

**V(A). Planned Program (Summary)**

**Program # 7**

**1. Name of the Planned Program**

Ag: Small Farms and 'Natural' and Organic Production Systems

**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	10%			
102	Soil, Plant, Water, Nutrient Relationships	10%			
112	Watershed Protection and Management	10%			
204	Plant Product Quality and Utility (Preharvest)	2%			
205	Plant Management Systems	3%			
216	Integrated Pest Management Systems	20%			
307	Animal Management Systems	30%			
308	Improved Animal Products (Before Harvest)	3%			
403	Waste Disposal, Recycling, and Reuse	2%			
604	Marketing and Distribution Practices	10%			
	<b>Total</b>	100%			

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

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	0.0	0.0
Actual	24.6	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
338458	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
338458	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1104075	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

A combination of activities (methods listed below) that are designed to meet the needs and opportunities of the communities of interest will be built upon the research base of the university. These activities will be specifically designed to elicit learning, application of learning, and social, economic and environmental impacts on target populations.

**2. Brief description of the target audience**

1) Producers of naturally or organically produced crops and livestock products and/or small farms for either life-style, hobby, or commercial purposes. 2) Agricultural infrastructure, suppliers and service providers 3) State and federal agencies overseeing regulatory and incentive based programs

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

**1. Standard output measures**

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	26000	100000	1000	1000
<b>Actual</b>	26390	100042	818	1066

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

**Patent Applications Submitted**

Year: 2010  
 Plan: 21  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

<b>2010</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
<b>Actual</b>	13	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of Educational Classes Delivered

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	150	324

**Output #2**

**Output Measure**

- Number of Workshops Delivered

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	50	114

**Output #3**

**Output Measure**

- Number of Group Discussions

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	20	25

**Output #4**

**Output Measure**

- Number of One-on-one Interventions

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	1300	1227

**Output #5**

**Output Measure**

- Number of Demonstrations

<b>Year</b>	<b>Target</b>	<b>Actual</b>
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2010 34 42

**Output #6**

**Output Measure**

- Number of Web Sites Maintained

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	5	7

**Output #7**

**Output Measure**

- Number of Newspaper Articles Published

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	34	37

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Increase in number of farms that are using best management practices leading to reduced nutrient loading of surface water and soil erosion.
2	Increase in number of farmer's markets statewide.
3	% increase in gross sales at farmers' markets statewide.
4	% increase in gross value of non-traditional crops produced in Oregon
5	Number of farmers (x 1000) using OSU Extension Service information.
6	Economic value derived from application of new information and production methods by participating farmers (Million \$).

## **Outcome #1**

### **1. Outcome Measures**

Increase in number of farms that are using best management practices leading to reduced nutrient loading of surface water and soil erosion.

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	100	87

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

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

Wheat has become a common rotation in Willamette Valley cropping systems. In many cases, wheat is direct seeded into fields where the preceding crop was perennial grass grown for seed. Perennial grass seed crops generally remain in a field for 2-5 years and after establishment are grown in the absence of tillage. Nitrogen is a critical nutrient in grass seed production which generally requires top-dressed N applications of ammonium based N fertilizers to be applied at a rate of 100-170 lbs/N/year. N fertilizer acidifies the soil at a rate of 0.1 pH units/100 lbs N/acre. A combination of topdressed N applications and natural acidification causes soil pH in the surface 2 inches of the soil to be lowered by 0.1-0.2 units/year.

A soil pH of 5.4 or higher is required to achieve optimum yields in wheat production. If pH is lower than 5.4 then a lime application is recommended. However, lime is not mobile in the soil. Thus, tillage is required to mix lime below the soil surface. If a grower intends to no-till plant wheat into a field where the soil pH is low at the surface and tillage is absent, yield is substantially reduced. A standard soil sample taken to the recommended depth of 6-8 inches does not reveal the low surface pH due to mixing of the surface and below surface soils.

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

Adoption of no-till planting has been challenging in the Willamette Valley due to heavy slug pressure and "unknown" soil fertility problems. Taking stratified soil samples from no-till wheat fields where plant growth was poor helped identify the problem. Soil pH was measured in the top 2 inches separately from the remainder of the soil sample and confirmed a pH problem in 100% of the fields that showed symptoms.

The topic was presented to 300+ Willamette Valley wheat growers at the OSU Wheat Production

meetings at three locations. Individual consultations were held with 15 field representatives and 10 no-till wheat producers to discuss the topic in detail and to explain how to take the newly recommended stratified soil sample.

OSU Extension Publication EM 9014 titled "Evaluation of Soil Nutrients and pH by depth in situations of limited or no tillage" was published. This paper describes the problem in detail, explains why it occurs and describes how to test for it. This publication has been sent to field representatives, crop consultants and no-till growers. The publication is also being hosted on the Willamette Valley Field Crops website ([oregonstate.edu/valleyfieldcrops](http://oregonstate.edu/valleyfieldcrops)) and will be distributed to 300+ wheat growers at the upcoming 2011 OSU Wheat Production meetings.

### **Results**

A brief survey conducted with those who participated in the individual consultation (N=25 with a 32% return rate) indicated the following:

I had not thought about this problem before OSU began showing data - 100%

I have started taking a stratified soil sample before I (or my customers) no-till plant wheat - 88%

I have identified fields where the surface soil pH is too low for me (or my customers) to plant wheat without tillage - 63%

I have saved money by utilizing the stratified soil sampling procedure - 88%

Knowing this information, I am more confident that I can make no-till planting more successful on my farm (or with my clients) - 88%

On how many acres did you take a stratified soil sample - range of 200-1000 acres

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
216	Integrated Pest Management Systems
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse

## **Outcome #2**

### **1. Outcome Measures**

Increase in number of farmer's markets statewide.

