

V(A). Planned Program (Summary)

Program # 8

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
132	Weather and Climate	0%	0%	0%	100%
205	Plant Management Systems	0%	0%	100%	0%
	Total	0%	0%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.3	0.5
Actual Paid	0.0	0.0	1.0	0.5
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	79971
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	6049	64285
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

Across the Southeast, land managers share the challenge of restoring longleaf pine (LLP) forests to support red-cockaded woodpeckers (RCW) and associated species of concern, while retaining critical habitat features, including mature trees. Restoring longleaf pine is readily accomplished if existing trees are clearcut and seedlings planted. However, managers need alternative protocols that restore LLP on sites where canopy pines are retained. Current Clemson University research looks to develop protocols for restoring longleaf pine (LLP) to stands currently occupied by loblolly pine (LBP).

In focusing on the goal climate change, an 1890 research project looks at developing a robust disaster relief supply chain, as it is among the most critical aspects of emergency management. A literature review was completed and a paper was developed for presentation. The paper reviewed optimization and simulation models used in the field of disaster relief supply chain. To test the validity of the model, various hypothetical input data were created to test and improve the model. A case study was conducted to demonstrate the capability of the optimization model. A simulation model was developed to model the disaster relief supply chain networks using Arena simulation software by Rockwell Automation. The simulation working paper was submitted to the Southeast Decision Science Institute (SEDSI) for a conference presentation as well as to Review of Business Research for a peer-reviewed journal publication.

2. Brief description of the target audience

The target audience will include general public, regulatory agencies, resource managers, local county and municipal officials and public works staff.

3. How was eXtension used?

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V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
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Actual	0	7	7
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V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Disclosures

Year	Actual
2014	0

Output #2

Output Measure

- Licenses

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Provide knowledge to policy makers to assist in coping with the effects of climate change, particularly in the coastal region.
2	Identify models to help disaster relief officials measure the vulnerabilities of rural areas to potential disasters.

Outcome #1

1. Outcome Measures

Provide knowledge to policy makers to assist in coping with the effects of climate change, particularly in the coastal region.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Identify models to help disaster relief officials measure the vulnerabilities of rural areas to potential disasters.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

A 1890 research bulletin will be published at the conclusion of the project detailing the results. Overall, the Clemson LLP study found a low occurrence of trees in poor health (2.9%). Tree health was positively correlated with site productivity, whereas poor tree health was more common on coarse textured soils than on fine textured soils.

Key Items of Evaluation