

# 2009 Washington State University Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

Washington State University Extension is the statewide and university wide outreach and engagement enterprise of WSU. Through our network of offices in every county, research and extension centers and units, four university campuses, and other facilities, we connect the university to virtually every community in the state. At the beginning of 2007, we implemented a new Federal Plan of Work. Concurrently, we began implementation of a new strategic plan for WSU Extension (the WSU Extension Strategic Framework <http://ext.wsu.edu/framework/Framework.pdf> ). These documents are closely aligned. This allows us to effectively focus the organization on issues that are critical to the state while addressing areas of national concern. Within these structures, we will report on the following five programmatic foci:

1. building capacity of Washington communities to create a desired future;
2. eliminating barriers to social, economic and educational success among youth and families;
3. enhancing economic opportunities for agricultural producers while protecting Washington's resources;
4. enhancing stewardship of natural resources and the environment; and
5. improving the health and wellness status of Washington residents

In addition to these focused programs, our Strategic Framework identifies areas in which we desire to enhance our capacity. These strategic initiatives are designed to enhance the effectiveness of the entire organization and will also affect our ability to address the programmatic foci listed above. These include:

1. improving our ability to reach out to the state's urban populations;
  2. strengthening WSU Extension's role as an integral part of the University;
  3. increasing the diversity of our faculty, staff, volunteer base, and those we serve;
  4. creating a premier web presence for the purpose of delivering information and interactive learning opportunities;
- and
5. expanding our strategic international engagement.

This document reflects our on-going commitment to expanding the economy, improving the quality of life and enhancing the environment of Washington State. Both the 2009 Federal Plan of Work and our Strategic Framework provide focused approaches to measuring our progress toward these overall goals by defining expected outcomes related to change in knowledge, change in action or behavior, and change in condition.

### Total Actual Amount of professional FTEs/SYs for this State

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	161.0	0.0	0.0	0.0
Actual	175.2	0.0	0.0	0.0

## II. Merit Review Process

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

- Internal University Panel
- External University Panel
- External Non-University Panel

- Expert Peer Review

## 2. Brief Explanation

In recent years (2007-2010), our programs have been evaluated by three university-wide processes.

WSU Extension was an active participant in a university review and accreditation process which took place in 2007 and 2008 with some processes still continuing.

During 2008, WSU undertook a university-wide program prioritization process. WSU Extension programs were evaluated by a core committee of faculty and administrators. Recommendations were made for program advancement, program maintenance and program elimination.

In 2009, state budget cuts required further assessment and analysis of the effectiveness of WSU Extension programs. As a result, one academic department (including Extension components), one program support area, and one statewide program were eliminated.

WSU Extension continues to engage regional colleagues in review of our Plan of Work and Annual Reports of Accomplishments. This includes review by the Extension Directors in Oregon and Idaho. WSU Extension also provides copies of its Plan of Work and Reports of Accomplishments to senior leadership of the University (Provost and President) and to key stakeholder groups.

## III. Stakeholder Input

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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- 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 groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public
- Other (Meet with key leaders at local and state level)

#### Brief explanation.

We leverage public media to reach out to a broad array of stakeholders. This includes Spanish language radio (especially in Latino communities), local access television, newspapers (both English and other languages), electronic (web site, email lists, and targeted emails), newsletters, posted announcements in high volume areas (often in multiple languages), group meetings, and targeted direct mail. As part of this process, we develop materials that are both culturally sensitive and are designed to engage a variety of stakeholder groups and populations. Individuals are frequently identified through our various formal and informal networks who are candidates for positions on our various advisory structures. These individuals typically represent specific knowledge about target audience needs or about specific subject matter that we believe will help advance program design, delivery or impacts. These individuals are contacted directly by the appropriate party (County Director, District Director, Program Director, Associate Dean, Dean etc.) to invite their participation.

**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 (Meetings with community and state leadership)

**Brief explanation.**

Stakeholder identification is generally a sequential process. First we seek to identify emerging needs within communities. This is often initiated through searches of the literature and review of demographic (census) data followed by in depth discussions with local decision makers and others with unique knowledge about emerging needs. We also compile data from various sources and create profiles for each county. These data are then distributed among the County Directors to ensure that they are fully aware of the diversity, economic bases, and critical issues in their counties.

Once groups are broadly defined, care is taken to understand most effective mechanisms of engagement. If language or culture may create barriers, this is factored into the program design. Culture and language issues also often determine how we staff for future programming. This has led us to employ individuals from Russian, Hmong, Native American, Latino, African American, and many other cultural or ethnic groups statewide. We leverage these employees or find individuals within specific target populations to help us ensure that materials are culturally and linguistically correct. We also strive to understand any other issues related to learning styles, social traditions, etc.

WSU Extension is also engaged with numerous boards, organizations, agencies, and nonprofit organizations. Through this engagement we are able to identify individuals with broad perspectives to advise us on how to remain dynamic and responsive. Our county based programs are closely aligned with the needs of county government and their constituencies, and we confer with local officials frequently to understand needs and to effectively define WSU Extension's role within key local partnerships. In addition, WSU Extension serves as an affiliate member of the Washington Association of Counties. This allows us to learn about broad based issues and to participate in finding viable science-based solutions.

**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
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public
- Other (Meet with local/statewide leadership)

### **Brief explanation.**

Stakeholder input is gathered through numerous formal and informal processes. Formal processes include the many local and statewide advisory committees that are created and maintained specifically for the purpose of garnering stakeholder input. These formal advisory structures include the statewide 'Friends of Extension,' the College of Agricultural, Human and Natural Resource Sciences advisory committee, the College of Agricultural, Human and Natural Resources Dean's "Kitchen Cabinet," the Center for Sustaining Agriculture and Natural Resources advisory committee, statewide and local Master Gardener organizations, 4-H leader organizations, county advisory committees, and advisory committees for research and extension centers and units.

In addition, each WSU Extension faculty and administrator is encouraged to develop and maintain informal networks that permit them to garner input from key officials, industry representatives, and advocacy groups. Our faculty, staff, and administrators are members of many key organizations at local, statewide and national levels. Additionally, Extension and college membership is legislatively required on the Board of Directors for the Washington State Department of Natural Resources and the Washington State Conservation Commission. These connections are extremely valuable in understanding initiatives, opportunities for partnerships, and potential need.

Surveys are frequently used to garner input about the effectiveness of individual programs; and focus groups are also used to test new approaches, web site designs and materials.

Most hiring processes also include extensive stakeholder input. Generally this is accomplished by asking stakeholders' advice on position descriptions and by asking them to serve on search and screening committees. We also seek broad stakeholder input by announcing candidate presentations and by encouraging stakeholders to participate.

### **3. A statement of how the input will be considered**

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities
- Other (In strategic planning processes)

### **Brief explanation.**

Input from stakeholders is critical in the design and delivery of effective programming. Virtually every program we deliver involves engagement with both program participants and advisors. This helps ensure that we reach the appropriate audiences; that these individuals are able to achieve their goals; and that we are able to achieve the desired outcomes from the program.

Stakeholder input has also been critical to the development of long-range plans including staffing, facilities investments, and in developing funding proposals.

### **Brief Explanation of what you learned from your Stakeholders**

Stakeholder input is routinely used in numerous decision processes. In 2009, budget challenges confronted WSU Extension at both the state and county levels. Stakeholders helped us evaluate the feasibility of various reduction scenarios and proved extremely valuable in understanding the impacts of our decision.

Our Center for Sustaining Agriculture and Natural Resources maintains an active advisory committee. This group helped develop criteria for internal grants processes and protocols. This helped us ensure that these grant dollars were used for the highest purpose possible and yielded the greatest impacts.

Our frequent interactions with agricultural commodity commissions have helped to identify grower needs. As a result, we are developing new applications for hand-held devices, conducting live webinars with growers, and developing additional decision aids that are driven by real-time weather data compiled by the Ag Weather Net program.

Our close interaction with statewide commissions and boards has identified opportunities to integrate research and extension more effectively with the programs of major agencies such as NRCS, WA State Department of Natural Resources, and the Conservation Districts. Plans are underway to jointly fund a position with the Department of Natural Resources, provide professional development for Conservation District staff, and to involve several agencies in planning future natural resources programming.

