2013 Oregon State University Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

The 2013 Report of Accomplishments reflects our ongoing commitment to the vision, values and goals of the Oregon State University Extension Service. The report reflects the continual improvement process of responding to the needs and issues facing Oregon communities and people. The report is also consistent with Oregon State University's strategic plan that identifies three areas of excellence . . . **Healthy People, Healthy Planet, Healthy Economy.**

The 2013-17 Plan of Work was the second year of a major re-write from previous plans and represents a change in philosophy about reporting as well. The new Plan of Work **focuses on the five high-priority areas** defined by NIFA as OSU Extension planned programs but **does not represent the full breadth and depth of programs conducted by OSU Extension.** The 2013 Report of Accomplishments speaks only to approximately 55% of the 2013 programs developed, delivered and evaluated as well as reports only 66% of the total dollars utilized in program delivery . . . but the report does account for 80% actual formula dollars allocated plus the matching funds. The remaining 20% of formula dollars and matching funds, in addition to other funding sources, were invested in supporting Oregon's nationally renowned **4-H youth development program, which reaches one in five K-12 youth within the state.**

This Report of Accomplishments reflects a **slight increase in OSU Extension faculty with 183.5** employed on state and federal appropriated funds during 2013. Nine additional FTE were hired since the previous year. However, this increase still amounts to 35.5 fewer FTE, or a 16% decrease, than when the recession began in 2008. Meanwhile the **overall Extension budget is approximately 23% larger today** than it was in 2008. One significant difference is the number of grants and contracts OSU Extension faculty have brought into the university to keep programs at quality delivery levels. While this is good for Oregon residents, the funds from other sources often re-focus Extension's work on issues other than the priorities defined by NIFA.

OSU Extension is serving the state from corner to corner and **reaching more than 1.4 million Oregonians.** These numbers include contacts made in group educational events or via phone, interactive video, mail, e-mail, newsletters, site or office visits. They do not include web hits or mass media. We are able to continue this high level of outreach thanks to **over 14,000 volunteers who contributed 1.7 million hours during the past year.**

Total Actual Amount of professional FTEs/SYs for this State

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	175.0	0.0	0.0	0.0
Actual	183.5	0.0	0.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel
- Expert Peer Review

2. Brief Explanation

The 2013 report of accomplishments is the result of experts within the four colleges with active Extension programs working closely with the Extension program leaders to identify the unique intellectual contribution Oregon State University can make to the identified state priorities and to determine how OSU Extension can operationalize the knowledge for community outreach, engagement and adoption. The annual plan of work was reviewed internally by the OSU Provost and the four Deans leading Extension programs within their colleges. Extension faculty members file their individual and team reports of accomplishment which are reviewed by Extension program leaders, department heads and regional administrators for quality and impact.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey of selected individuals from the general public

Brief explanation.

Input was solicited through a statewide advisory network that directly advises the Vice Provost for Outreach and Engagement and Director of Extension. This advisory committee is made up of individuals representing production agriculture and forestry, environmental groups, county government, youth and family-serving organizations, organizations representing coastal issues, and business and industry. The committee meets twice annually for two days. Additionally, the committee is connected with the Vice Provost and Director's office via email, conference calls and webinars throughout the year. The Extension Citizen's Advisory Network (ECAN) provides advice regarding future trends and priorities, current and emerging issues, program emphasis and direction, organization and relationships, and funding partnerships. ECAN members also serve as the primary liaison with people in their community, including local government and key Extension constituencies, to seek and coordinate advice regarding current and future direction for OSU Extension Service program emphasis.

Every county in the state maintains an advisory structure. These include both general broad-based advisory systems and those that are more specific to programming areas. These advisory groups generally meet 4-12 times per year to actively review programming and to provide input to county faculty and Extension leadership.

Each academic college with Extension programming maintains advisory structures at the college and departmental level. These inform Extension programming within each of these units.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys
- Other (Web searches of potential participants, Organizational Transformation faculty panel, Extension Demographer, Visioning Project and Strategic Planning)

Brief explanation.

Many mechanisms are used to identify individuals, groups and organizations that are Extension stakeholders. Some specific efforts are cited below:

• We conduct internet searches to identify organizations with stakes in various programs.
• We confer with partnering organizations to identify and engage appropriate stakeholders.
• We confer with existing advisors about other groups and individuals that should provide input.
• We actively solicit internal input about appropriate stakeholders to add to advisory structures or to survey about need and effectiveness of Extension programming.
• We utilize demographic data to ensure that all segments of society are adequately represented among identified stakeholder groups and especially among those groups providing input to the decision-making processes.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of the general public
- Meeting specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey of selected individuals from the general public

Brief explanation.

In 2006, Extension added a full-time demographer to the faculty in order to access, interpret and respond to Oregon's changing demographics more effectively. In 2007 we collaborated with WSU and their Center for Bridging the Digital Divide in a visioning project that helped define the possibilities for OSU in the year 2017. This project, a series of in-depth interviews with key stakeholders, yielded both formative and summative data for planning purposes. In 2009-2010 a faculty panel for organizational transformation was charged to develop a holistic framework to engage stakeholders in identifying and exploring issues and needs facing Oregon communities and

people. From data collected a menu of opportunities were developed and shaped the Plan of Work for 2013-2017.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- To Set Priorities

Brief explanation.

Stakeholder input is widely used to set priorities at all levels of the organization. This influences budgetary outlays for various programs and subsequently affects the program delivery. Stakeholders serve on all faculty search committees and thus directly affect hiring decisions. The process of involving stakeholders in the hiring process works well, with stakeholders feeling a greater commitment to helping new hires be successful in their Extension assignments. Stakeholders who have a vested interest in the program and/or community are the most effective.

Each Extension program area is expected to develop an annual program plan of work that requires a description of how stakeholder input was gathered and used to determine the priority work areas and their associated program outcomes.

