

**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	10%			
403	Waste Disposal, Recycling, and Reuse	40%			
601	Economics of Agricultural Production and Farm Management	20%			
608	Community Resource Planning and Development	20%			
902	Administration of Projects and Programs	5%			
903	Communication, Education, and Information Delivery	5%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	0.0	0.0
Actual Paid Professional	5.6	0.0	0.0	0.0
Actual Volunteer	464.0	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
157938	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
157938	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
90238	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?**

eXtension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	4650	9300	419	1256

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of Educational Classes to be Conducted

Year	Actual
2012	37

**Output #2**

**Output Measure**

- Number of Workshops to be Conducted

Year	Actual
2012	19

**Output #3**

**Output Measure**

- Number of Group Discussions to be Conducted

Year	Actual
2012	16

**Output #4**

**Output Measure**

- Number of Demonstrations to be Conducted

<b>Year</b>	<b>Actual</b>
2012	9

**Output #5**

**Output Measure**

- Number of Newsletters to be Published

<b>Year</b>	<b>Actual</b>
2012	0

**Output #6**

**Output Measure**

- Number of Web Sites to be Developed and Maintained

<b>Year</b>	<b>Actual</b>
2012	0

**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 attendees 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**

<b>Year</b>	<b>Actual</b>
2012	37

### **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 at Klamath Basin Research and Extension Center (KBREC) 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 economic 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**

<b>KA Code</b>	<b>Knowledge Area</b>
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 attendees to workshops, field days, and demonstrations.)

Not Reporting on this Outcome Measure

## **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.)

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	47

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Interest in renewable wave energy has exploded on the Oregon coast. According to the Oregon Wave Energy Trust, the long-range goal is to build sufficient wave energy capacity to generate 500 megawatts of power by 2025. The establishment of this new industry brings with it questions about impacts on offshore areas and onshore communities.

#### **What has been done**

Extension helps communities address those questions through conducting outreach and engagement activities, and through coordinating the Human Dimensions of Wave Energy research program. Both efforts bring together groups that have a stake in this new use of ocean space, and address questions like: what will wave energy generation mean to users of offshore areas (commercial and recreational fishers, surfers, etc.), and what kinds of infrastructure impacts

will come to coastal communities as a result of commercial wave energy development? The goal of Extension's efforts is to encourage community members, ocean users, energy developers and scientists to share opinions and information, which will lead to better understanding of the political and regulatory processes surrounding wave energy and its environmental, social, and economic sustainability.

#### **Results**

With Extension's help, coastal communities are better prepared for wave energy development. Ten companies are in the process of establishing wave energy generation facilities on the Oregon coast

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development
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

##### **Brief Explanation**

Implementation of this plan is subject to both funding and competing topics. While we expect to continue, and perhaps broaden, our work in alternative energy, OSU Extension will make adjustments in programmatic themes and efforts on an ongoing basis. The emphasis during 2012 was primarily on food systems, with alternative energy related to biofuels just beginning to emerge as an expressed need of the clientele.

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

Surveys were conducted based upon OSU Institutional Review Board policies, procedures and guidelines. For quantitative data, customized on-site surveys and post-event interviews were conducted. The number of persons sampled was based upon the estimated degree of variation in the target population and the desired degree of resolution. For qualitative assessments, care was taken to assure that case studies were representative of the larger population served by the programming.

##### **Key Items of Evaluation**

With Extension's help, coastal communities are better prepared for wave energy development. Ten companies are in the process of establishing wave energy generation facilities on the Oregon coast