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	5	10

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

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

Awareness about healthy eating habits has consumers looking for the freshest, ripest, high-quality foods they can find, and many farmers and fishermen are stepping up to fill the demand at farmers' markets, roadside stands and U-pick operations.

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

OSU Extension provided marketing advice directly to consumers, bulk buyers and producers to succeed. Statewide and in many local markets, OSU has helped develop publications and websites to connect people and businesses popularly now known as food hubs. Workshops on alternative marketing channels for agricultural professionals and studies of consumer needs and expectations helped establish new market venues.

#### **Results**

The focus on matching the farmer with the appropriate market for his/her products and needs has benefited the producer, the consumer and the community. Farmer's markets and related outlets are building in strength and availability across the state. The number of farmers' markets has increased tenfold since 2000.

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

<b>KA Code</b>	<b>Knowledge Area</b>
604	Marketing and Distribution Practices

### **Outcome #3**

#### **1. Outcome Measures**

% increase in gross sales at farmers' markets statewide.

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	5	144

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

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

Direct farm marketing is becoming a big part of Oregon agriculture; small farms see bigger profits by selling direct to consumers. It's a trend that OSU Extension is supporting with direct marketing research and education.

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

The OSU Extension small farms program conducts direct marketing research and deliver outreach education to help Oregon farmers learn how to market directly to consumers more effectively.

##### **Results**

According to the USDA Census of Agricultural, 6,274 Oregon farms sold products directly to consumers, with total sales of \$56 million. This is a 144 percent increase over the \$21 million in farm direct sales reported in the 2002 Census. Farmers' markets are a great success story for Oregon agriculture. They create a direct way that communities can support agriculture in the local area, which contributes to the vitality of communities and Oregon agriculture.

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

<b>KA Code</b>	<b>Knowledge Area</b>
604	Marketing and Distribution Practices

## **Outcome #4**

### **1. Outcome Measures**

% increase in gross value of non-traditional crops produced in Oregon

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	5	9

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

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

Artisan cheese is produced largely by hand in small batches, with particular attention paid to the cheese-maker's art, using as little mechanization as possible. In the past most artisan cheeses consumed in the U.S. have been imported. Establishment of an artisan cheese industry gives dairy producers the opportunity to earn greater returns for specialty products they make on their farms.

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

Extension educators provide training for all levels of artisan cheese makers including, assistance with improvements in product quality, shelf-life, and safety. Extension specialists consult closely with individual cheese makers to solve specific challenges, and serve as technical advisors for the Oregon Department of Agriculture's Food Safety Division.

#### **Results**

Extension food technology educators helped launch and sustain the development of an Oregon artisan cheese industry that has grown from just two operations in 1999 to 21 artisan cheese producing outlets in 2010. In 2009 Oregon artisan cheese producers earned \$16 million in farm gate sales for their products.

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

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)

216	Integrated Pest Management Systems
308	Improved Animal Products (Before Harvest)
604	Marketing and Distribution Practices

### **Outcome #5**

#### **1. Outcome Measures**

Number of farmers (x 1000) using OSU Extension Service information.

Not Reporting on this Outcome Measure

### **Outcome #6**

#### **1. Outcome Measures**

Economic value derived from application of new information and production methods by participating farmers (Million \$).

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

Year	Quantitative Target	Actual
2010	7	8

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

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

Oregon farmers sold nearly \$1 million of organic blackberries in 2009 and that number is expected to increase. However, there's little research-based information to assist growers.

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

OSU scientists are looking at the fertilizer and irrigation requirements of the plants, the best way to organically manage weeds without reducing yield and quality, and harvesting by machine without insect contaminants. Additionally, they're examining how the cultivar, harvest methods, storage and processing conditions affect nutritional properties. Although focused on organic production, findings from the study will also benefit conventional growers. OSU Extension disseminates the latest findings to producers throughout the state to increase the economic value of the products.

### Results

OSU research on organic blueberries has concluded that plants grown on raised beds have higher yields than those on flat ground and that replacing sawdust mulch with plastic weed mats would save growers nearly \$2,300 per acre in three years. As a result, growers have switched to weed mats on more than 80 percent of the blueberry acreage planted in 2010.

OSU researchers have also developed an online calculator to help small farmers and gardeners use organic fertilizers efficiently and save money. More than 1,300 registered users - of which more than 300 were from Oregon - managing more than 45,000 acres in at least 60 countries have downloaded it more than 4,800 times. If farmers saved \$50 per acre through reduced fertilizer costs or increased yields on just a quarter of the 45,000 acres, then they would have saved more than \$500,000.

### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
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308	Improved Animal Products (Before Harvest)
403	Waste Disposal, Recycling, and Reuse
604	Marketing and Distribution Practices

### 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

Over the past five years there has been a shift in attitude and commitment among faculty to working with the small farm operator. Many of our faculty members who have traditionally worked with large, commercial operations have seen the value in helping all producers/growers, regardless of the size of their operations, to better achieve Extension's overall educational objectives for a more sustainable and economic approach to farming/ranching.

## **V(I). Planned Program (Evaluation Studies and Data Collection)**

### **1. Evaluation Studies Planned**

- Before-After (before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

### **Evaluation Results**

Small farms see bigger profits by selling direct to consumers.

Market demand is increasing for organic berries and vegetables; research and Extension helps organic production be effective and efficient.

The number of farmers' markets and related enterprises have increased tenfold since 2000.

Extension leads efforts to expand Oregon artisan cheese industry; the number of producers and their profits are growing.

### **Key Items of Evaluation**