Soil, Water and Natural Resources

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Soil, Water and Natural Resources

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	2%		2%	
102	Soil, Plant, Water, Nutrient Relationships	23%		15%	
111	Conservation and Efficient Use of Water	12%		15%	
112	Watershed Protection and Management	13%		15%	
123	Management and Sustainability of Forest Resources	8%		7%	
131	Alternative Uses of Land	24%		15%	
132	Weather and Climate	1%		5%	
133	Pollution Prevention and Mitigation	12%		15%	
135	Aquatic and Terrestrial Wildlife	5%		8%	
806	Youth Development	0%		3%	
	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	45.0	0.0	15.0	0.0
Actual	30.0	0.0	13.0	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
1065528	0	730879	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1598292	0	733190	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	7088834	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Develop new land use models for Michigan communities. •Offer education to planners, elected officials and citizens on how these new models will reduce sprawl and ensure that the desirable outcomes will become reality. •Create new remediation strategies to clean up polluted soil and water. These strategies will be environmentally friendly, economically feasible and easy to implement with proper training. •Discover new knowledge about the composition, organization and fluctuations of microbial populations in the soils. •Develop a user-friendly computer program for nutrient management for Michigan crop and livestock producers to improve the management of fertilizer and manure nutrients on cropland to protect water resources and boost crop productivity. •Develop greenhouse gas mitigation strategies. •Develop management techniques for potato and vegetable growers that includes cover crops. •Develop new nitrogen application recommendations for turf managers. •Develop a management system for Michigan inland lakes that does not involve sampling the lakes. •Develop Total Maximum Daily Load (TMDL) assessment tools for evaluation of Michigan watersheds. •Determine how wildlife responds to ecosystem management decisions in forest and agricultural systems. •Quantify the benefits and costs of a sample green roof system installed on campus. •Develop fish population/community computer models for species important to Michigan. These models will be used to evaluate different fishery management strategies. •Develop web-based tools and models for natural resources managers so knowledge can be shared quickly and easily. •Develop computer models to assess how habitat management affects species important to Michigan, including white-tailed deer, salmon, trout and perch. •Promote and support value-added processing of forest products, including wood products, biofuels, maple syrup and other nontimber products. •Identify, prevent and control exotic invasive pests and diseases of forests. •Conduct educational programs to help farmers improve nutrient management and other practices to maintain and improve quality of groundwater and surface water. •Conduct educational programs with riparians and lake users to enhance their understanding of watershed management and inland lakes water quality issues. •Work with state agencies and local communities to encourage protection of community groundwater supplies through wellhead protection programs. •Educate and train health officials, consultants, engineers and riparians to improve onsite and decentralized wastewater treatment and design.

2. Brief description of the target audience

Michigan farmers, natural resource managers, private citizens, agriculture and natural resources industry representatives, state agencies, riparians and foresters.

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	5124	10248	3672	0
2007	5858	11716	4403	0

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

Patent Applications Submitted

Year	Target
Plan:	5
2007:	5

Patents listed

Bulgarian Letters Patent 65035 -- Imidzolimone-resistant sugar beet plants.
Patent 200 600 005 265 -- Gene tolerance in perennial rye grass.
We are fairly certain that numerous patents were submitted in this planned program ares, but a paucity of patent information in the annual progress reports prevented an accurate count. This situation will be rectified for next year's report.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	34	0

V(F). State Defined Outputs

Output Target
Output #1

Output Measure
Number of research programs on soil, water and natural resources.

Year	Target	Actual
2007	10	38

Output #2

Output Measure
Number of adult participants trained in soil, plant, water and nutrient relationships.

Year	Target	Actual
2007	800	2456

Output #3

Output Measure
Number of youth participants trained in soil, plant, water and nutrient relationships.

Year	Target	Actual
2007	234	455

Output #4

Output Measure
Number of adult participants trained in conservation and efficient use of water.

Year	Target	Actual
2007	767	982

Output #5

Output Measure
Number of youth participants trained in conservation and efficient use of water.

Year	Target	Actual
2007	711	956

Output #6

Output Measure
Number of adult participants trained in watershed protection and management.

Year	Target	Actual
2007	1151	1213

Output #7

Output Measure
Number of youth participants trained in watershed protection and management.

