

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Environmental Stewardship

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
133	Pollution Prevention and Mitigation	2%			
205	Plant Management Systems	2%			
211	Insects, Mites, and Other Arthropods Affecting Plants	35%			
212	Pathogens and Nematodes Affecting Plants	35%			
213	Weeds Affecting Plants	2%			
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	2%			
216	Integrated Pest Management Systems	10%			
403	Waste Disposal, Recycling, and Reuse	2%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	0.0	0.0
Actual	12.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
375000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
465000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

West Virginia University Extension Service has a long term commitment with NRCS, Conservation Districts and farmers to bring research and technology to the agriculture community. The Extension Service has historically assisted vegetable crop production, development of IPM for cropland, nutrient management for inclusion in the NRCS 590 standard, and has provided training to farmers on organic and sustainable crop production. This assistance and cooperation has resulted in a better understanding of farmer and agency needs to provide sound and coordinated vegetable production and resource management plans. New demonstrations at the Plant Materials Center in Alderson WV were established in 2010 to evaluate and demonstrate the positive attributes of adding cover crops to cropping systems.

Research has also clearly demonstrated that adding sheep to a cattle operations increases livestock producer income through greater output of livestock products per acre, better utilization of grassland resources and positive soil effects including macro-nutrient cycling and buffering of pH. This year, two CIG research project evaluated the suitability of using sheep and cattle for improved ecological soil conditions. To demonstrate the successes of these two funded projects a series of presentations and posters were conducted.

Pesticide education is an important function of WVU Extension because 1) we have landowners, homeowners, farmers, and commercial applicators using pesticides and they need to do so responsibly and 2) educational recertification credits are required for those holding a pesticide applicators license in WV. This is beneficial for counties with no agricultural agent, those with agricultural agents that don't have the expertise to provide the training, and it avoids agents all over the state spending time to develop similar trainings. A variety of other educational programs also offer pesticide recertification credits. Credits have also been offered at various conferences and meetings for commercial applicators, who need more credits than private applicators.

Researchers at West Virginia University's Tree Fruit Research and Education Center have implemented and supervised a cost-sharing program, funded by the USDA-NRCS, that aims to help local orchardists implement advanced integrated pest management, or IPM. In addition, a plant pathologist at West Virginia University's Tree Fruit Research and Education Center has produced an improved computer program for forecasting infection periods of fire blight, a destructive bacterial disease of apples and pears in the United States and over 40 other countries. Losses from fire blight cost the tree fruit industry in West Virginia thousands of dollars in losses every year and epidemics of the disease can be devastating.

2. Brief description of the target audience

Private and commercial pesticide applicators in West Virginia, including growers, farmers, personnel of commercial businesses. Extension personnel, State Association members, the larger agricultural industry, Certified nutrient Management Planners Conservation Agency, and Master Gardeners.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	4500	29400	900	700
Actual	4832	24289	226	185

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	0	0	
Actual	9	14	223

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of training activities in environmental stewardship.

Year	Target	Actual
2010	75	91

Output #2

Output Measure

- Number of educational materials in environmental stewardship created or updated

Year	Target	Actual
2010	150	355

Output #3

Output Measure

- Number of educational materials about environmental stewardship distributed
Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of people receiving educational materials about environmental stewardship.

Year	Target	Actual
2010	2200	28000

Output #5

Output Measure

- Number of new grants and contracts supporting initiatives in environmental stewardship.

Year	Target	Actual
2010	3	1

Output #6

Output Measure

- Number of monitor activities for insects and diseases
Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Number of pesticide recommendations given to clients
Not reporting on this Output for this Annual Report

Output #8

Output Measure

- Number of plant specimens diagnosed for diseases, insects, and insect infestation or damage
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of participants who changed their attitudes or opinions about environmental stewardship.
2	Number of participants who improved a skill related to environmental stewardship.
3	Number of participants who adopt a skill related to environmental stewardship
4	Number of participants who changed a habit or procedure related to environmental stewardship.
5	Number of groups or organizations that collaborated with environmental stewardship initiatives.
6	Number of changes in social conditions due to Extension's efforts in environmental stewardship.