Our close connections with communities and resident stakeholders have also opened up opportunities for broader engagement with the University. For example, the College of Liberal Arts was unable to effectively execute a grant from the Boeing Corporation to that was funding a project designed to leverage art as a means of engaging young people. The PI contacted WSU Extension and we arranged the local connections to effectively execute this project. Now, the College of Liberal Arts is pursuing additional funding for similar collaborative ventures with WSU Extension.

Our engagement with the citizen board of the Puget Sound Partnership (a state agency) increased awareness of our Low Impact Development program. The board then decided to use this as a model for future regulation. Our programs became required for many Engineers and landscape architects in the region. This led to a partnership between WSU Extension and the College of Engineering and Architecture and development and delivery of a certificate program in Low Impact Development. This also led to creation of a Low Impact Development research center at WSU Puyallup.

IV. Expenditure Summary

<b>1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)</b>			
<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
4021977	0	0	0

<b>2. Totalled Actual dollars from Planned Programs Inputs</b>				
	<b>Extension</b>		<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	4021976	0	0	0
<b>Actual Matching</b>	4021976	0	0	0
<b>Actual All Other</b>	32031841	0	0	0
<b>Total Actual Expended</b>	40075793	0	0	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from</b>				
<b>Carryover</b>	0	0	0	0

**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Enhance Economic Opportunities for Agricultural Enterprises while Protecting Washington's Resources
2	Create and Sustain Vibrant Communities and Urban Neighborhoods
3	Improve Health and Wellness of the Residents of Washington
4	Empower Youth and Families to Achieve Social, Economic and Educational Success
5	Enhance Natural Resources and Environmental Stewardship

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

**Program # 1**

**1. Name of the Planned Program**

Enhance Economic Opportunities for Agricultural Enterprises while Protecting Washington's Resources

**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	10%			
112	Watershed Protection and Management	10%			
205	Plant Management Systems	25%			
213	Weeds Affecting Plants	10%			
216	Integrated Pest Management Systems	15%			
307	Animal Management Systems	15%			
601	Economics of Agricultural Production and Farm Management	15%			
	<b>Total</b>	100%			

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

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	50.0	0.0	0.0	0.0
Actual	76.0	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
1744691	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1744691	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
13894636	0	0	0

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

1. Brief description of the Activity

WSU Extension works with the people of Washington State to address agricultural, natural resource, and environmental issues by providing information, education, technical assistance, and local development programs . Our programs are available

to all without discrimination.

WSU Extension addressed this goal directly through educational programs, demonstration activities, and facilitation processes. Extension professionals conducted training for volunteers and appropriate partner organizations, specific clientele groups, the general public and underserved populations were conducted. Additionally, professional development trainings were conducted for WSU Extension faculty and staff. Outreach techniques include field demonstrations, mass media (such as web pages, video streams, newspapers and newsletters), workshops and meetings.

Educational programs addressed the following areas. *Those specifically aligned with new NIFA priorities are identified.*

1. Sustaining Economically Viable Food Production. *Aligned with NIFA Priority 1 (Global Food Security and Hunger)*
2. Managing the Risk Associated with Agricultural Production. *Aligned with NIFA Priority 1 (Global Food Security and Hunger)*
3. Developing Alternative Crops and Markets
4. Harvesting Clean Energy from Farm Fields. *Aligned with NIFA Priority 2 and 3 - (Climate Change and Sustainable Energy)*
5. Supporting Viable Growth of Organic Agriculture.
6. Protecting Crops and Animals from Pests and Diseases. *Aligned with NIFA Priority 1 (Global Food Security and Hunger)*
7. Enhancing Farm Profitability through Value Added Products and Processes.
8. Protecting and Enhancing the Agricultural Natural Resource Base.

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

Commercial and small-scale agricultural producers, interest groups, WSU employees, industry support and agency personnel, consumers, rural families, single parent subsistence farm families, and ethnic minorities associated with agriculture.

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

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	50000	100000	25000	0
<b>Actual</b>	49479	659052	11986	2730

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

**Patent Applications Submitted**

Year: 2009  
 Plan: 0  
 Actual: 0



**Patents listed**

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

**Number of Peer Reviewed Publications**

<b>2009</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	20	0	
<b>Actual</b>	140	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of integrated research and extension programs fostered for intrastate, interstate and international impacts.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	12	30

**Output #2**

**Output Measure**

- Number of contacts with minority stakeholders within the state resulting in increased knowledge about sustainable agricultural practices.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	12000	29726

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Percentage of educational activity attendees that increased their knowledge about practices that can enhance agricultural profitability and competitiveness.
2	Percentage of educational activity attendees that plan to effectively manage the risks of market price variation, adverse environmental inputs, changing government programs, and variation in public awareness about nutrition and food safety.
3	Percentage of educational activity attendees that can recognize and evaluate the economic, environmental and social opportunities of alternative plant and animal production systems including production of bio-energy, bi-product utilization, agritourism, and value-added processing.
4	Percentage of educational activity attendees that increased their knowledge of organic production practices, regulations, and marketing opportunities.
5	Percentage of educational activity attendees that increased their knowledge of effective pest management practices, conservation tillage systems, and/or riparian management methods that protect endangered species and the environment and safeguard human health.
6	Number of Extension faculty and staff creating, implementing and evaluating culturally competent programs to increase the diversity of Extension program participants and partners.
7	Number of organic farms and ranches certified in Washington that were assisted by Extension programming or through partnerships between Extension and other agencies and organizations.
8	Estimated reduction dollars spent for chemical pesticides among farms utilizing integrated pest management strategies.

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

Percentage of educational activity attendees that increased their knowledge about practices that can enhance agricultural profitability and competitiveness.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	75	75

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Profitability of farms and ranches remains an essential component of the sustainability for agricultural production in the United States. Agriculture requires relatively large capital investments. Similarly, high annual production expenses exist relative to the market value of crops and livestock produced. Numerous variables influence gross farm receipts and net profit in this traditionally low-margin industry, but research-based Extension programs have proven highly effective in informing and teaching producers to maximize profitability through the adoption of a variety of practices and strategies. This outcome statement addresses assessments associated with training and education on management efficiency and the deployment of research-based production methods and strategies. The assessment of risk-management education, also important to profitability and competitiveness, will be reported under Outcome #2.

**What has been done**

Educational programs supported by publications and online resources were delivered to a diverse agricultural audiences to enhance learning and motivate the application of research-based knowledge to improve farm profitability and sustainability. Major programs focused on the following production categories.

- \* Animal Enterprises ( beef cattle, dairy, swine, sheep, goats, and poultry)
- \* Dry-land Cropping Systems (cereals, oil seeds, peas, and lentils)
- \* Tree Fruit Orchard Management ( apples, pears, and cherries)
- \* Small Fruit Production (raspberries, blueberries, and other soft fruits)
- \* Wine Grape & Juice Grape Production
- \* Enology & Wine Making
- \* Commercial Vegetable Crops and Seed Crops in Irrigated Farming Systems (potatoes, onions, carrots, seed crops, and other high value specialty crops)
- \* Forage Production (harvested cash crops and intensive grazing systems for improved pastures)
- \* Irrigation Efficiency
- \* Beginning Farmer and Small Farm Enterprises

**Results**

- \* Wine makers increased their knowledge of advanced wine making chemistry by an average of 40% during intensive wine making workshops.
- \* Beef conference participant's increased knowledge of grass-fed beef and pasture practices by 70%.
- \* 85% of wine grape growers increased knowledge of disease control strategies. This is further supported by

increased sales of dormant virus-tested planting materials from \$2.4 million in 2007 to \$3.3 million in 2009.

\* 87% of the orchard managers participating in Extension's orchard automation program improved their knowledge of sprayer technology and adopted practices to modify systems to improve efficiency of the sprays to reduce costs and pesticide use.

\* A 2009 survey of alfalfa growers documented that 71.4% of growers selected alfalfa varieties based on WSU trials and 47% used WSU Extension's guidelines for fertility management.

\* 87% of alfalfa growers (102 surveyed) adopted one or more of the best management practices recommended by WSU Extension in 2009 for irrigated hay production in the Columbia Basin.

\* 78% of dry-land farmer participants gained new knowledge and indicated practice changes regarding cereal variety selection, weed management strategies in cereals, and pest management.

\* 85% of evaluation respondents have begun to develop a whole farm plan or a business plan.

\* 95% of survey respondents confirmed that the training and information received from programs will positively influence their future actions.

