V(A). Planned Program (Summary)

Program # 1

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	5%			
102	Soil, Plant, Water, Nutrient Relationships	5%			
103	Management of Saline and Sodic Soils and Salinity	3%			
112	Watershed Protection and Management	5%			
121	Management of Range Resources	5%			
122	Management and Control of Forest and Range Fires	5%			
123	Management and Sustainability of Forest Resources	5%			
136	Conservation of Biological Diversity	5%			
201	Plant Genome, Genetics, and Genetic Mechanisms	5%			
212	Pathogens and Nematodes Affecting Plants	5%			
215	Biological Control of Pests Affecting Plants	5%			
302	Nutrient Utilization in Animals	4%			
303	Genetic Improvement of Animals	5%			
311	Animal Diseases	4%			
604	Marketing and Distribution Practices	4%			
605	Natural Resource and Environmental Economics	5%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	5%			
723	Hazards to Human Health and Safety	5%			
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%			
902	Administration of Projects and Programs	10%			
	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	10.0	0.0	0.0	0.0

Actual Paid Professional	9.3	0.0	0.0	0.0
Actual Volunteer	347.0	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**
327735	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
327735	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
83427	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Our approach to climate change outreach will involve both traditional and non-traditional methods. We will integrate climate change content into our existing educational programs, and address climate-related impacts such as drought and adverse storm damage response. This "stealth" approach to climate change education is less likely to turn off potentially hostile audiences and has worked well in other states. We will also develop and deliver educational programs, based on current research, that shows mitigation strategies and adaptations that can be accomplished now. For example, our forest geneticists are now developing revised seed zone maps that account for changing climate. This can assist forest owners and managers who are making planting decisions today for forests that will grow for over 50 years, and are likely to be under the effects of a different climate 50 years from now.

Other activities will include volunteer-based programs such as Climate Masters and Master Naturalists, workshops and seminars, consultations and facilitations, web-based instructional programs, web sites, stand alone and web-based videos, publications of all types, mass media, and social networking.

2. Brief description of the target audience

Audiences for the Oregon Extension Service are quite diverse. They include the agricultural sector, including farmers and ranchers, as well as small farms. This includes vineyards, orchards, row crops, animal livestock, nurseries, Christmas trees, and a host of others. Oregon is the second largest forested state in the nation. Timber production is a large industry and forest owners and managers constitute a large client group. Along the Coast the fishing and tourism industries represent the main economic engines, with the possibility of ocean energy coming on line in the near future. Policy makers such as county commissioners and judges, elected officials, and state and federal agency personnel represent another important client group. Finally, family and youth, communities, and individual homeowners and citizens are reached everyday through various educational programs.

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	76027	11295	1674	1255

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
Actual	7	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational classes

Year	Actual
2012	139

Output #2

Output Measure

- Number of workshops

Year	Actual
2012	93

Output #3

Output Measure

- Number of demonstrations

Year	Actual
2012	19

Output #4

Output Measure

- Number of recurring newsletters published

Year	Actual
2012	9

Output #5

Output Measure

- Number of web sites maintained

Year	Actual
2012	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percentage of participants who increase their knowledge of management practices and understanding of climate variability and change.
2	Percentage of participants in educational programs who improve mitigation strategies for climate, such as reducing greenhouse gas emissions and increasing carbon sequestration in agricultural production and natural resource management systems.
3	Percentage of clients who employ climate adaptation strategies or incorporate climate-based management practices.

Outcome #1

1. Outcome Measures

Percentage of participants who increase their knowledge of management practices and understanding of climate variability and change.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	47

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Current research estimates a 37 percent chance in the next 50 years of a Cascadia subduction zone earthquake and tsunamis in our area. The zone stretches from Vancouver Island to northern California and can produce "megathrust" earthquakes with a magnitude of 9.0 or greater. In addition to earthquake damage in western Oregon, the coast would be hit by tsunamis that kill many more people.