Brief Explanation of what you learned from your Stakeholders

Stakeholders encouraged us to build on existing strengths and expertise that have earned OSU Extension national stature. Stakeholders rated OSU Extension high in response to the rapidly changing needs of society within an increasingly competitive education and information environment by creating and providing access to innovation and relevant research, program, intellectual resources and information that meet a broad range of individual, organizational and societal needs. Through the use of existing and emerging technologies, OSU Extension should provide learners with access to education where, when and how learners want. For many stakeholders there is a greater need for blending of university missions (learning, discovery and engagement) than funding streams often allow. Three new (or revised) program priorities emerged as future directions for Extension: 1. economic prosperity, supporting jobs and the economy through expanded work with natural resources and the workforce; 2. food systems and many dimensions of food safety and security; and 3. increasing access to credit and noncredit programs.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
3360325	0	0	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	2671459	0	0	0
Actual Matching	2671459	0	0	0
Actual All Other	8660307	0	0	0
Total Actual Expended	14003225	0	0	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	0	0	0	0

V. Planned Program Table of Content

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
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
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
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

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

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Food Safety

☑ 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
501	New and Improved Food Processing Technologies	7%			
502	New and Improved Food Products	9%			
701	Nutrient Composition of Food	9%			
703	Nutrition Education and Behavior	15%			
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	2%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	8%			
722	Zoonotic Diseases and Parasites Affecting Humans	7%			
723	Hazards to Human Health and Safety	16%			
901	Program and Project Design, and Statistics	12%			
902	Administration of Projects and Programs	7%			
903	Communication, Education, and Information Delivery	8%			
	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	6.2	0.0	0.0	0.0
Actual Paid Professional	6.6	0.0	0.0	0.0
Actual Volunteer	447.0	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**
193219	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
193219	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
629840	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Developing and applying new technology of food processing systems
- Developing products, curriculum, resources
- Developing services
- Presenting seminars and professional talks
- Conducting workshops and training sessions
- Publishing scientific findings
- Partnering
- Providing community education classes
- Maintaining a statewide food safety hotline
- Working with and supervising volunteers to deliver high quality information and programming about food safety topics

2. Brief description of the target audience

There are diverse audiences for information this program generates. They can be classified into five general groups: (1) the general public and food consumers; (2) state and federal food regulatory agencies; (3) the research community including scientists working in government, industry, and academic sectors; (4) the commercial food processing industry and commodity groups; and (5) professional food handlers in organizations such as schools and other institutions, as well as restaurants.

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 participant 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	6218	25270	1445	4760

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	7	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational classes

Year	Actual
2013	86

Output #2

Output Measure

- Number of workshops

Year	Actual
2013	56

Output #3

Output Measure

- Number of demonstrations

Year	Actual

2013	114

Output #4

Output Measure

- Number of recurring newsletter published

Year	Actual
2013	25

Output #5

Output Measure

- Number of web sites maintained

Year	Actual
2013	20

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

Number of specialty food and mainstream food processors accessing and applying science based information to produce and distribute safe, nutritious, high-quality foods.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	71

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Oregon Seafoods is a new processor (<5 years) with considerable startup and capitalization costs. An increase in sales volume and profit was needed to continue its economic viability and employment opportunities. Without a product development component, the company needed assistance identifying and developing a new product line to support their existing canning and flexible pouch processing business.

What has been done
With assistance from OSU Extension a line of six new soups and sauce products was identified for production in 9 oz. microwaveable flexible retort pouches. OSU conducted all the product and process development for the new Smoked Salmon Chowder, Seafood Bisque, Ciopino, Red, Green, and Yellow Albacore Curries at its Coastal Oregon Seafood Lab. Oregon Seafoods was also provided technical support for the value added processing equipment selection needed to produce the products. All of the product was in commercial production by March of 2013.

Results
Oregon Seafoods had sold around 40,000 pouches by the end of 2013 with total sales volume from the new products in excess of $140,000. The Seafood Bisque was a Sofi Award finalist at the New York Fancy Food show spurring additional sales. Employment at the company has continued in the 6-10 employee range throughout the entire season with economic benefits to the Coos Bay area. The company has acquired several new distributors with the value added product launch which should boost further sales and stimulate new introductions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and

	Naturally Occurring Toxins
723	Hazards to Human Health and Safety
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Number of individuals improving their practices of safe food handling, food preparation, and food preservation.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	447

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
OSU Extension Service maintains its reputation of disseminating current, reliable research-based food preservation information by maintaining a knowledgeable and experienced faculty and by skillfully selecting, training and supervising volunteers to assist with reaching community audiences. There has been a remarkable increase of interest in home food preservation recently. To address this growing trend, it is necessary to effectively recruit and train appropriate volunteers for involvement. Retaining volunteers increases the effectiveness of the programming and provides assistance in the training and mentoring of more recent recruits.

What has been done
A survey was developed to assist OSU Extension Service in determining the reasons people preserve their own food, the motivations they have for volunteering as a Master Food Preserver, and the factors that enhance their experience and encourage their continued involvement in the program. Having an understanding of this information will improve the ability of Extension faculty to apply best practices for recruiting and retaining volunteer Master Food Preservers and to incorporate these features into future programming and training.

Surveys were conducted during the 2012 Food Preservation season. Data analysis and reporting was completed in 2013. The sample included multiple ethnic groups and both genders. The survey was repeated in 6 counties in 2013. Results were available in early 2014.