\* 92% of program participants increased their understanding and knowledge of new irrigation technologies to supply supplemental water that potentially save up to 30% in overall irrigation costs.

\* 73% of tree fruit producers surveyed rated the value of Extension's orchard management programs as excellent, with 100% of respondents indicated increased knowledge that will improved their profitability and efficiency.

\* Eighty percent of these veterinarians indicated that they could better serve their calf-raising clients (96%), were confident in their ability to apply the new knowledge in practice (96%) and better understood the issue of antimicrobial resistance (93%).

\* Program participants reported that their knowledge and understanding of "Lamb or Beef Production from Farm to Table" increased by an average 1.25 units on a 5 point scale and 90% of participants identified at least one practice change they planned to implement.

\* 200 goat program participants increased their knowledge by 86% and 71% decreased expenditures and improved herd health.

\* 48% percent of growers in wireworm management workshops increased their knowledge and ability to manage wireworm problems in cereal crops. Growers' abilities to identify wireworm increased 19.4% and their ability to identify wireworm crop damage increased 32.2%.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

#### Outcome #2

##### 1. Outcome Measures

Percentage of educational activity attendees that plan to effectively manage the risks of market price variation, adverse environmental inputs, changing government programs, and variation in public awareness about nutrition and food safety.

##### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	25	35

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

**Issue (Who cares and Why)**

Farmers and ranchers face unprecedented risks that threatening their ability to remain financially solvent in a very globally competitive industry. Risk management programs and products can inform and train agricultural producers about how they can reduce risk associated with production and marketing practices.

**What has been done**

Over 50 formal training programs were conducted via local Extension offices and through the WSU Western Center for Risk Management Education (WCRME). A variety of local and regional publications and newsletters, as well as websites and computer-based decision aids were deployed in this effort. A national webinar series entitled "Ag in Uncertain Times" with 43 programs produced on topics such as "Credit Finance", "Families Managing Stressful Times", market overviews, marketing strategies, and related topics. The WCRME also delivered the training program for "Trade Adjustment Assistance for Farmers and Fisherman" funded by federal stimulus money. A Women in Agriculture training series was offered.

**Results**

- \* Extension's risk management education programs for livestock producers significantly increased producer knowledge of strategies and practices in 85% of participants, with individual knowledge level increases for selected learning objectives ranging from 21 to 40%.
- \* Program participants surveyed across other agricultural audiences served in this program revealed an aggregated average rating of 88% as significantly increasing their knowledge and ability to utilize risk management practices in their operations.
- \* Forty percent of those surveyed indicated they used AgProfit software for analysis. More specifically, 4 used the program to assess the impact of inflation on the profitability of their operation, 6 used the program to analyze the economic impact of adopting a new technology or change in production system, 3 people indicated their record keeping practices improved to allow them to track profitability, and 4 people indicated that the results of their analysis helped them to make a production input choice that improved their profitability. Two growers specifically indicated they saved \$20,000 and \$75,000 respectively.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #3****1. Outcome Measures**

Percentage of educational activity attendees that can recognize and evaluate the economic, environmental and social opportunities of alternative plant and animal production systems including production of bio-energy, bi-product utilization, agritourism, and value-added processing.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	60	60

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Small-scale producers in the Washington area are exploring expanded markets for their products and alternative production systems to grow their small farm businesses. Large agricultural producers also are seeking information and training to enhance their production practices in environmentally and socially responsible ways.

**What has been done**

Local workshops were conducted to educate producers about direct marketing and alternative production systems. A conference was developed and delivered related to creating a sustainable future for agricultural producers. A research and demonstration project (Climate Friendly Farming) evaluated and demonstrated soil and water conservation, waste management, and biofuel production. Farmers markets were developed in collaboration with local communities. A pork quality assurance program was delivered.

**Results**

- \* 68 large farm and ranch operators adopted value-added marketing to diversify revenue and to highlight social and environmentally responsible production practices.
- \* 3 Confined Animal Feeding Operations implemented new strategies to managing waste streams, including development of anaerobic digester systems
- \* 15 farmers produced oil seed crops and leveraged a local biofuel refinery to produce biodiesel for their tractors
- \* 49 poultry producers learned approved on-farm processing and qualified to sale processed poultry directly to consumers.
- \* Over 1000 biosolids managers, regulators, and farmers were trained in the proper, safe use of municipal biosolids as soil amendments for agricultural land and urban settings.
- \* Extension programs serving the turf industry reduced the severity of infection and movement of the Pythium with proper diagnosis and fungicide recommendations based on current conditions salvaged 13 greens on 6 courses from significant loss as well as preventing outbreaks on 15 greens on 2 additional courses. This intervention with accurate diagnosis followed by appropriate treatments saved as estimated \$540,000.
- \* 751 youth producers and 44 adult producers were certified in "Pork Quality Assurance" through a series of educational programs with at 89% adoption of skills and practices taught in improving product quality and value-added practices.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
205	Plant Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #4**

**1. Outcome Measures**

Percentage of educational activity attendees that increased their knowledge of organic production practices, regulations, and marketing opportunities.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	85	100

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

**Issue (Who cares and Why)**

Demand and interest in organic food has continued to increase, and farmers have responded by greatly increasing organic acreage. Washington State is second only to California in the value of total organic production. Continued growth in this industry is predicated on application of appropriate science-based techniques to effectively manage inputs, pests and marketing issues.

**What has been done**

- \* The Northern Organic Variety Improvement Collaborative (NOVIC), a collaboration among Washington State University, Oregon State University, Cornell University, and the University of Wisconsin was launched leading to planning and design of organic seed-lot trials. A brochure was created to promote project and extend invitation for involvement. Input was garnered from farmers to identify varieties to include in trials and traits of importance.
- \* Variety trials were conducted on 13 crops, with over 170 varieties in total on an organic farm in Jefferson County; a farmer field day was hosted to share results with additional farmers; and a final report of the trial results will be disseminated via print and web in March, 2010.
- \* The North Olympic Growers Network for organic seed was launched.
- \* A series of 24 organic workshops, field days, and other training programs were offered to current and prospective organic farmers.

**Results**

- \* 100% of 75 participants in an organic workshops gained new knowledge and skills in organic production practices with 56% changing cover cropping , 45% changing weed management, and 43% adopting new fertility practices.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #5**

**1. Outcome Measures**

Percentage of educational activity attendees that increased their knowledge of effective pest management practices, conservation tillage systems, and/or riparian management methods that protect endangered species and the environment and safeguard human health.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	85	86

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

**Issue (Who cares and Why)**

Farm and orchard managers and workers need valid and practical information on best management practices for various agricultural operations to minimize negative impacts to native species of plants and animals, prevent resource degradation, and safeguard human health.

**What has been done**

An orchard sprayer field day, a small fruit field day, and a riparian management field day were conducted. Pasture walks were conducted to increase farmer to farmer learning processes and to increase awareness of sustainable practices. Numerous workshops, short-courses and web and print media were developed.

**Results**

- \* 87% of the orchard managers and workers (160 contacts) participating in Extension's orchard automation program improved their knowledge of sprayer technology and adopted practices to modify pesticide spray systems to reduce overspray and minimize impacts to non-target species and the environment.
- \* 80% of participants (approximately 500) in grazing management field days gained new information and knowledge regarding best management practices for grazing riparian areas, and improved their understanding of state rules associated with riparian zones.
- \* Fifty people changed management practices and eliminated full-time grazing of riparian areas by installing fencing to appropriately manage animal impact of these sensitive areas.
- \* 89% of grower participants (260) in small fruit workshops and field days increased their knowledge and ability to perform scouting techniques and determine thresholds for management of key pests in blueberry, raspberry, and blackberry.
- \* 28 new land operators agreed to make biological weed management releases to control yellow star thistle on



the lands using GPS technology after learning the benefits.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems

#### Outcome #6

##### 1. Outcome Measures

Number of Extension faculty and staff creating, implementing and evaluating culturally competent programs to increase the diversity of Extension program participants and partners.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	30	33

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

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

Farm operators are becoming increasingly diverse in terms of ethnicity and gender. Immigrants and women farmers are the fastest growing demographic sector of U.S. agriculture. The number of Latino, Asian, and women farmers increased 43%, 36%, 44% respectively between 2002 and 2007 (US Census of Agriculture). Native American producers also increased by 21% during this same timeframe. The latest U.S. Agricultural Census identifies 2,605 Latino producers and 8,090 women producers in Washington. While there is no specific census category for Hmong farmers, the WSU Small Farms Program has identified 88 Hmong-operated farms, each farmed by multiple family members. Virtually all Hmong farms and 75% of Latino farms have less than 50 acres and under \$50,000 in annual sales. While sales for these farms may appear low, needs assessments have determined that farm income is of critical importance to many of these households. The WSU Small Farms Program has identified 50 Somali and 35 Burundian farmers in the Seattle area in need of culturally appropriate assistance.

