

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	6%			
103	Management of Saline and Sodic Soils and Salinity	2%			
112	Watershed Protection and Management	4%			
121	Management of Range Resources	10%			
122	Management and Control of Forest and Range Fires	5%			
123	Management and Sustainability of Forest Resources	10%			
136	Conservation of Biological Diversity	3%			
201	Plant Genome, Genetics, and Genetic Mechanisms	2%			
212	Pathogens and Nematodes Affecting Plants	6%			
215	Biological Control of Pests Affecting Plants	4%			
302	Nutrient Utilization in Animals	4%			
303	Genetic Improvement of Animals	7%			
311	Animal Diseases	3%			
604	Marketing and Distribution Practices	3%			
605	Natural Resource and Environmental Economics	3%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	2%			
723	Hazards to Human Health and Safety	7%			
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	8%			
902	Administration of Projects and Programs	6%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	0.0	0.0

Actual Paid Professional	9.4	0.0	0.0	0.0
Actual Volunteer	37.0	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
243623	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
243623	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
787301	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?

In 2013, Oregon's use of Ask an Expert continued to grow across the 36 counties, with 3032 questions answered in the system. Oregon remains among the top five participants in the nation for Ask an Expert activity. Question response time remains the best of any state at 38 hours, well below the 48 hour target suggested nationally. Over 200 Extension faculty and staff and some thirty Master Gardener volunteers are actively answering questions from Oregon and beyond.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5168	6877	6169	8740

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	8	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational classes

Year	Actual
2013	19

Output #2

Output Measure

- Number of workshops

Year	Actual
2013	12

Output #3

Output Measure

- Number of demonstrations

Year	Actual
2013	7

Output #4

Output Measure

- Number of recurring newsletters published

Year	Actual
2013	25

Output #5

Output Measure

- Number of web sites maintained

Year	Actual
2013	7

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
2013	81

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Western Oregon, including Douglas County, is being invaded by several new destructive insect species. These insects are a threat to many if not all of our horticultural crops. These insect pests include the Spotted Wing Drosophila, Grape and Vine mealybugs, and the Brown Marmorated Stink Bug. These insects need to be monitored to learn about their life cycle, favorite host plants, the time when they do the most damage, and how best to control them.

What has been done

Monitoring of the Spotted Wing Drosophila (SWD) and the Grape (GMB) and Vine mealybugs (VMB) began in 2009. Monitoring these insect pests was done by placing vinegar traps in strawberry, raspberry, blueberry, cherry, and grape crops on 12 farms for the SWD, and by placing pheromone traps in wine grape crops on 6 farms. Traps were visited on a weekly basis to count catches and to relay this information on to other OSU researchers at the state level. The collected data allowed us to understand how many generations of each insect were being produced, how many insects and what type survived the winter, when peak insect counts occurred, and when crop damage was most likely to occur. We also evaluated the timing of insect pest controls and how effective they were.

Results

During the first year of our insect pest monitoring program in 2009 we advised producers to trap and monitor fields we were not covering, and if pests were present, to apply controls. Many growers did not understand the inherent risks to their crops that these insect pests brought with them. During the first year many growers lost entire fields of strawberries, raspberries, and cherries. Crop losses were over \$50,000 for several growers. During the second crop season in 2010 all commercial fruit and vegetable growers attended our outreach classes that informed growers how to monitor and control these pests. From 2010 to 2013 no commercial berry or tree crop grower has had fruit losses due to the SWD. In each of the last three years the value of all

berry crops produced in Douglas County surpassed \$4,000,000. Extension educational programs, farm visits and trapping, and OSU publications have all contributed to the financial success of our orchard and berry growers.

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
2013	37

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Oregon State University scientists have recorded more erosion along Oregon's 363-mile coast in recent decades because of more frequent storms and higher waves crashing into beaches. Such erosion threatens highly valuable beachfront property and local tourism, which is a major component of the Oregon coastal economy. Visitors spent \$1.5 billion on the Oregon coast in 2011, resulting in the employment of nearly 20,000 people and the generation of \$60 million in local and state tax receipts.

What has been done

OSU's Sea Grant Extension is helping coastal communities develop strategies to address erosion, flooding and landslides. Additionally, it's connecting local elected leaders and citizens with university researchers and agency personnel so they can exchange information, hear concerns and make plans to protect human life and property - all of which aim to preserve and promote economic vitality on the coast.

Results

OSU Extension contributed to the development of ground breaking proposals and provided policy direction regarding coastal hazards in the context of economic and residential development in the coastal zone. A few examples include:

*Tillamook Adaptation plan is the first county level hazards plan proposed in Oregon.

*The Neskowin Sub Plan is the first such plan to be drafted by a local coastal community in Oregon.

*OSU's consultation with DLCD/Cogan contributed to the development of Oregon's first Land Use Guide for Oregon coastal communities preparing for a subduction zone earthquake, tsunamis and

extreme weather.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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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
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

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.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

OSU Extension contributed to the development of ground breaking proposals and policy adoption regarding coastal hazards in the context of economic and residential development in the coastal zone.

In each of the last three years the value of all berry crops produced in one Oregon county surpassed \$4,000,000 because Extension's educational programs helped orchard and berry growers improve their knowledge of management practices for mitigating the affects of climate change.

Key Items of Evaluation