Results

The results indicate what people want to learn in the Master Food Preservers training (fermenting, drying, pressure canning, quick pickling, freezing, and how to teach), what they feel they have gained from participating (knowledge, skills and confidence) and what areas may need more focus during the training to make volunteers competent and confident to fulfill their role of disseminating information to Oregonians. Curriculum for training Master Food Preservers in 2014 is currently being revised to reflect the survey results.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
722	Zoonotic Diseases and Parasites Affecting Humans
723	Hazards to Human Health and Safety
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

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

The 2012 illness and death of OSU Extension's food safety specialist had an impact on the overall program; however, many stepped forward to fill the leadership gap and the program maintained momentum, focusing on disseminating knowledge of food product development and increasing understanding about transfer, fate and effects of environmental contaminants. In 2013 focus was given to learn about the program's success and growth oppotunities from the volunteer perspective and revise curriculum based on findings.

Food start-ups . . . from farmer's market stands to food carts to specialty products . . . have never been more popular in the Pacific Northwest, but starting a food product business from scratch takes planning and a thorough understanding of the small food start-up challenges in the industry. Food product start-up has been a growth area for OSU Extension's educational programs with docmumented successes. In order to reach more potential entrepreneurs, we're taking the program online in Spring 2014.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Oregon Seafoods, a food business start-up wanting to expand its market, sold around 40,000 soup pouches by the end of 2013 with total sales volume from the new products in excess of $140,000, kept employees working full time through the entire season, and earned a Sofi Award at the New York FAncy Food show spurring additional sales.

Data gathered through surveying Master Food Preservers will help formulate updates and revisions for Oregon's successful volunteer training, helping volunteers be competent and confident as they fulfill their role of disseminating food safety information to Oregonians.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Global Food Security and Hunger

☑ 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
102	Soil, Plant, Water, Nutrient Relationships	8%			
111	Conservation and Efficient Use of Water	6%			
121	Management of Range Resources	16%			
205	Plant Management Systems	11%			
211	Insects, Mites, and Other Arthropods Affecting Plants	2%			
212	Pathogens and Nematodes Affecting Plants	3%			
213	Weeds Affecting Plants	7%			
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	2%			
215	Biological Control of Pests Affecting Plants	4%			
216	Integrated Pest Management Systems	13%			
307	Animal Management Systems	11%			
311	Animal Diseases	5%			
901	Program and Project Design, and Statistics	5%			
902	Administration of Projects and Programs	3%			
903	Communication, Education, and Information Delivery	4%			
	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	63.0	0.0	0.0	0.0
Actual Paid Professional	72.9	0.0	0.0	0.0
Actual Volunteer	794.0	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**
1940588	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1940588	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
6298406	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Organic, value-added, and technological approaches complement conventional agriculture. By utilizing contemporary tools in agronomy, animal or soil science, plant nutrition, pest management, and pesticide safety, this program will disseminate improved practices and enhance the potential use of alternative crops, reduce soil erosion, reduce the economic, social, and environmental costs of crop pests, and maintain or increase soil health. Animal systems will reduce wastes and discharges while improving productivity and management techniques.

Extension agriculture also will look at key areas of various social changes in the marketplace impacting producers, retailers and consumers. We aim to disseminate information on (1) how technology impacts the market place, with a special emphasis on rural markets in Oregon; (2) improving the well-being of consumers; and (3) development of economic linkages at every level of the supply chain for community development.

2. Brief description of the target audience

- Professional peers and scientific communities, Extension faculty, veterinarians, vaccine producers;
- State commodity commissions, grower groups, packers, crop consultants;
- Wholesale and retail suppliers to the agricultural sector, seed producers and distributers
- Natural resource industry clientele - growers, farm workers, field representatives, grower co-ops and partnerships;
- Processors and handlers, export - import sectors;
- County, state and federal agencies - USDA-ARS, Oregon Department of Agriculture, Natural Resources, others;
- Conservation Service, Bureau of Indian Affairs, Confederated Tribes of the Umatilla Indian Reservation, US Forest Service; and Bureau of Land Management;
- Policy makers, public health officials, and community leaders;
- Teachers and students, Extension personnel and other educators;
- Genetic companies;
- Nutritional consultants;
- Nonprofit conservation groups and ecologists;

- Food system participants, the general public and consumers.

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	26807	62297	6992	14449

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	69	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Educational Classes Delivered

Year	Actual
2013	31

Output #2

Output Measure

- Number of Workshops Delivered

Year	Actual
2013	543

Output #3

Output Measure

- Number of One-on-one Interventions

Year	Actual
2013	616

Output #4

Output Measure

- Number of Demonstrations

Year	Actual
2013	150

Output #5

Output Measure

- Number of Web Sites Maintained

Year	Actual
2013	80

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Crop Production Systems -- Berry, Viticulture, Tree Fruit & Nut, Vegetable, Field Crops, Nursery, IPM, Organic Production Systems: number of farmers, field reps, and others accessing and applying information or knowledge resources originating from educational programs, publications, websites, or other events to improve production efficiencies; pest management; pesticide safety, including better, linguistically appropriate information about pesticide safety; organic and conventional production practices; post-harvest quality; improved cultivars; and to remain competitive in global and local markets.
2	Small Farms: number of small-scale farmers accessing and applying information or knowledge resources originating from educational programs, publications, websites, or other events about appropriate management of nutrients and soil runoff; utilization of IPM, biological, or conventional production practices, or selection of new crops; implementation of profitable and diverse scale-appropriate production and value-added processing systems; farmers accessing markets.
3	Gardens, Turf, Landscape: number of farmers, field reps, and others accessing and applying information or knowledge resources originating from educational programs, publications, websites, or other events to improve production efficiencies; pest management; pesticide safety, including better, linguistically appropriate information about pesticide safety; organic and conventional production practices; post-harvest quality; improved cultivars; and to remain competitive in global and local markets.
4	Livestock, Rangeland and Watershed Management, Dairy: number of farmers, ranchers and land managers, accessing or applying prescribed feeding methods; practices that increase birth weights and survival of offspring; specific management techniques such as early weaning, improved herd or flock health; improved production efficiency and beef quality parameters; practices with the intent to enhance water and soil quality or practices that favor appropriate plant communities and do not allow for accelerated erosion.
5	Number of public policy makers and other interested stakeholders will be better informed about the science basis of policy options when crafting policy related to land use, production agriculture, alternative marketing channels, public and private recreational lands, rangeland and other public lands, urbanized watersheds, and other agricultural policy issues.

