Output in this Annual Report

V(G). State Defined Outcomes

O No.	Outcome Name
1	Approximate RUSLE2 modeling software runs (per day) for conservation planning, new USDA programs, construction site erosion, and other natural resource conservation issues (e.g., nutrient management planning, carbon sequestration).
2	Percent of Tennessee row-crop acreage under some form of no-till or conservation tillage.
3	Greenhouse and nursery crop use of bioactive natural products in place of conventional pesticide on tomato, percent of operators adopting.
4	Analyzing impoundment failure in the Missouri Bootheel.
5	Modernizing wastewater regulations in Tennessee.
6	Developing a long-term strategy for Off-Highway Vehicle trail management.

Environmental and Water Quality Impacts
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

Public Policy changes
Competing Public priorities

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

Before-After (before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}