

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Sustainable Energy

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	25%			
136	Conservation of Biological Diversity	50%			
605	Natural Resource and Environmental Economics	25%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.0	0.0	0.0
Actual Paid Professional	3.0	0.0	0.0	0.0
Actual Volunteer	0.0	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
120000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
782927	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

The Sustainable Energy planned program at West Virginia University Extension works toward energy independence to develop biomass use for biofuels by designing optimum forestry and crops for bioenergy production. It also works towards improving woodlot conditions and expanding forest and non-timber product production in general.

Educational topics include: reclamation of Marcellus well sites, chestnut for reforestation, switchgrass potential for minesoils, chestnut growth on surface mines, bioenergy crops on surface mines, flow effects on acidity, survival of chestnut trees, biomass for bioenergy: switchgrass biomass stewardship: biomass issues for forest management plans

2. Brief description of the target audience

Foresters, government officials, consumers of wood products, commercial enterprises dealing with wood products, researchers, Extension staff and faculty.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	15437	0	0	0

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

Patent Applications Submitted

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
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Actual	0	8	8
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V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational materials created or updated

Year	Actual
2012	1

Output #2

Output Measure

- Number of educational materials distributed

Year	Actual
2012	405

Output #3

Output Measure

- Number of professional presentations

Year	Actual
2012	9

Output #4

Output Measure

- Number of outside organizations collaborating within this program area
Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Number of training activities

Year	Actual
2012	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of groups or organizations that change their procedures and/or policies
2	Number of economic improvements
3	Number of environmental improvements
4	Number of participants who gain knowledge about sustainable energy
5	Number of participants who gain new skills related to sustainable energy.
6	Number of participants who change a behavior or use a new skill.

Outcome #1

1. Outcome Measures

Number of groups or organizations that change their procedures and/or policies

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of economic improvements

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of environmental improvements

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number of participants who gain knowledge about sustainable energy

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	205

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

West Virginia is well-suited to supply forestry wastes for ethanol production and to grow energy crops such as switchgrass on marginally productive lands. The state also has tens of thousands of acres of reclaimed surface mine sites which are well-suited for production of energy crops. WV is the nation's second largest coal-producing and third most heavily forested state. Opportunities exist for the co-development of biomass and coal energy which combine the sustainable qualities of woody biomass and the fuel density of coal.

What has been done

The Appalachian Hardwood Center and Bio-materials and Wood Utilization Research Center partnered with the WV Div. of Energy to hold a conference on biomass and coal opportunities. Topics included biomass and coal development, bioenergy research and development, torrefied biomass and coal blends, energy policy and environmental impacts, and feasibility of coal and biomass as feedstocks for liquid transportation fuels. Other educational include: reclamation of Marcellus well sites, chestnut for reforestation, and switchgrass potential for minesoils.

Results

205 participants in programs on production/harvesting/storage systems gained knowledge of West Virginia surface mine drainage and post-mining land use development, biomass and coal development opportunities, bioenergy research and development, torrefied biomass and coal blends, energy policy and environmental impacts, and the technical and financial feasibility of coal and biomass as feedstocks for liquid transportation fuels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #5

1. Outcome Measures

Number of participants who gain new skills related to sustainable energy.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	140

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Woody biomass from forest management is a renewable, low-carbon feedstock that can substitute for fossil fuels in the production of energy and other products -- a potentially important tool in the national strategy to reduce greenhouse gas emissions and resist global climate change. Markets for logging residues, small diameter trees, and other low-value forest products can add value to working forests, help provide financial alternatives to land clearing and development, and create incentives for investing in sustainable forest management.

What has been done

Extension specialist gives lectures on biomass stewardship at forest stewardship meetings on biomass issues for forest management plans. He has also produced three fact sheets (Morwood Logging Residue Fact Sheets) reporting results from field visits where he assessed the residue left on site after logging activities.

Results

140 participants in programs on production/harvesting/storage systems gained new skills in biomass stewardship for forest management plans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
605	Natural Resource and Environmental Economics

Outcome #6

1. Outcome Measures

Number of participants who change a behavior or use a new skill.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities

Brief Explanation

Nothing to report

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Nothing to report

Key Items of Evaluation