Outcome #1

1. Outcome Measures

Crop Production Systems -- Berry, Viticulture, Tree Fruit & Nut, Vegetable, Field Crops, Nursery, IPM, Organic Production Systems: number of farmers, field reps, and others accessing and applying information or knowledge resources originating from educational programs, publications, websites, or other events to improve production efficiencies; pest management; pesticide safety, including better, linguistically appropriate information about pesticide safety; organic and conventional production practices; post-harvest quality; improved cultivars; and to remain competitive in global and local markets.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2322

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Increasing vineyard production efficiency and decreasing inputs (labor and chemical inputs) is an important goal for Oregon wine grape producers. They have the highest production costs per acre in the nation due to small production size and a premium-tier production market. It is critical for growers to have a sustainable and efficient vineyard system while also keeping their production goals in mind. The reduction in chemical inputs (fertilizers, pesticides, and fuel) is both economically and environmentally beneficial.

What has been done
A research trial was conducted from 2009 to 2012 in a commercial vineyard in the Willamette Valley of Oregon. A winter annual cover crop of cereal rye and crimson clover was grown between the vine rows of a young vineyard. The cover crop was allowed to grow through the winter to provide protection from soil erosion and increased water infiltration during the wet winter. In spring, the cover crop was mowed and managed in different ways during spring to provide soil moisture retention and allow for organic amendments (nutrition) addition to the soil. The treatments included using the biomass as a mulch in the vine row at two different rates, removing the cover crop biomass, or tilling the biomass into the area between the vine row. All cover cropped treatments were compared to a treatment where no cover crop was grown for the duration of the 4-year study.

With use of the cover crop mulch, there was a significant reduction in weeds present compared to other treatments. Even having the residue from the cover crop in the alleys between vine rows

resulted in reduced weed development. The mulch layer also helped to conserve soil moisture. No irrigation was used for the duration of the study, and vines were not found to be stressed for water, indicating that irrigation was not required. The combined effect of the mulch in providing soil moisture conservation, reduced weeds, and increased nutrition availability resulted in vines being larger and having more fruit within the first few years of the study. This has great implications for the effectiveness of these alternative practices to enhance development of vineyards with both economic and environmental considerations. This study indicates that cover crops can be grown and managed in different ways to reduce inputs of herbicide, fertilizers and irrigation.

Results

We estimate a potential cost savings of $3,180 per acre during the establishment years for those vineyards that use these mulching methods. One of the biggest savings was in water; no irrigation was required during establishment. Most growers in the Willamette Valley install drip irrigation systems into vineyards for only the establishment years, and this is a considerable cost to the grower that is not utilized during production years. Water resources can be conserved using these management practices, an important consideration for those who may have limited or no water rights. Based on the amount of new acreage going in over the last 4 years, we estimate that this method could save Oregon grape growers $5.4 million in inputs and establishment costs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Small Farms: number of small-scale farmers accessing and applying information or knowledge resources originating from educational programs, publications, websites, or other events about appropriate management of nutrients and soil runoff; utilization of IPM, biological, or conventional production practices, or selection of new crops; implementation of profitable and diverse scale-appropriate production and value-added processing systems; farmers accessing markets.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2530

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many small farms and ranches struggle to stay viable. One way to manage economic risk is to diversify marketing channels by initiating new revenue streams. An emerging enterprise that is generating interest from livestock and specialty crop producers is agritourism. Agritourism is linked to economic and cultural trends: local food sales are on the rise and nearly 44 million travelers visit Oregon each year, bringing an estimated 8.3 billion dollars to the economy through tourism. Agritourism offers an opportunity for farmers and ranchers to capture tourism dollars and contribute to rural economic vitality. Creative agriculture entrepreneurs can produce considerable revenue by encouraging visitors to their farms and ranches to purchase vegetables, meat, flower bulbs, fruit and value added products grown and raised locally.

What has been done
To address the educational needs of farmers interested in establishing an agritourism enterprise, the OSU Extension Service Small Farms Program convened two statewide summits. The Oregon Agritourism Summit was offered in two parts. Part 1: Getting to YES for Agritourism Business Development was intended for farmers and agri-business owners who were currently operating or interested in agritourism opportunities to diversify economic stability. Goals of the summit included strengthening businesses through education, providing inspiration and networking opportunities, and collaboratively developing a path for the future of agritourism in Oregon.

The Oregon Agritourism Summit Part 2 focused specifically on public policy and regulatory issues. This summit was intended to reach policy makers, economic development and community organizations, and agri-business owners who are interested in working together around issues of agritourism as it relates to current interpretation of laws and farm sustainability. Goals of the summit included exploring regulatory issues affecting agritourism opportunities, collaborative problem solving, and identifying stakeholders interested in providing leadership for Oregon agritourism.

Results
As a result of the OSU Extension Service Small Farms Program efforts in agritourism education, there has been movement in Oregon policy. In 2104 a working group has been assigned under the Senate Judiciary Committee to review SB 815. This bill provides that an agri-tourism provider is not liable for injury to or death of an agritourism participant arising out of inherent risks of agri-tourism activities if the agri-tourism provider posts certain notices, eliminating one of the many risks and a significant barrier, fear of being sued, for agritourism owners.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
311	Animal Diseases
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Gardens, Turf, Landscape: number of farmers, field reps, and others accessing and applying information or knowledge resources originating from educational programs, publications, websites, or other events to improve production efficiencies; pest management; pesticide safety, including better, linguistically appropriate information about pesticide safety; organic and conventional production practices; post-harvest quality; improved cultivars; and to remain competitive in global and local markets.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4205

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Oregon has an incredibly high number of families who are food insecure, and Linn and Benton counties are no exception. Food insecurity refers to individuals who experience a reduced quality, variety, or desirability of diet, disrupted eating patterns or reduced food intake. When money is scarce due to other household costs (rent, childcare, transportation, health care, utilities), the food budget is often trimmed to free up dollars needed for these other costs. According to FeedingAmerica.org, in 2010 Benton County had a food insecurity rate of 14.8%, which equates to 12,480 individuals. Furthermore, the Linus Pauling Institute at Oregon State University estimates that every month over 230 families visit the South Corvallis Food Bank to receive a six-day food box; these 230 food boxes provide food for over 1,000 people.