Immigrant farmers live in diverse areas of the state and produce a wide array of crops for sale in direct and wholesale markets. While many are highly skilled in agriculture and are passionate about farming, they often have limited access to basic resources such as land, water, and farm financing. They may also lack essential business and risk management skills for farming in the U.S. Finding ways to support this new generation of aspiring farmers is critical to preserving the future vitality of Washington's agriculture and rural communities.

###### What has been done

A variety of agricultural workshops, demonstrations, publications, digital media, and field days targeting minority and undeserved audiences were conducted including programs on farm-worker housing, field trips for Latino farmers, a 12-week course in Spanish, training for Hmong farmers mediated by a WSU Extension educator of Hmong ethnicity, Hmong-language videos, a semester-long sustainable farming course to Somali refugees, sustainable farming classes to tribal members, whole farm planning and business management seminars in Spanish.

**Results**

\* Sixty-five people attended the farmworker housing forum. There was considerable interest in moving forward with a project in Skagit County. As a result, the Skagit County Commissioners have appointed a larger task force to work on affordable housing and the farmworker housing group is represented there.

\* During the first Cultivating Success courses, participants were reluctant to mingle with other races. The Caucasians sat on one side of the room and the Latinos on the other side. Towards the end of the course the class was co mingled and long lasting friendships were established. A story in the Skagit Valley Herald ran on the class and the community is beginning to see the Latino Community has the potential to rise up from being farm workers to becoming farm owners.

\* New minority farmers began participating in USDA farm programs for the first time. As a result of farm plans developed in our programs, 25 Latino farmers obtained EQIP contracts, 55 obtained FSA loans, 2 obtained Farm Credit Service loans, 2 received organic certification, and 8 applied for organic certification.

\* Two Hmong farms received organic certification, one received an NRCS contract, and one received an FSA loan.

\* 100 new Latino farms and 78 new Hmong farms participated in the US Census of Agriculture for the first time

\* 15 new farms were purchased and 12 new farms were rented by minority farmers.

\* A new Burundian farmer cooperative and two Latino farmer cooperatives were started.

\* A new Hmong Farmer Association of 80 farmers was formed and provided relief to both 2006 and 2009 Hmong farmer flood victims.

\* On-farm, peer-to-peer, multi-lingual experiential learning activities led by the WSU Extension Small Farms Team have proven to be our most effective teaching strategy. Participant surveys revealed the following on knowledge increase:

69% farm profitability

96% soil fertility

42% composting

62% alternative pest management

58% marketing.

\* 42% of minority farmers attending WSU Extension events said they would change their soil/nutrient management practices and 23% said they would change their pest management practices.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #7**

**1. Outcome Measures**

Number of organic farms and ranches certified in Washington that were assisted by Extension programming or through partnerships between Extension and other agencies and organizations.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	70	185

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

**Issue (Who cares and Why)**

Washington State is among the leaders in organic production ranking second only to California in the value of organic produce generated per year. Organic production accounts for up to 10% of total production of tree fruit in the state. Many conventional farmers are interested in shifting to organic production, but need science-based information.

**What has been done**

WSU Extension working with the Washington State Department of Agriculture, Tilth Producers of Washington and others have developed and delivered educational programs and materials to assist organic growers refine production practices as well as marketing strategies for a growing organic marketplace. This collaboration included a variety of events, workshops, field days, and demonstrations to current and aspiring organic producers.

**Results**

185 organic farms were directly assisted by WSU Extension programming in 2009. This assistance included training and information in soil fertility management, organic pest management, organic seed production, cultivar selection, marketing, and general farm management.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #8****1. Outcome Measures**

Estimated reduction dollars spent for chemical pesticides among farms utilizing integrated pest management strategies.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	2000000	10550000

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Chemical pesticides represent a very significant cost to agricultural enterprises throughout Washington. These materials are also potential threats to worker safety, non-target species, and the environment. Integrated pest management (IPM) strategies represent an effective and cost efficient approach to pest control across a broad range of Washington crops.

**What has been done**

Research was conducted to develop new pest management tools and strategies across many crops and environmental conditions. Workshops, field days, newsletters, demonstrations, commodity meetings, short courses, and other methods were used to inform stakeholders of the options available to reduce pesticide applications and yet achieve reasonable control of key pests.

**Results**

\* Educational programs on newly registered pesticides for cranberries (Callisto and Avaunt) resulted in adoption by over 90% of growers and reduced overall pesticide inputs by more than 300,000 pounds in 2009 saving an estimated \$1 million in input cost to growers in the Pacific Northwest.

\* Blackvine weevil is now well controlled in the state eliminated bed destruction during 2009.

\* The deployment of biological management (parasitic wasp) of Cereal Leaf Beetle is estimated to have saved Washington state grain farmers \$6.75 million per year on insecticide applications.

\* Deployment of a newly developed pheromone trap for apple leaf midge is underway with apple orchards as an aid in effectively monitoring pest populations. This monitoring technique used in limited demonstrations thus far is projected to reduce pesticide applications by 75%, by more appropriate timing of applications against threshold levels. Assessed impact on pesticide broad use and the accompanying savings are yet to be evaluated on a broad scale.

\* Demonstration of the efficacy of spinosad (organic product) to replace Organophosphate and Carbamate products in the control cherry fruit fly has been broadly successful, and grower adoption reduced control costs of this pest in cherry orchards by \$2.8 million in 2009.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems

## 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

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

### 1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

## Evaluation Results

Evaluation results are reported under each planned programs. These results demonstrate degree of knowledge gained and application of knowledge. More advanced strategies are used to determine the net economic and environmental values of these programs.

## Key Items of Evaluation

As a result of WSU Extension programs, Columbia Basin farmers increased their use of a green manure crop practice preceding potatoes from a 2002-2008 average of 22,000 acres to 37,000 acres in 2009, a 68% increase. The effects of this practice on the soil will be both short- (reduced wind erosion, better infiltration, reduced runoff) and long-term (increased organic matter, improved soil tilth). Those farmers using the practice to allow shorter potato rotations and/or to replace fumigation will have increased profits as a result of using green manures.

The USDA Natural Resources Conservation Service reports that the irrigated acres receiving funding for no-till/strip-till practices doubled between 2008 and 2009. These are practices recommended by WSU Extension educators. Although this represents a small portion of the total acres, it shows increased interest and adoption of these practices demonstrated through coordinated Extension programs on high residue farming practices in irrigated systems. The land under the improved practice can be expected to have reduced wind erosion and runoff, and farmers' profits should increase over the long-term by using these practices.

Adoption of WSU Extension recommended precision agriculture technology Columbia County farmers reduced crop inputs by 11% and saved \$5 million on 180,000 acres in the county.

A new white winter wheat variety call Xerpha was released in 2009 by WSU. Research and extension

field trials indicate an increased productivity from this new variety of 9.25 bu/ac across four rainfall zones when compared to the other top two varieties. It is estimated that 200,000 acres were planted in fall of 2009. Based on \$4.50 per bushel price, this will result in increased market value of \$8.32 million in 2010.

23 dry-land pea growers adopted extension fertilization recommendations and applied them on 16,000 acres of dry peas in the Palouse region. Growers verified yield increases of 300 to 500 lb/acre at a value of \$0.10/lb. These yield increases have resulted in increased gross income of approximately \$2.56 million annually.

23 wheat growers in the low rainfall zone confirmed that they used recommended rates of phosphorus fertilizer on 25,000 acres. These producers confirmed yield increases associated with this practice of 3 bu/acre/year. Based on a price of \$5/bu for winter wheat, application of this practice has resulted in increased revenues of \$375,000 annually.

Western Washington farmers adopted improved weed management practices on 22,000 acres of vegetable seed crops, small fruits, and ornamental bulb crops resulting in a net benefit of \$380/ac or \$836,000 annually.