What has been done
Extension Sea Grant brought together hundreds of residents, businesses and officials of coastal communities to learn about the nature, likelihood, and impact of a tsunami on coastal residents, visitors, and infrastructure. Education and engagement included tours of OSU tsunami wave-research facilities; tsunami workshops; a preparedness DVD; the publication "Three Things You Need to Know about Tsunamis," and outreach through local radio and newspapers.

Results
Extension Sea Grant faculty assisted officials in 6 of 7 coastal counties to incorporate their new understanding of tsunami hazards into their public safety and planning policies such as updated evacuation plans and identification of assembly areas.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
103	Management of Saline and Sodic Soils and Salinity
112	Watershed Protection and Management

121	Management of Range Resources
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
136	Conservation of Biological Diversity
201	Plant Genome, Genetics, and Genetic Mechanisms
212	Pathogens and Nematodes Affecting Plants
215	Biological Control of Pests Affecting Plants
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
311	Animal Diseases
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
723	Hazards to Human Health and Safety
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
902	Administration of Projects and Programs

Outcome #2

1. Outcome Measures

Percentage of participants in educational programs who improve mitigation strategies for climate, such as reducing greenhouse gas emissions and increasing carbon sequestration in agricultural production and natural resource management systems.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Percentage of clients who employ climate adaptation strategies or incorporate climate-based management practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	61

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Understanding climate change and its potential impacts is critical to maintaining productive and healthy forestlands into the future. Family forest owners' understanding and perceptions of climate change is wide-ranging, and is complicated by mistrust in source information, lack of certainty, and anxiety regarding potential regulatory impacts. Extension is regarded by many forest owners as a source of less-biased information and is poised to engage family forest owners on the topic of climate change, potential impacts to forests, and adaptation strategies.

What has been done
A 3-session live webinar series "Understanding and Communicating Climate Science" consisted of:
1. The first session explored the political and social context surrounding the climate change debate and discussed how to talk about climate science without alientating differeing beliefs and values.
2. Climate Science 101 presented the basics of climate science including: the difference between climate and weather, global warming vs. climate change, the greenhouse effect, and the role of factors such as el-Niño in the global climate.
3. The final session discussed major components of climate models, how they are used, areas of uncertainty, and the most recent projections of climate for the Pacific Northwest region as well as adaptation strategies for managing forestland due to climate change.

Results
55 family forest owners participated in the 3 sessions. In a six month follow up survey, 84% indicated that they had incorporated climate-based management practices learned in the webinars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
103	Management of Saline and Sodic Soils and Salinity
112	Watershed Protection and Management
121	Management of Range Resources
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
136	Conservation of Biological Diversity
201	Plant Genome, Genetics, and Genetic Mechanisms
212	Pathogens and Nematodes Affecting Plants
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712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
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902	Administration of Projects and Programs

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Clientele's understanding and perceptions of climate change is wide-ranging, and is complicated by mistrust in source information, lack of certainty, and anxiety regarding potential regulatory impacts. Extension is regarded by many as a source of less-biased information and is poised to engage the public on the topic of climate change, potential impacts to our natural resources, and adaptation strategies. Effective Extension programming should embrace relevant and sound climate science and develop information and tools that are most applicable to learners' needs in the context of their decision making processes.

Maintaining trust with stakeholders is often critical to being an effective educator at the local level; therefore, some extension educators may be reluctant to address climate change because the topic has become so politicized. As a result there is some extra work necessary to help Extension educators and researchers develop programming around climate in a way that maintains or even builds on those trusting relationships. Programs built around transparency, local relevance, and assessment of risk should resonate well with the intended audience.

2012 was a building year as the faculty and staff develop their knowledge and skills to work comfortably and confidently with clientele on this important topic.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Two primary evaluation methods were used to gather impact data on Climate Change programs: 1) post-event surveys and 2) observation of actions and policy change. The post-event survey indicated that family forest owners are adapting their practices to accommodate for climate change. In 6 of 7 Oregon coastal counties, officials have taken action and changed public safety policies for extreme weather conditions.

Key Items of Evaluation