What has been done

The national Plant a Row for the Hungry effort started in 1995 by the Garden Writers Association and the OSU Benton and Linn County Master Gardeners became a member in 2008. Plant a Row for the Hungry (PAR) is currently a committee of enthusiastic Master Gardeners representing both Linn and Benton counties. PAR is an effort that encourages those who grow vegetables, fruit and nuts in excess of their own needs to donate that excess to food distribution centers or soup kitchens. Gardeners are encouraged to plant an extra row of produce in their gardens for the purpose of donation. Volunteers with PAR also staff booths at farmers' markets and other festival events to educate people about food insecurity and encourage them to become involved in efforts to help mitigate it.

Results

PAR has created an impressive network of gardeners and organizations that work together to bring garden fresh produce to those in need. There are now twenty established produce drop off sites in Linn and Benton counties. In 2013, PAR recorded 5667 pounds of produce donated through the program. PAR has pledges for over 300 gardeners in Linn and Benton counties for the 2014 growing season. Through these activities and educational booths, PAR has increased food insecurity awareness in Linn and Benton counties while distributing much needed fresh and healthy food.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Livestock, Rangeland and Watershed Management, Dairy: number of farmers, ranchers and land managers, accessing or applying prescribed feeding methods; practices that increase birth weights and survival of offspring; specific management techniques such as early weaning, improved herd or flock health; improved production efficiency and beef quality parameters; practices with the intent to enhance water and soil quality or practices that favor appropriate plant communities and do not allow for accelerated erosion.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	619

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
One of the fundamental challenges to sustaining rangeland health and productivity is broad scale vegetation change resulting from the expansion of invasive plant species. Major concerns in Eastern Oregon include western juniper expansion, invasive forbs (e.g.; perennial pepperweed, Canada thistle, Russian knapweed, African rue), and exotic annual grasses (e.g., medusahead, ventenata, and cheatgrass). An increase in these invaders degrades the productivity, biodiversity, and watershed function of rangelands. These negative impacts threaten the sustainability of the cow/calf industry, which is heavily reliant on the ability of rangelands to produce forage.

What has been done
Two medusahead control and revegetation research/demonstration projects were implemented in eastern Harney County and western Malheur County. Both projects investigated and demonstrated novel approaches to restoring medusahead-invaded sagebrush rangeland.

Results
Preliminary results of these projects have important implications for private landowners and public land managers who implement medusahead control and revegetation projects on rangeland. Results of the projects have been incorporated into a medusahead management guide for the Intermountain West that is currently being used by the Natural Resources Conservation Service to guide their medusahead control and revegetation projects in Harney County. In addition, the integrated control and revegetation strategies revealed in the study were adopted by the Harney County Cooperative Weed Management Area to secure a $152k Oregon Watershed

Enhancement Board Grant to restore 20,000-acre area of medusahead-invaded rangeland in western Harney County. In addition, results of the study have also been adopted by the Baker County Soil and Water Conservation District in a major sage-grouse habitat restoration project aimed at controlling and revegetating medusahead-invaded sagebrush rangeland.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
121	Management of Range Resources
205	Plant Management Systems
213	Weeds Affecting Plants
307	Animal Management Systems
311	Animal Diseases
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #5

1. Outcome Measures

Number of public policy makers and other interested stakeholders will be better informed about the science basis of policy options when crafting policy related to land use, production agriculture, alternative marketing channels, public and private recreational lands, rangeland and other public lands, urbanized watersheds, and other agricultural policy issues.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	3291

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Asthma is the #1 reason for school absenteeism in the nation. The house mouse is the most successful mammal on the planet second only to humans. A protein content of mouse urine is an asthma trigger. Like rats, mice are vectors for many diseases. Anaphylactic shock is rare from

flying insect stings, but it does happen making pests like yellow jackets a concern. In a 2010 online survey by the School IPM Program, Integrated Plant Protection Center at Oregon State University, to which 93% of Oregon school districts responded, one of the top reported indoor pest problems was mice (53% of respondents) while the top outdoor pest problem was yellow jackets (73%). Since 2008, concerns about pesticide use in schools have grown. Activist and advocacy groups have brought the issue into the national spotlight. Pesticides, especially aerosol sprays used indoors, can trigger asthma and have long-term unknown health effects. Pest control companies that do routine monthly applications scheduled by the calendar rather than by the need for services often increase long-term costs for school districts. Applications by non-licensed applicators can lead to exposure and injury.

What has been done

Building on the OSU School IPM Program's past efforts which led to passage of ORS 634.700 - 750 (requiring IPM in all private and public K-12 schools, community colleges, and federal Head Start programs), development of model IPM plans by the OSU School IPM Program, grants for pilot projects in schools, statewide school IPM coalition building, and curriculum development for school IPM coordinator training, the OSU School IPM Program provided extensive training and support throughout Oregon in 2012 and 2013. The Program provided full-day, hands-on intensive training at 14 different locations around the state in 2012, and 10 in 2013. The IPM Coordinators from 189 school districts (representing over 98% of K-12 students), 14 Head Start Programs, 53 private schools, and all 17 of Oregon's Community Colleges were trained.