Outcome #1

1. Outcome Measures

Number of participants who changed their attitudes or opinions about environmental stewardship.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of participants who improved a skill related to environmental stewardship.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1800	4349

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farmers in WV need assistance in reducing erosion, improving nutrient management, protecting soil quality, and using of integrated pest management on cropland. A critical element of these plans is to insure correct timing and accepted methods of cover crop production to improve nutrient cycling, minimize the loss of nutrients to ground or surface water, and improve irrigation water management and soil quality.

What has been done

WVU Extension Service has trained farmers on organic and sustainable crop production. This year, WVU Extension has offered programs centered around practices that capture and sequester carbon on farms, offered grazing workshops, workshops on commercial applications, principles of composting, and soil fertility management, to name a few.

Results

Participants gained skills in the fundamentals of nutrient management including: 1) analyzing field soil organic matter, adding sheep to improve nutrient cycling, increasing pasture productivity and profitability, and adopting nutrient management principles in order to save fertilizer and increase forage production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Number of participants who adopt a skill related to environmental stewardship

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	3400	2416

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Integrated Pest Management is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks. Losses from fire blight cost the tree fruit industry in WV thousands of dollars in losses every year and epidemics of the disease can be devastating.

What has been done

Certified planners worked with individual land owners to develop site specific nutrient management plans.

Researchers at WVU's Tree Fruit Research and Education Center have implemented and supervised a cost-sharing program, funded by the USDA-NRC, that aims to help local orchardist implement advanced integrated pest management plans. A plant pathologist at WVU has produced an improved computer program for forecasting infection periods of fire blight.

Results

West Virginia orchardists have taken advantage of the USDA cost-share program to implement reduced-risk pest management practices and develop and implement site specific nutrient management plans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Number of participants who changed a habit or procedure related to environmental stewardship.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	350	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pesticide education is an important function of WVU Extension because 1) we have landowners, homeowners, farmers, and commercial applicators using pesticides and they need to do so responsibly and 2) educational recertification credits are required for those holding a pesticide applicators license.

What has been done

Three programs were targeted to commercial applicators including: right-of-way workers, aquatic, and forestry, and these were approved for recertification credits by 10 states. IPM sessions were also taught by a representative of Dow Chemical, ArborChem (pesticide manufacturer), Alligare

(pesticide manufacturer and distributor) and a WVU Specialist.

Results

Certified planners continued to earn educational credits this year and as a result, 10 individuals received Nutrient Management Consultant certificates in West Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems
403	Waste Disposal, Recycling, and Reuse

Outcome #5

1. Outcome Measures

Number of groups or organizations that collaborated with environmental stewardship initiatives.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	65	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

West Virginia University Extension Service has a long term commitment with NRCS, Conservation Districts and farmers to bring research and technology to the agriculture community. NRCS has committed technical and financial assistance for vegetable and other producers to develop voluntary conservation plans. A critical element of these plans is to improve nutrient cycling, minimize the loss of nutrients to ground or surface water, and improve irrigation water management and soil quality.

What has been done

A WVU-ES specialist was instrumental in changing WV Nutrient Management Certification Advisory Committee in West Virginia. The WVU-ES specialist organized all the Continuing Education Credit workshops for certified nutrient management planners and also organized the fundamentals workshop for new professionals wanting to become a certified Nutrient Management planner, and to serve as the Proctor for the Nutrient Management Certification Exam.

Results

The Nutrient Management Certification Advisory Committee in West Virginia successfully offered Continuing Education Credit workshops for certified nutrient management planners as well as the fundamentals workshop for new professionals wanting to become a certified Nutrient Management planner, and to serve as the Proctor for the Nutrient Management Certification Exam.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

Number of changes in social conditions due to Extension's efforts in environmental stewardship.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (USDA Farm Bill Programs)

Brief Explanation

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

1. Evaluation Studies Planned

- Before-After (before and after program)

Evaluation Results

Six new training video clips were produced for the 2010 environmental stewardship program. These were edited into a 2 hour and 15 minute program. It was then reproduced on two DVD's and sent to each county along with a pretest/posttest and evaluation. The results were very favorable and the video was used in each county, with a total audience of approximately 450.

Key Items of Evaluation