Year	Target	Actual
2007	1422	1604

Output #8

Output Measure
Number of adult participants trained in management and sustainability of forest resources.

Year	Target	Actual
2007	1352	1243

Output #9

Output Measure
Number of youth participants trained in management and sustainability of forest resources.

Year	Target	Actual
2007	445	385

Output #10

Output Measure
Number of adult participants trained in alternative uses of land.

Year	Target	Actual
2007	732	1123

Soil, Water and Natural Resources

Output #11

Output Measure

Number of youth participants trained in alternative uses of land.

Year	Target	Actual
2007	763	487

Output #12

Output Measure

Number of adult participants trained in pollution prevention and mitigation.

Year	Target	Actual
2007	322	378

Output #13

Output Measure

Number of youth participants trained in pollution prevention and mitigation.

Year	Target	Actual
2007	97	176

V(G). State Defined Outcomes

O No.	Outcome Name
1	New land use models for Michigan communities. We will start with identifying areas of the state that have the infrastructure available to support new development and develop land use planning models for them.
2	Number of research programs to create new remediation strategies to clean up polluted soil and water. These strategies will be environmentally friendly, economically feasible and easy to implement with proper training.
3	Number of research programs to discover new knowledge about the composition, organization and fluctuations of microbial populations in the soils.
4	Number of research programs to develop user-friendly computer program for nutrient management for Michigan crop and livestock producers to improve the management of fertilizer and manure nutrients on cropland to protect water resources and boost crop productivity.
5	Number of research programs to develop greenhouse gas mitigation strategies.
6	Number of research programs to develop management techniques for vegetable growers that include cover crops.
7	Number of research programs to develop new nitrogen application recommendations for turf managers.
8	Number of adult participants with increased knowledge of watershed protection and management.
9	Number of research programs to develop a management system for Michigan inland lakes that does not involve sampling the lakes.
10	Number of youth participants with increased knowledge of watershed protection and management.
11	Number of research programs to develop Total Maximum Daily Load (TMDL) assessment tools for evaluation of Michigan watersheds.
12	Number of adult participants with increased knowledge in management and sustainability of forest resources.
13	Number of research programs to determine how wildlife responds to ecosystem management decisions in forest and agricultural systems.
14	Number of youth participants with increased knowledge in management and sustainability of forest resources.
15	Number of research programs to quantify the benefits and costs of a sample green roof system installed on campus.
16	Number of adult participants with increased knowledge of alternative uses of land.
17	Number of adult participants with increased knowledge of soil, plant, water and nutrient relationships.
18	Number of youth participants with increased knowledge of alternative uses of land.
19	Number of youth participants with increased knowledge of soil, plant, water and nutrient relationships.
20	Number of adult participants with increased knowledge of pollution prevention and mitigation.
21	Number of adult participants with increased knowledge of conservation and efficient use of water.
22	Number of youth participants with increased knowledge of conservation and efficient use of water.
23	Number of youth participants with increased knowledge of pollution prevention and mitigation.
24	Number of research programs that explore the occurrence, transport and fate/effect of organic contaminants, chemicals, pesticides,pharmaceuticals and particulates in soils.
25	Number of research programs that analyze key soil characteristics to better asses their agricultural and environmental contribution.
26	Number of research programs that deal with fish population dynamics and the management of Great Lakes fisheries.
27	Number of research programs that deal with the security, stewardship and management of Michigan's water resources.

Soil, Water and Natural Resources
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.)
Economy
Appropriations changes
Public Policy changes
Government Regulations
Competing Public priorities
Competing Programmatic Challenges
Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

The new format and integration of this report has prompted a review and refinement of how we will determine and report outcome measures moving forward. Our goal in this and the 2008 Annual Report is to combine research programs in a more aggregate way to minimize extraneous text and emphasize results reporting. For this reason, some outcome measures have been folded into broader outcome measure categories. Further, the targets in this report (and for 2008 if we're not allowed to modify them) compared to actuals aren't necessarily due to unmet goals, but rather a reconfiguration of goal associations and knowledge areas.

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

1. Evaluation Studies Planned

After Only (post program)
Retrospective (post program)
Before-After (before and after program)
During (during program)
Case Study
Comparisons between program participants (individuals,group,organizations) and non-participants
Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Key Items of Evaluation