Results

Full impacts on human health and the environments within and around Oregon's public schools cannot be known at this time, but impacts to date are reflected in the results of a 2010 (93% response rate) and 2013 (84% response rate) online survey of all 197 of Oregon school districts.

75% reported using IPM plans and materials created by the OSU School IPM Program

90% reported using non-chemical methods in 2013 compared with 67% in 2010

65% reported having a monitoring schedule and action thresholds in 2013, 36% in 2010

71% reported having a low-impact pesticides list in 2013, 38% in 2010

The model IPM plans were also used as templates by EPA region 9 in their work with tribal schools, and by the Boise, Idaho school district.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
121	Management of Range Resources
205	Plant Management Systems
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
311	Animal Diseases
903	Communication, Education, and Information Delivery

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

Brief Explanation

Oregon's economic recovery is slow and the demands are great. The impact of too few faculty is felt greatest in the Global Food Security and Hunger program work area because of the number of highly experineced and long-tenured faculty working in this planned program at the start of the recession have now retired. Because of subject matter gaps across the state where faculty retired we have identified priority staffing needs in order to fill key positions. We are moving to a regional program model, higher level of expertise (PhD preferred) with a larger geographic assignment, to better address some of the pressing issues. In 2013, we began the turn around with new positions and new resources. Staffing numbers have improved and impact will follow. Stay tuned.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Based on the amount of new vineyard acreage going in over the last 4 years, Oregon grape growers will save an estimated $5.4 million in inputs and establishment costs by applying OSU-tested mulching methods during the vineyards' establishment years.

As a result of the OSU Extension Service Small Farms Program efforts in agritourism education, a working group was assigned under the Oregon Senate Judiciary Committee to review SB 815. This bill provides that an agri-tourism provider is not liable for injury to or death of an agritourism participant arising out of inherent risks of agri-tourism activities if the agri-tourism provider posts certain notices. At the time of this report SB 815 is still in review.

A two-county, Extension Master Gardener effort to feed the hungry recorded 5667 pounds of fresh produce was donated last year to assist the Linn-Benton Food Share, with pledges from over 300 gardeners to support Plant a Row for the Hungry in 2014

As a result of OSU Extension efforts to halt invasive plant expansion and to sustain rangeland health and productivity in Eastern Oregon, private landowners and public land managers are adopting integrated control and revegetation practices.

Building on the OSU School IPM Program's past efforts which led to passage of ORS

634.700 - 750 (requiring IPM in all private and public K-12 schools, community colleges, and federal Head Start programs), Oregon school districts report Extension's educational effort resulted in:

*90% using non-chemical methods in 2013 compared with 67% in 2010

*65% having a monitoring schedule and action thresholds in 2013, 36% in 2010

*71% having a low-impact pesticides list in 2013, 38% in 2010

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Reducing Childhood Obesity

☑ 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
703	Nutrition Education and Behavior	14%			
704	Nutrition and Hunger in the Population	14%			
724	Healthy Lifestyle	17%			
802	Human Development and Family Well-Being	13%			
806	Youth Development	30%			
901	Program and Project Design, and Statistics	5%			
902	Administration of Projects and Programs	6%			
903	Communication, Education, and Information Delivery	1%			
	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	4.0	0.0	0.0	0.0
Actual Paid Professional	4.3	0.0	0.0	0.0
Actual Volunteer	36.0	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**
100810	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
100810	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
314920	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

• Evidence-based educational programs and activities that are directed at parents, children, professionals, partner agencies, and other audiences. These efforts will address the stated goals (see section V-D-2) in creative, innovative, and effective ways.
• Research on new strategies through which Extension can address issues affecting childhood obesity.
• Develop or select new 4-H foods curricula that focus on the youth learning to prepare healthy, local foods.
• Develop a curriculum designed to help older youth become local advocates for healthy eating and physical activity in their communities. The curriculum will help young people learn how to conduct community assessments and lead community change efforts that focus on education, system building, and policy development.

2. Brief description of the target audience

- Children, youth, and families across Oregon
- Youth professionals
- Agency personnel who work with children and families

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 participant 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	13401	3115	7225	3496

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

- Educational Events and Workshops to be Delivered

Year	Actual
2013	561

Output #2

Output Measure

- Newsletters to be Published

Year	Actual
2013	62

Output #3

Output Measure

- Web Sites to be Developed/Maintained

Year	Actual

2013 42

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Children practice healthy eating as defined by the current U.S. Dietary Guidelines for Americans. (Percentage of target audience indicating positive change in measured outcome.)
2	Children engage in healthy levels of physical activity as defined by national physical activity guidelines. (Percent of target audience indicating positive change in measured outcome.)
3	Increases in positive levels of Knowledge, Attitude, Skill and Aspiration (KASA) outcomes (as per Bennett & Rockwell, 1995) related to goals of reducing obesity. (Percent of target audience indicating positive change in measured outcomes.)

Outcome #1

1. Outcome Measures

Children practice healthy eating as defined by the current U.S. Dietary Guidelines for Americans. (Percentage of target audience indicating positive change in measured outcome.)

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)
Childhood obesity is a national epidemic and has increased significantly in recent decades, and the problem is significant in Oregon as well. Research has demonstrated that childhood obesity is linked to numerous factors including low availability and high cost of healthy foods, low levels of physical activity, extensive advertising of high-calorie, high-fat foods, and lack of awareness on the part of families about multiple aspects of a healthy diet.

What has been done
Programming with limited resource families consisted of a series of four, 2-hour classes offered during July and September 2013. Lessons included: Plan, Shop, and Save/Get Moving; Vary Your Veggies/Focus on Fruit; Make Half Your Grains Whole; Build Strong Bones. Each lesson was supported by hands-on food preparation/ tasting and multiple opportunities to gain/practice skills in food budgeting, meal planning, label reading, recipe modification, and food safety. 5th and 6th graders who participated in the classes with adult family members completed a 4-point scale behavioral checklist administered as a pre- and post-test as well as a pre- and post-survey measuring knowledge gained.