100% of program participants increased their knowledge and utilized recommended practices to control plant-back disease when reestablishing apple orchards in the major apple growing areas. The economic benefit of this multi-year program effort has been calculated as a net return benefit of \$100 million annually to the state's \$1.3 billion apple industry.

Extension's educational program supporting "Commercial Crabber Towboat Lane Agreements" have increased knowledge and program participation by commercial fisherman resulting in reduced equipment losses and vessel repairs by a value calculated at over \$1 million per year.

Extension's Bovine Viral Diarrhea Control and Eradication program for cattle producers positively impacted overall health of cattle herds and calf survival rates to weaning with an economic benefit to the industry of over \$500,000 in 2009.

The WSU Beef Quality Assurance Educational Program reduced quality defect losses in beef carcasses by 12.6% over a three year period through the application of improved management practices by producers. Conservatively this defect reduction saved an estimated \$2 million to the beef industry in 2009. Additionally, the incidence of injection site lesions has declined to near zero in beef carcasses.

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

**Program # 2**

**1. Name of the Planned Program**

Create and Sustain Vibrant Communities and Urban Neighborhoods

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	70%			
805	Community Institutions, Health, and Social Services	30%			
<b>Total</b>		100%			

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

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	35.0	0.0	0.0	0.0
Actual	17.9	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
410600	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
410600	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
3271003	0	0	0

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

**1. Brief description of the Activity**

The WSU Extension Community Development program conducted educational and development programming and create educational materials and other resources in the following topical areas.

Helping communities deal with challenging issues through facilitation and consensus building.

Helping leaders make better decisions by providing them with user-friendly demographic and social data coupled with training on how to both interpret and utilize these data.

Conducting leadership and organizational management training for community leaders through the Certified Public Officials program and the Ruckelshaus Policy Consensus Center.

Helping communities and organizations bridge the digital divide through education and awareness of needs and issues.  
 Helping communities, organizations and individuals become more energy efficient and energy sustainable.  
 Supporting economic development by connecting communities and individuals with critical needs to solutions originating from all of the colleges and campuses of WSU.

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

Community leaders, elected and appointed officials. State officials, tribal leaders, non-profit leaders, community residents.

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

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	27000	5000	500	0
<b>Actual</b>	86286	244921	16618	44926

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

**Patent Applications Submitted**

Year: 2009  
 Plan: 0  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>	2	0	
<b>Actual</b>	2	4	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of integrated research and extension Community Development programs performed within the state, across state-lines and internationally.

Year	Target	Actual
2009	10	10

**Output #2**

**Output Measure**

- Number of contacts with minority stakeholders within the state.



<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	8000	7000

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of persons completing a WSU leadership development program that serve in a community/county/state or agency leadership role (appointed, elected, non-profit, volunteer community group).
2	Percentage of attendees at educational activities that increased their knowledge about leadership, organizational management, and community betterment.
3	Percentage of clients that change their mode of operation to include collaborative approaches to public policy development and/or number of clients that incorporate applied research findings and research-based recommendations into public policy.
4	Number of Extension educators creating, implementing and evaluating culturally competent programs to increase the diversity of Extension program participants and partners.

**Outcome #1**

**1. Outcome Measures**

Number of persons completing a WSU leadership development program that serve in a community/county/state or agency leadership role (appointed, elected, non-profit, volunteer community group).

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	80	130

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

**Issue (Who cares and Why)**

Strong leadership remains key to organizational, community and local government success. With a weakened economy, and rapid turnover, training the next generation of local leaders is essential to the survival of many small, mid and large size communities and organizations. Retirement of leaders of non-profits and governmental entities is increasingly evident. Successful training and succession planning can help ease the effects of turnover as well as keep Washington competitive in both the public and private sectors.

**What has been done**

WSU Extension has a history of local leadership training, and in 2009, leadership training was conducted through a number of Extension entities. Mostly notably: the Division of Governmental Studies and Services (DGSS) that supports the Natural Resources Leadership Academy (NARLA) aimed at state agency resource managers; the Horizon Project, aimed at poverty reduction in small communities that uses the PEW Foundation LeadershipPlenty approach; and Leadership Skagit, a leadership training program aimed at strengthening the State by developing individual, community and business leaders.

**Results**

Among participants in Leadership Plenty, 7 individuals that were not previously elected or appointed now hold elected/appointed leadership roles at the city, county or state level. Additionally, 95% of those participants are now "involved" in their communities in some form of volunteer activity.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

## Outcome #2

### 1. Outcome Measures

Percentage of attendees at educational activities that increased their knowledge about leadership, organizational management, and community betterment.

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	90	91

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Leadership, organizational management, and a desire to improve the situation in local communities are prerequisites to the development of the viable community structures needed to address issues such as poverty. Strong leadership and management skills as well as awareness of the possibilities can in part be transferred to potential community leaders through appropriate educational activities and lead to enhancement in the economies and quality of life of target communities.

#### What has been done

Though the Horizons program, extension educators work with potential leaders in communities. These individuals are engaged in skill building processes designed to enhance their leadership skills and the ability to work with others.

#### Results

Of the 394 community members who participated in the Horizon Leadership Plenty training, 329 returned surveys with 90.7% indicating that they had increased their knowledge of leadership skills after having graduated from the training.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

## Outcome #3

### 1. Outcome Measures

Percentage of clients that change their mode of operation to include collaborative approaches to public policy development and/or number of clients that incorporate applied research findings and research-based recommendations into public policy.

## 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	95	100

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Public policy issues in the Northwest are increasingly complex and numerous. Moreover, conflicts among stakeholders on how to "best" resolve these problems are becoming increasingly intense and polarized in nature. The conflicts most commonly result in lengthy expensive litigation that produce poor and unsustainable outcomes.

#### What has been done

WSU Extension programs focus on assisting local, state, federal, and tribal governments (and their agencies) to do their work in an informed and effective manner. Assistance takes the forms of applied research, process facilitation, collaborative problem solving and training. Program faculty and staff do the majority of their work through the WSU Extension and College of Liberal Arts' Division of Governmental Studies and Services (DGSS), and the WSU Extension office of the William D. Ruckelshaus Center, a joint endeavor with the UW. Additionally, a number of county-based Extension activities are undertaken each year. WSU Extension faculty have worked on critical societal issues such as: homeland security, endangered species, climate change, effective local law enforcement, natural resources management, agricultural vitality, patient care, workers compensation, local government management and citizen engagement. In doing this work, the faculty have engaged with: the Governor's office; state legislators; federal, tribal, state and local officials and agency managers; law enforcement officials; environmental, agricultural and "better government" organizations; private foundations and numerous non-profits.

#### Results

The William D. Ruckelshaus Center's Ag Pilots Project funded four different pilots from 2007-2009. The four pilots aimed to bring agricultural producers together with environmental advocates to create projects that simultaneously increased farming profitability while making positive environmental impacts. Upon completion of the two year process, all four pilot managers in the ag field said that they would continue to work with the environmental partners with whom they had built relationships.

One pilot in particular, the Pest Management Transition Project (PMTP), was partially funded by the Legislature and the Ruckelshaus Center. The pilot seeks to "change practices, attitudes and perceptions of apple Integrated Pest Management (IPM)." Part of the way this would be accomplished is through voluntary adoption by apple growers but also through potential legislation. This pilot is one that plans to continue developing its ag/environment relationship.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

## **Outcome #4**

### **1. Outcome Measures**

Number of Extension educators creating, implementing and evaluating culturally competent programs to increase the diversity of Extension program participants and partners.

### **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>
2009	100	80

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

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

Washington is a very culturally diverse state. A 2006 report by the Washington State Office of Financial Management projected that by the year 2030 nearly one in three residents in the State of Washington will be a minority. The report also suggests that by 2030 the Hispanic population will almost double, making it the largest minority group in the State and accounting for almost 13% of the State's population.

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

WSU has undertaken a number of initiatives to develop culturally competent programs to serve this population and other ethnic groups. In 2009, these initiatives consisted of: four Full Immersion/Spanish Institutes across the state (four different locations); having a Hispanic Community Development Specialist on staff; the tailoring of the Horizon Project efforts in central Washington to work with Latino communities, and the introduction of the Latino Microenterprise Assistance Pilot Project (MAPP), that aimed to assist local Latino and Hispanic entrepreneurs in the Columbia Basin. There is also training for Extension educators titled "Navigating Difference: Cultural Competency Training."

