

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change

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
101	Appraisal of Soil Resources		10%		10%
102	Soil, Plant, Water, Nutrient Relationships		10%		5%
111	Conservation and Efficient Use of Water		10%		0%
124	Urban Forestry		10%		0%
131	Alternative Uses of Land		10%		5%
211	Insects, Mites, and Other Arthropods Affecting Plants		10%		35%
212	Pathogens and Nematodes Affecting Plants		10%		25%
403	Waste Disposal, Recycling, and Reuse		10%		20%
721	Insects and Other Pests Affecting Humans		10%		0%
902	Administration of Projects and Programs		5%		0%
903	Communication, Education, and Information Delivery		5%		0%
	Total		100%		100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	1.5	0.0	0.5
Actual Paid Professional	0.0	0.0	0.0	1.5
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
0	0	0	216850
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	222352
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	68887

V(D). Planned Program (Activity)

1. Brief description of the Activity

Educational classes and workshops were developed and delivered to increase knowledge of alternative agricultural practices with a focus on environmental consciousness for small scale producers, as well as production methodologies, crop selection, and crop maintenance.

2. Brief description of the target audience

Targeted audience will include: homeowners, small-farm operators, volunteer organizations, various city, county and municipalities, state government, underserved and minority farmers/landowners, WVDA staff, USDA staff and other agricultural and natural resource focused agencies, undergraduate and graduate students, MS4's municipalities, contractors and landscape architects and designers, private land owners.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	635	2641	15	150

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

Patent Applications Submitted

Year: 2013

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	2	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Workshops on new varieties and growing techniques for small farmers to adapt to changing environmental conditions

Year	Actual
2013	33

Output #2

Output Measure

- Workshops targeted at alternative agriculture endeavors will be held in targeted counties.

Year	Actual
2013	36

Output #3

Output Measure

- WVSU Extension staff will generate media articles and stories related to alternative agriculture.

Year	Actual
2013	6

Output #4

Output Measure

- Urban clientele, municipalities and government organizations will receive information on the Urban Forestry initiative.

Year	Actual
2013	200

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of small farmers adopting new varieties and growing techniques to adapt to changing environmental conditions
2	Extension clientele will implement best practices in agriculture and natural resources based on research-based knowledge.
3	Farmers/growers will utilize best practices with alternative agricultural enterprizes to diversify their income portfolio.
4	Develop soil rating for soil-based runoff mitigation practices.
5	Improve value and use of biochar and other byproducts as soil amendments.

Outcome #1

1. Outcome Measures

Number of small farmers adopting new varieties and growing techniques to adapt to changing environmental conditions

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Small farms find it hard to remain competitive using traditional crop production methods that are not adaptive to our farms. In addition competing with existing stream of produce from out of state is difficult if not impossible. Thus, finding alternative approaches to growing crops or new crops/varieties not currently grown on a large-scale commercial basis in the US, products that do not ship well or utilize the interest in local foods can provide a greater return on small farm investment compared to traditional products and practices.

What has been done

Field trials with jalapeno and cayenne peppers were undertaken in the Summer of 2013. Included in the trial was an early, dwarf cayenne pepper which had been selected in prior years as a possible release. Fruit number and weight of marketable and cull fruit was collected and is currently being analyzed.

A variety trial of Asian Greens was conducted with Dr. Lewis Jett of WVU in the Fall of 2013. Data was collected on size and weight of the plants from this replicated trial. Data is currently be analyzed with results to be presented at regional conferences and local growers meetings.

A second experiment creating grafted tomato plants for small farm growers with high tunnels was undertaken in the spring of 2013. Grafted plants with heirloom scions and resistant rootstocks were created with over a 95% success rate in grafting. Fruit number and weight was collected by the growers and we are awaiting the information.

Results

Data is currently being collected and analyzed. At least one grower lost her plants prior to transplant to unexpected cold weather.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

Outcome #2

1. Outcome Measures

Extension clientele will implement best practices in agriculture and natural resources based on research-based knowledge.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As a change occurs in the realm of agricultural production, a focus on sustainable agricultural production has become more desirable. Based on this demand, Extension based agricultural program efforts out of WVSU have focused on implementing workshops to illustrate best management practices in agriculture and natural resources to extend the knowledge of the University out to the greater community. Workshops, garden builds, tours and presentations have been delivered on numerous topics to help ensure that the general public is well educated on these topics.

What has been done

Workshops were delivered on the topics of mushroom production, cold frame construction, rain barrels, hydroponic/aeroponic production, community and adaptive garden creation, pesticide application and small fruit production around the state. Community, youth and adaptive gardens were built in collaboration with program partners to provide an outlet for healthy food production. Tours were conducted of garden sites and area vineyards for those interested. Presentations at conferences and at local meetings were given about program offerings. Articles were written and video outreach via YouTube created.

Results

Thirty-three workshops were delivered on the topics of mushroom production, cold frame construction, rain barrels, hydroponic/aeroponic production, community and adaptive garden creation and pesticide application to 428 participants around the state. Community and adaptive gardens were built and assisted in five locations around the state involving 80 participants. Tours of local garden sites and vineyards were offered and attended by over 50 people increasing the visibility of our program outreach efforts. Presentations on our community garden programs and other program efforts were delivered on several occasions to audiences totaling over 100 people. Articles were written and distributed via the university magazines as well as statewide media sources to reach hundreds of residents, while a You Tube video on Mushroom Log Production was developed and posted receiving 121 views to date.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
124	Urban Forestry
131	Alternative Uses of Land
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
403	Waste Disposal, Recycling, and Reuse
721	Insects and Other Pests Affecting Humans
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Farmers/growers will utilize best practices with alternative agricultural enterprises to diversify their income portfolio.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
124	Urban Forestry
131	Alternative Uses of Land
211	Insects, Mites, and Other Arthropods Affecting Plants
403	Waste Disposal, Recycling, and Reuse
721	Insects and Other Pests Affecting Humans
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Develop soil rating for soil-based runoff mitigation practices.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Improve value and use of biochar and other byproducts as soil amendments.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Appalachian regional soils are highly acidic and infertile. Mineral exploration, such as coal mining, and the earth-moving operations associated with such land uses further exacerbate the already fragile fertility of these soils. Using organic byproducts, biochar (byproduct of thermoconversion of cellulosic biomass), and other byproducts have the potential to ameliorate soil properties and environmental services. Improving land management practices of disturbed lands can increase soil fertility and productivity, contributing to local agronomic output, food security, and economy.

What has been done

Biochar from fast pyrolysis of southern pine biomass into bio-oil operation was acquired from a commercial partner. Chemical and physical characterization was successfully concluded. A study was initiated to improve biochar agronomic value by using it as a sorbent for excess nutrients from dairy solid waste products and mix with quarry fines from different geologic formations. Organic and inorganic waste materials were analyzed and selected properties were determined. Protocols for dairy waste extraction were developed and their ability to extract nutrients from the waste solids was evaluated.

Results

Procedures and protocols for sorbing the solids extracts onto biochar were developed and assessed. Greenhouse studies are currently implemented in studding effect of biochar and BiocharG on soil properties and plant performances.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
403	Waste Disposal, Recycling, and Reuse

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
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}