Results
The 831 participating youth reported significant improvements in the frequency of practices in the following behaviors:
47% Watched portion size to avoid eating too much
79% Chose fat-free or low fat dairy/milk products
78% Ate breakfast more often
81% Ate at least 2 kind of fruits each day

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
802	Human Development and Family Well-Being
806	Youth Development

Outcome #2

1. Outcome Measures

Children engage in healthy levels of physical activity as defined by national physical activity guidelines. (Percent of target audience indicating positive change in measured outcome.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity is a national epidemic and has increased significantly in recent decades, and the problem is significant in Oregon as well. Research has demonstrated that childhood obesity is linked to numerous factors including low availability and high cost of healthy foods, low levels of physical activity, extensive advertising of high-calorie, high-fat foods, and lack of awareness on the part of families about multiple aspects of a healthy diet.

What has been done
Programming with limited resource families consisted of a series of four, 2-hour classes offered during July and September 2013. Lessons included: Plan, Shop, and Save/Get Moving; Vary Your Veggies/Focus on Fruit; Make Half Your Grains Whole; Build Strong Bones. Each lesson was supported by hands-on food preparation/ tasting and multiple opportunities to gain/practice skills in food budgeting, meal planning, label reading, recipe modification, and food safety. 5th and 6th graders who participated in the classes with adult family members completed a 4-point scale behavioral checklist administered as a pre- and post-test as well as a pre- and post-survey measuring knowledge gained.

Results

The participating youth reported significant improvements in the frequency of practices in the following behaviors:
48% Are physically active for at least 30 minutes a day (n=831);
27% Are physically active for at least 60 minutes a day (n=831)

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
802	Human Development and Family Well-Being
806	Youth Development

Outcome #3

1. Outcome Measures

Increases in positive levels of Knowledge, Attitude, Skill and Aspiration (KASA) outcomes (as per Bennett & Rockwell, 1995) related to goals of reducing obesity. (Percent of target audience indicating positive change in measured outcomes.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity is a national epidemic and has increased significantly in recent decades, and the problem is significant in Oregon as well. Research has demonstrated that childhood obesity is linked to numerous factors including low availability and high cost of healthy foods, low levels of physical activity, extensive advertising of high-calorie, high-fat foods, and lack of awareness on the part of families about multiple aspects of a healthy diet.

What has been done
Activities conducted in 2013 include train-the-trainer workshops and HEAL MAPPS (Healthy Eating, Active Living, Mapping Attributes through Participatory Photographic Strategies)

community events. Trained faculty conducted HEAL MAPPS community-based trainings. Each HEAL MAPPS training included three distinct events: MAPPS training, focus group, and community conversation. To date these activities took place in seven Oregon communities.

Activities also conducted in 2013 include trainings to conduct field-based height and weight assessments of children in order to collect BMI data. Trained Extension faculty (n=9) collected whole school height and weight data in all six Oregon elementary schools participating in the obesity intervention program. Height and weight data were collected on 1,920 children in kindergarten through grade 6 (n=1061 boys; n=859 girls). Baseline data was collected on the school nutrition and physical activity environments of the intervention schools using the School Nutrition and Physical Activity (SNPA) Environmental Assessment Tool.

Results

The primary goal in the obesity intervention program is to change the children's environment. Significant environment-based impacts resulting from the HEAL MAPPS community activity include three grants that were submitted by communities with support from Extension and based on information gained in the HEAL MAPPS processes and/or the SNPA assessment. Clatskanie, OR, secured a $5,000 Youth Advocates for Health grant to promote youth involvement in Healthy Eating, Active Living (HEAL) through community gardens. Bonanza, OR, received $500 to supplement healthy foods at the elementary school food services, and Molalla, OR, was the recipient of an $8,000 HEAL grant from Clackamas County DHHS to support the development of a walking/running trail on Molalla Elementary School property. The project includes a joint use agreement to allow community access to the trail.

Outcomes of the height and wight assessments include an understanding of the overweight and obesity prevalence in the elementary schools enrolled in the intervention programs. Of the 1920 children assessed in grades K-6, 36% were overweight (having BMI values for their age and gender > the 85th percentile); 19% were obese (having BMI values for their age and gender > the 95th percentile). Prevalence did not differ by age, but a greater proportion of children in older grades (3rd-6th) were classified as overweight and obese. This baseline data will be used to track the obesity intervention program's progress over time.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
802	Human Development and Family Well-Being
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Childhood obesity is a multi-component, complex issue with prevalence in Oregon's rural communities. Because of the growing number of children at risk for obesity, additional state and federal appropriated funds were devoted to this planned program during 2012. OSU Extension received three large grants in 2011-12 and we began paying expenses of this planned program from these new resources. State and federal dollars were shifted to other high priority needs. We plan to continue this resource model in 2014, keeping the PIs and managing faculty on state and federal appropriated dollars with the primary workforce being paid through grant dollars.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Participating youth reported significant improvements in the frequency of healthy eating practices including controlling portion size, choosing fat-free or low fat dairy/milk products, eating breakfast, and increasing the amount of fruit and vegetables eaten daily.

75% of participating youth reported increased daily physical active.

Three rural Oregon communities changed policies and practices to create a healthier environment for children at risk for obesity. The changes were a result of increased knowledge and understanding about community factors contributing to childhood obesity gained through OSU Extension engagement.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

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
125	Agroforestry	17%			
403	Waste Disposal, Recycling, and Reuse	8%			
601	Economics of Agricultural Production and Farm Management	25%			
608	Community Resource Planning and Development	25%			
902	Administration of Projects and Programs	12%			
903	Communication, Education, and Information Delivery	13%			
	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	6.0	0.0	0.0	0.0
Actual Paid Professional	6.9	0.0	0.0	0.0
Actual Volunteer	35.0	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**
193219	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
193219	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
629840	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Lead short course and training seminars for industry personnel and growers;
- Conduct basic and applied research in alternative fuel sources, energy saving techniques and recycling of green waste products;
- Engage with community and environmental organizations;
- Contribute to trade and peer reviewed journal publications.