#### **Results**

\* 120 participants completed the Extension-led Full Immersion Spanish Institute programs in 2008. The participants include school teachers, people from law enforcement, social service employees, health care providers and some of our own extension faculty.

\* The Horizons Project continued its poverty reduction work in 3 Latino communities and 1 tribal community in 2009.

\* The Extension Microenterprise Assistance Pilot Project (MAPP) had 3 separate 2-day Business Planning Workshops led by 4 Extension Educators, with a total of 68 community participants.

\* The "Navigating Difference: Cultural Competency Training," was an 18 hour training program that drew 56 WSU employees and was led by three Extension educators.

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

<b>KA Code</b>	<b>Knowledge Area</b>
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803 Sociological and Technological Change Affecting Individuals, Families, and Communities  
805 Community Institutions, Health, and Social Services

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

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

**Program # 3**

**1. Name of the Planned Program**

Improve Health and Wellness of the Residents of Washington

**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	55%			
704	Nutrition and Hunger in the Population	10%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	15%			
724	Healthy Lifestyle	20%			
<b>Total</b>		100%			

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

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	0.0	0.0
Actual	17.9	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
411178	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
411178	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
3274605	0	0	0

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

**1. Brief description of the Activity**

WSU Extension developed, evaluated and disseminated educational programs and curricula that increased health literacy and facilitated adoption of health behaviors that lead to the prevention and effective management of chronic disease. The major components of our educational activities can be grouped into three areas. Those aligned with NIFA priorities are identified.



Nutrition education, including dietary quality, healthy lifestyle promotion and food security issues (aligned with NIFA Priority 4: Childhood Obesity).

Food safety, including safe food handling and preservation, and hand sanitation/hygiene (aligned with NFIA Priority 5: Food Safety)

Chronic disease management, including self-management to reduce complications and prevention education to reduce future incidence.

Nutrition education activities are largely delivered in partnership with local institutions, including schools and social service agencies. Youth and adult participants are reached directly through workshops and lesson series, as well as indirectly through newsletters, media broadcasts and social marketing efforts. Innovative delivery methods such as public kiosks and web-based modules are also planned. Included in this work are activities focused on obesity prevention and intervention through changes in diet quality and physical activity levels.

Food safety activities include workshops/classes for consumers, commercial food safety training for food workers, phone hotlines, education booths at public venues, media features, and the Germ: Clean Hands, Healthy People Program. Volunteers are engaged in food safety program delivery in some areas. City

Disease management programs will be delivered to individuals through workshops and series lessons, and also in partnership with health care providers and employers. Indirect methods will include newsletters, media, web-based information and social marketing efforts. While initial educational interventions in Washington have focused on diabetes, it is anticipated that over time our efforts will be expanded to address other chronic diseases.

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

Priority audiences are groups underserved by traditional health care systems because of low income, language barriers, geographic isolation or other challenges. Outreach to others serving these groups such as health care providers, employers, social service agency personnel, child care providers, school personnel and local decision-makers are an additional audience. Professionals in food service and processing industries are a specific audience for food safety efforts.

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

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	50000	100000	25000	0
<b>Actual</b>	257430	258904	620626	14978

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

**Patent Applications Submitted**

Year: 2009  
 Plan: 0  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>	2	0	
<b>Actual</b>	2	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Percentage of culturally diverse participants in nutrition and chronic disease management programs.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	50	46

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

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

O. No.	OUTCOME NAME
1	Percentage of participants reporting improved nutritional quality of diet
2	Percentage of participants reporting improved hand washing practices

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

Percentage of participants reporting improved nutritional quality of diet

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	50	62

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

The child obesity epidemic is a product of the environments created for children - by their families, their communities, their schools, and the industries responsible for advertising to them. Today's children are likely to be the first generation to live shorter, less healthy lives than their parents. Research estimates individual behaviors and environmental factors are responsible for about seventy percent of all premature deaths in the United States. Health and well-being encompass a complex array of factors including physical, social and emotional health. Obesity and overweight not only impact the physical health of youth, increasing the risk of chronic diseases into adulthood, they also impact social and emotional development of children. Obesity has been linked to decreased self-efficacy, withdrawal from peers and rejection and academic achievement. Given the increased risk of obesity and the complexity of the problem, improving the physical health of our children is a high priority. In 2008, one out of four student in grades 8, 10 and 12, in Washington State were obese or at risk of becoming overweight. Adequate nutrition and physical activity are essential for maintaining health and well-being. Less than thirty percent (28.1%) of youth reported eating the recommended five servings of fruits and vegetables, and only 19% achieved the recommended levels of physical activity.

**What has been done**

In FY2009, Food \$ense (the name used in Washington State for SNAP-Ed and EFNEP) enrolled over 55,000 youth in nutrition education programs. Youth were primarily reached through partnerships with 337 schools in low income neighborhoods and received an average of seven lessons per child in their classrooms. Children from kindergarten through middle school were reached. Evaluation data was collected through multiple sources to assess the impacts of the program on child behaviors. Instruments included a pre-post evaluation survey administered in the classroom; a parent survey administered to recipients of a newsletter for families of participating children; and a new Teacher Observation Form, piloted for use with grades kindergarten through 2 (to capture data for younger children who cannot reliably complete survey instruments).

**Results**

Self-reported knowledge, skill and behavior change indicators for youth grades 3 and above participating in Food \$ense document improvements related to dietary quality and better health status.

\* Sixty percent of youth (n=11,524) reported eating a variety of foods more often, including daily consumption of fruits and vegetables.

\* 75 percent (n=11,488) increased their understanding of the relationship between nutrients and health, and

\* 60 percent (n=12,256) were better able to identify the best food sources of leader nutrients. 69 percent of youth (n=9,476) reported increased physical activity at the standard of at least 60 minutes daily for most days of the week.

Changes reported by parents are consistent with those reported by their children:

\* 73 percent (n=4,194) report eating more fruits and vegetables;

\* 66 percent (n=3,151) report increased physical activity; and

\* 64% report eating more meals together as a family, an activity that the research literature links to improved nutritional status of children.

For younger children (K-grade 2), teachers observed the following changes after participation in Food \$ense lessons:

\* 42 percent said that children were making healthier meal and/or snack choices;

\* 39 percent said children ate breakfast more often; and

\* 37 percent noted increased fruit and vegetable consumption among their students.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

#### Outcome #2

##### 1. Outcome Measures

Percentage of participants reporting improved hand washing practices

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	30	67

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

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

Food-borne illness outbreaks may be difficult to detect unless a defined group or related persons are affected.

There are typically 40 to 60 outbreaks reported annually in Washington State, each with 2 to dozens or even hundreds of cases in each outbreak. In a 2006 study of food-borne illness in Washington State, thirty-six of the 51 reported outbreaks (71%) involved restaurant settings. Ill-food workers and bare-handed contact with retail foods are consistently the top factors contributing to food-borne illness outbreaks in the state. As a consequence, hand washing education for retail food workers can have a significant impact on public health.

**What has been done**

Extension offered retail food education training in two urban counties of Washington (Thurston and Clark) in partnership with local health departments, using a curriculum certified by the WA State Department of Health. In Clark County, the course was also available in Spanish. The food safety courses addressed the top food rule regulations/procedures and basic food safety practices that prevent food-borne illness outbreaks. Nearly 8500 food workers attended classes in 2009.

**Results**

In a post-training survey (n=7167)...

\* 58 percent of food workers reported improvements in washing their hands the right way and at the right time.

\* 56 percent also reported greater awareness of the importance of not working with food when they were sick.

A study conducted in Clark County in 2009 examined the inspection scores of facilities that had sent staff to the food safety trainings (March 2006-Dec 2008). The study focused on the red violations (the most hazardous practices that could cause a food-borne illness outbreak) of 20 facilities that sent a total of 100 food handlers to the classes.

\* Prior to the training the 20 facilities had a total of 495 red violation points, documenting a multitude of practices that could cause an outbreak. After the classes the re-inspection scores totaled 180.

\* 45% of the facilities reduced their red violation scores by 50% or better.

\* One facility had 100 red violation points (means closure of the facility) and their re-inspection score was 0 red violation points.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
724	Healthy Lifestyle

**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**

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

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

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

## **Evaluation Results**

### **Key Items of Evaluation**

A study conducted in Clark County in 2009 examined the inspection scores of facilities that had sent staff to the food safety trainings (March 2006-Dec 2008). The study focused on the red violations (the most hazardous practices that could cause a food-borne illness outbreak) of 20 facilities that sent a total of 100 food handlers to the classes.