2. Brief description of the target audience

- Forest owners and managers;
- Agricultural managers;
- Community members;
- Environmental organizations;
- Livestock growers and managers;
- Energy (and bio-energy) industry;
- Research community at large

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 30 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	3353	7786	18062	6992

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	3	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Educational Classes to be Conducted

Year	Actual
2013	28

Output #2

Output Measure

- Number of Workshops to be Conducted

Year	Actual
2013	26

Output #3

Output Measure

- Number of Group Discussions to be Conducted
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of Demonstrations to be Conducted

Year	Actual
2013	3

Output #5

Output Measure

- Number of Newsletters to be Published

Year	Actual
2013	36

Output #6

Output Measure

- Number of Web Sites to be Developed and Maintained

Year	Actual
2013	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Agricultural producers increase their knowledge regarding the use of agricultural crops for energy production. (Percent increase of attendees to workshops, field days and demonstrations.)
2	Forest owners and managers increase their knowledge regarding the use of forest biomass as an energy source. (Percentage increase in knowledge of attendes to workshops, field days, and demonstrations.)
3	Coastal stakeholders increase their knowledge of wave energy. (Percentage increase in knowledge of attendees to workshops, field days, and demonstrations.)

Outcome #1

1. Outcome Measures

Agricultural producers increase their knowledge regarding the use of agricultural crops for energy production. (Percent increase of attendees to workshops, field days and demonstrations.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	36

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aviation uses a lot of fuel. According to John Talbott, director of the Western Region Sun Grant based at Oregon State, the industry's biggest uncertainty is not ridership, but fuel prices. Of all the factors impacting fuel prices, many are unpredictable, such as Middle East politics or hurricanes in the Gulf. One way to stabilize long-term prices would be to find alternative fuel sources that can be produced renewably and domestically.

What has been done
Camelina is a particularly promising source for producing jet fuel. Because its oil is relatively high in omega-3 fatty acids and low in saturated fatty acids, camelina is considered a high-quality edible oil as well as a source for jet fuel. OSU agronomists have put camelina to the test and found that it can be grown with few input costs and under marginal conditions, so it has potential both as a dryland crop in Eastern Oregon and as a rotation crop with grass seed in the Willamette Valley.

Results
Although adoption of camelina is not yet a common practice among growers, workshops, field days, and demonstrations are increasing their knowledge regarding the use of this agricultural crop for energy production and its economy return to the producer. Post-event interviews indicate a growing interest in camelina with expressed interest in on-farm field trials for the 2013 growing season.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management

608	Community Resource Planning and Development
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Forest owners and managers increase their knowledge regarding the use of forest biomass as an energy source. (Percentage increase in knowledge of attendes to workshops, field days, and demonstrations.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	33

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Forest harvest residues (slash) left after harvesting, are normally put into a roadside grinder to increase their bulk density before shipping to a plant because branches and tops occupy about 4-5 times the volume of solid wood. This process is known as bundling. Although density is increased significantly by grinding there are several disadvantages. First, the grinding takes place in the field using diesel. Diesel, in the Pacific Northwest, is about three times the cost per unit of energy as electricity. Second, the ground materials are transported in large chip vans that do not have the mobility that stinger-steered log trucks have. Chip vans are restricted to flatter grades, require wider roads, and must have a larger area to turn around. Third, forest residues, once ground, do not continue to dry, and under some conditions are subject to spontaneous combustion.

What has been done
Oregon's Wood Innovation Center is investigating all opportunities to reduce feedstock supplies including bundling and baling. Activities include grinding tests of residues and slash bales to compare energy requirements for comminution, examine opportunities to increase bale density, and to measure moisture content reduction over time for baled residues. A variety of workshops, field days, webinars and conferences have been conducted for forest owners and managers.

Results
Evidence collected to date shows an increase in knowledge among forest owners and managers regarding the use of forest biomass as an energy source; however, early feedback suggests that

bioenergy in general is really a large-scale industrial topic not well-suited to the small, private landowner. Until practical, affordable solutions to issues like transporting residues and bundling are proven, interest to embrace forest biomass as a viable economic option is low.

4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry
403	Waste Disposal, Recycling, and Reuse
608	Community Resource Planning and Development
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Coastal stakeholders increase their knowledge of wave energy. (Percentage increase in knowledge of attendees to workshops, field days, and demonstrations.)

Not Reporting on this Outcome Measure

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

Brief Explanation

This planned program in the second year of the Plan of Work continues to move forward as a start-up effort. For community outreach to be most effective research outcomes are required. Until growers and producers have practical, affordable solutions to their concerns, bio-processing plants are accessible, and there are greater demands from consumers for bio-based fuels, adoption will be slow. Meanwhile, Extension educators continue to promote biomass as an option for growers and producers to consider.

After the 2012 report about Sea Grant Extension's role in securing one of the nation's first public wave energy testing sites for the Oregon Coast, most of the 2013 efforts have focused on project management and operations. In fall 2013 outreach and engagement activities began which will lead to better understanding of the political and regulatory processes surrounding wave energy and its environmental, social and economic sustainability. Stay tune for an update in the 2014 report.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Although adoption of camelina is not yet a common practice among growers, workshops, field days, and demonstrations are increasing their knowledge regarding the use of this agricultural crop for energy production and its economy return to the producer.

Evidence collected to date shows an increase in knowledge among forest owners and managers regarding the use of forest biomass as an energy source; however, early feedback suggests that bioenergy in general is really a large-scale industrial topic not well-suited to the small, private landowner.

Key Items of Evaluation