Prior to the training the 20 facilities had a total of 495 red violation points, documenting a multitude of practices that could cause an outbreak. After the classes the re-inspection scores totaled 180.

45% of the facilities reduced their red violation scores by 50% or better.

One facility had 100 red violation points (means closure of the facility) and their re-inspection score was 0 red violation points.

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

**Program # 4**

**1. Name of the Planned Program**

Empower Youth and Families to Achieve Social, Economic and Educational Success

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	20%			
806	Youth Development	80%			
<b>Total</b>		100%			

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

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

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	26.0	0.0	0.0	0.0
Actual	38.4	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
881938	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
881938	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
7023718	0	0	0

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

**1. Brief description of the Activity**

WSU Extension works with all of the peoples of Washington State to address positive youth development issues by providing information, experiential education, activities, technical assistance and local capacity enhancement. Our programs are available to all without discrimination. Indeed we are proactive in addressing the special needs of unique youth audiences and the adults who support their efforts.

WSU Extension addressed this goal directly through educational programs, demonstration activities, and facilitated processes. Training programs and professional development were conducted for faculty, staff, volunteers, and partner organizations as well as for specific groups such as professional child care providers. Particular outreach efforts were made for underserved and emerging populations.

Educational programs will address the following:



Strengthening a sense of belonging for youth so that they will feel emotionally and physically safe in these educational settings and develop positive relationships with supportive, caring adults

Increasing decision-making skills, relationship building, understanding of self, learning, management, navigating group processes and communication skills in youth

Decreasing negative behaviors (shoplifting, drug use, vandalism, smoking etc) in youth who actively engage in 4-H

Increasing adoption rates of health and wellness indicators such as regular exercise activities and improved nutritional choices

Improving safety and quality of child care

Mastering relevant skills and technical knowledge areas for youth success

Applying best practice prevention programs (e.g., the Strengthening Families Program for Parents and Youth Ages 10-14) that engage both parents and their youth will be conducted and evaluated statewide with outreach in both English and Spanish languages.

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

The youth, adults, and families of Washington and the agencies, decision makers and organizations that support and mentor them.

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

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	9000	15000	70000	0
<b>Actual</b>	18258	43900	81518	62034

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

**Patent Applications Submitted**

Year: 2009

Plan: 0

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>	6	0	
<b>Actual</b>	8	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of 4-H Youth Development educational events/activities/programs designed for life skill enhancement.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	700	123400

**Output #2**

**Output Measure**

- Number of programs delivered that support creation and maintenance of healthy family structures.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	1	155

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

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

O. No.	OUTCOME NAME
1	Difference (in percentage points) between 5-year graduation rates of former 4-H youth and the general student population at WSU.
2	Difference (in percentage points) between 4-H youth planning to attend post-secondary institutions after graduation and the general student population.
3	Percentage of educational activity attendees that increased their positive life skill application.
4	Percentage of parents targeted for intervention that demonstrate improved scores on parenting behavior scale.

**Outcome #1**

**1. Outcome Measures**

Difference (in percentage points) between 5-year graduation rates of former 4-H youth and the general student population at WSU.

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Difference (in percentage points) between 4-H youth planning to attend post-secondary institutions after graduation and the general student population.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	10	6

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

**Issue (Who cares and Why)**

Educational attainment for Washington's youth has reached crisis level with fully 1/3 of all of young people entering 9th grade failing to graduate in five years. The statistics become more dramatic when examining youth by racial/gender demographics where nearly 2/3 of Hispanic males fail to graduate. These statistics foretell a societal model that is economically unsustainable and morally unconscionable. Without significant increases in youth academic attainment we are condemning a generation as a permanent underclass.

**What has been done**

The 4-H Youth Development Program has a strong emphasis on the Essential Elements of Positive Youth Development:

Belonging - building a positive relationship with a caring, mentoring adult in a group of peers building a sense of inclusion resulting in a physically and emotionally safe environment.

Mastery - Actively engaging young people in learning stimulating self-motivation and creativity. Mastery is building knowledge, skills and attitudes then demonstrating and using that competency.

Independence - to see oneself as an active participant in the future harnessing hope and optimism to shape life choices for successful adulthood transitions.

Generosity - to value and practice service to others. Service is a way for youth to gain exposure to the larger community and the world itself.

These Essential Elements are a fundamental process for positive youth development undergirding out total 4-H

Program. Whether the actions are high content/low concept like many of our 4-H Animal Science activities or high context and low content such as a residential camping program, the emphasis on the Essential Elements produces strong life skill development that lead to successful transitions to adulthood. Over 124,000 different 4-H activities and events were conducted in 2009 designed to strengthen life skills including 1550 4-H clubs, 1,583 school based enrichment, 192 after school clubs and 76 camping programs.

4-H sharpened its focus on prepared adults to be high quality mentors for youth. In 2009, 2,721 adult volunteers, or 40% of the total 4-H volunteer base, participated in at least one life skill building educational opportunity for mentors.

**Results**

Washington 4-H Youth (251 youth surveyed in grades 9-12) a six percent increase in academic competence compared to their non-4-H peers, a 7% created emotional engagement with their schools as compared to their non-4-H peers and a 5% greater cognitive engagement with their schools. This improved engagement with school results in increased academic success and academic aspirations for young people. 76% of Washington 4-H'ers expect to earn college degrees as compared to their non -4-H peers espoused only a 64% expectation of college attainment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #3**

**1. Outcome Measures**

Percentage of educational activity attendees that increased their positive life skill application.

**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>
2009	75	64

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

**Issue (Who cares and Why)**

Youth Development is a process of mental, physical, social and emotional growth during which young people prepare to live a productive and satisfying life within the customs and regulations of their society. People who develop educational programs and curricula for youth are in the business of providing educational opportunities through which youth can learn information and develop skills they need.

Youth development experiences of high quality don't just happen. The best youth development experiences are carefully planned (a) to encourage life skill development while delivering subject matter content and (b) to achieve specific results. It has become increasingly important to be accountable for resources expended by documenting

program impact. By clearly stating desired changes as program objectives, youth development experiences can be evaluated more effectively to determine if the program succeeded in making the intended difference in the lives of youth.

A skill is a learned ability to do something well. Life skills are abilities individuals can learn that will help them to be successful in living a productive and satisfying life. The goal of youth programming is to provide developmentally appropriate opportunities for young people to experience life skills, to practice them until they are learned, and be able to use them as necessary throughout a lifetime. Through the experiential learning process, youth internalize the knowledge and gain the ability to apply the skills appropriately.

**What has been done**

In 2009 4-H life skills education was conducted in all 39 of Washington's counties. There were 123,400 distinct 4-H life skill events/activities/programs reaching nearly 80,000 youth. The life skill events/activities/programs included, but were not limited to: State 4-H Teen Leadership Conference, 4-H Know Your Government Conference, club work, school enrichment, camping and special in trust methodologies were employed. Specific examples of life skill education included: the completion of two on-online interactive SET units for youth and the adults who support them; creation and piloting of the new 4-H Wind Energy Project; creation of 4-H mentoring programs; summer day camping programs for urban disadvantaged low income youth; 26 local engagement sites in the 4-H National Science Experiment Day; 4-H Eco-Stewardship Program (DNR National Award winner); in short a myriad of live skills based educational programs were conducted statewide.

**Results**

Of this very broad brush of 4-H life skill activities 53 were formally evaluated for five more of the 35 identified life skills. Depending upon the program life skill development increased 5 to 90%

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #4**

**1. Outcome Measures**

Percentage of parents targeted for intervention that demonstrate improved scores on parenting behavior scale.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	60	70

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

**Issue (Who cares and Why)**

Research conducted by Washington State Department of Social and Health Services on risk factors for prevention of substance use and abuse in 10-17 year olds show that youth across the state are at risk of early problem behavior as measured by alcohol and drug arrests, property crime arrests, and vandalism arrests in 10-14 year olds. Other risk factors that are prominent across the state are family history of substance abuse, low school achievement in 6th grade, alcohol arrests in 10-17 year olds and substance use in 10-17 year olds. Each of these indicators of risk is a compilation of five years of data gathering, most recently updated in the fall of 2006. Data source is the Department of Social and Health Services web site, Research Division.

A WA State Superintendent of Public Instruction report recommends engaging parents and families in the late elementary and middle school years to reduce risk of adolescent substance use and other problem behaviors. Studies by many researchers have found a model that includes both parents and youth to be most effective in long-term behavior change and reducing risk.

### **What has been done**

The Strengthening Families Program for Parents and Youth 10-14 (SFP 10-14) is a program focused on supporting parents with children transitioning to adolescence, with a specific intent to prevent the development of substance abuse and other problem behaviors among youth in the teen years. Developed by Iowa State University Extension, SFP 10-14 is recognized by the U.S. Department of Education, the Center for Substance Abuse Prevention and the Office of Juvenile Justice and Delinquency Prevention as a best practice program. Longitudinal research (Spoth, et.al., 2001) consistently documents its effectiveness in both reducing adolescent substance use and improving parenting skills years after SFP participation.

Extension faculty selected SFP in 1999 as a model for use in Washington State and has spearheaded statewide training, dissemination and research of the program since that time. We have trained over 650 facilitators from 20 Washington counties and collected evaluation data from 409 programs. The program reaches a variety of cultural groups, with families reporting the following ethnicities: 51% European American; 26% Latino; 3.8% American Indian; 2.5% African American; and 13.4% not reported. In 2009, the Strengthening Families program reached 850 adults and 831 youth.

### **Results**

The WSU Extension Strengthening Families Program evaluation collected data at three points: a true pretest before program participation, and a retrospective pretest and posttest after program participation. In 2009, 155 programs were evaluated. Of 1,586 parents completing the evaluation instruments, 70 percent demonstrated improvement in parenting behaviors between pre and post tests. Improvement on the parent measure (N=793) was statistically significant as measured by paired t-tests ( $t = 15.69, p < .0001$ ). The specific skills measured include decreased family conflict and increases in family management and communication skills. Parents also reported that daily household routines such as getting children to do chores and homework were smoother after program participation. There was a significant increase in numbers of parents who reported speaking regularly and specifically with their children about their expectations regarding use of substances such as alcohol, tobacco, and drugs. Youth program participants also reported a statistically significant improvement in their family risk and protective factors and in their peer resistance skills.

Reference:

Spoth, R., Redmond, C. & Shin, C. (2001). Randomized trial of brief family interventions for general populations: Adolescent substance use outcomes four years following baseline. *Journal of Consulting and Clinical Psychology*, 69, 627-642.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

## **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**

### **Key Items of Evaluation**



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

**Program # 5**

**1. Name of the Planned Program**

Enhance Natural Resources and Environmental Stewardship

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
112	Watershed Protection and Management	30%			
121	Management of Range Resources	5%			
123	Management and Sustainability of Forest Resources	15%			
124	Urban Forestry	6%			
125	Agroforestry	3%			
131	Alternative Uses of Land	10%			
135	Aquatic and Terrestrial Wildlife	27%			
605	Natural Resource and Environmental Economics	4%			
	<b>Total</b>	100%			

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

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

<b>Year: 2009</b>	<b>Extension</b>		<b>Research</b>	
	<b>1862</b>	<b>1890</b>	<b>1862</b>	<b>1890</b>
Plan	25.0	0.0	0.0	0.0
Actual	24.9	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
573569	0	0	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
573569	0	0	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
4567879	0	0	0

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

**1. Brief description of the Activity**

WSU Extension works with the people of Washington State to address agricultural, natural resource, and environmental issues by providing information, education, technical assistance, and local development programs. Our programs are available to all without discrimination.

WSU Extension will address this goal directly through educational programs, demonstration activities, and facilitation processes. Training programs for faculty, staff, volunteers and appropriate partner organizations as well as for specific clientele groups, the general public and underserved populations will be conducted. Educational programs will address the following issues/needs:

- Developing more profitable income-generating natural resource-based enterprises.
- Sustaining and enhancing water availability, both in quality and quantity.
- Managing for the recovery and sustainability of anadromous fish.
- Improving stewardship of forest and rangeland health, water quality, wildlife habitat, and reducing soil erosion.
- Controlling non-native, invasive species.
- Decreasing rates of land conversion, ecosystem fragmentation, and land ownership fragmentation.
- Effectively engaging interest groups and stakeholders to address forest, rangeland, and environmental issues.
- Enhancing the quality of life through urban and community horticulture/forestry.

Other outreach techniques will include field demonstrations, mass media (such as web pages, video streams, newspapers and newsletters), workshops and meetings. Trained volunteers will support programming efforts.

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

Forest, rangeland, shoreline, and related renewable natural resource owners and managers; decision makers; interest groups; home owners; general public; and youth.

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

**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Plan</b>	15000	30000	3000	0
<b>Actual</b>	195023	575359	12443	19844

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

**Patent Applications Submitted**

Year: 2009  
 Plan: 0  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
<b>Plan</b>	6	0	
<b>Actual</b>	19	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of educational events (resulting in direct and indirect contacts) conducted to increase awareness among citizens and landowners.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	300	984

**Output #2**

**Output Measure**

- Number of contacts with diverse, underserved and limited resource stakeholders within the state resulting in increased knowledge about natural resources practices.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2009	6000	87114

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of acres (public or private) on which forest or rangeland management was improved as a result of Extension programming or due to partnerships between Extension and other agencies and organizations.
2	Estimated dollars saved or earned by forest, range, fish and wildlife-based income generating enterprises resulting from Extension programming and/or partnerships between Extension and other organizations and agencies.
3	Percentage of program participants that report learning new techniques that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.
4	Percentage of program participants that apply at least one new technique that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.

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

Number of acres (public or private) on which forest or rangeland management was improved as a result of Extension programming or due to partnerships between Extension and other agencies and organizations.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2009	30000	567028

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Natural resources are critical to the economy and environment of the Pacific Northwest. In addition, these resources are central to the overall quality of life of residents of the region. Additionally, these resources are important carbon sinks providing mechanisms for sequestration of the atmospheric carbon dioxide that if left unchecked will contribute to global warming. However, the natural resource base of the state is under constant threat from overuse, fire, invasive species, erosion, and a myriad of other challenges. WSU Extension programs are designed to specifically improve management of the lands, waterways and coastal regions of the state. Successful programs result in protection of land, air, and water resources.

**What has been done**

WSU Extension professionals design and deliver programs that lead to specific and measurable changes in management practices on land and water resources of the state. This includes direct remediation of invasive plant species, training landowners how to improve management of forest resources and protect land and dwellings from catastrophic wildfires, and working with landowners and agency personnel directly to restore riparian zones and coastal regions.

**Results**

WSU Extension programs impacted almost 500,000 acres of forested lands improving stewardship and reducing fire hazard to rural communities. An additional 67,500 acres of range land was put under higher levels of management saving owners up to \$6 million in savings. Coastal counties saw some significant changes in invasive species reductions that are having major economic impacts to the shellfish industry.

\* In Southwestern Washington 63 forest land owners created forestry stewardship management plans for over 5295 acres. Additionally, 2 families developed a trust to protect over 1200 acres of natural resource lands for their families and communities future recreational, educational, economical and environmental needs

\* As a result of WSU Extension guidance, the grazing committee on the Wildhorse Wind Farm developed and implemented a grazing plan. As a result, 62,000 acres within one of the largest contiguous pieces of shrub-steppe in the state are under a science-based management plan documenting hydrologic function, soil stability, and biotic integrity.

\* As a result of partnerships between WSU Extension and state and federal agencies, over 16,000 acres infested with Spartina were treated with a new, more effective and safer herbicide. In 2003 there were over 7,000 acres of

dense Spartina spread out over 30,000 acres of intertidal mudflats in Willapa Bay. As of November 2009, Spartina had been almost entirely eliminated from the mudflats and the most of the most heavily infested salt marshes averaged less than 3 small plants per acre. Shorebird populations utilizing the affected mudflats have increased from near zero to more than 500 per acre increasing by 140% to 590% annually.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
605	Natural Resource and Environmental Economics

**Outcome #2**

**1. Outcome Measures**

Estimated dollars saved or earned by forest, range, fish and wildlife-based income generating enterprises resulting from Extension programming and/or partnerships between Extension and other organizations and agencies.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2009	2000000	7391296

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

**Issue (Who cares and Why)**

Natural resources are major economic engines for Washington State. However, these resources must be managed to ensure sustainable production and to support multiple uses including forestry, grazing, recreation, and collection of foods. WSU Extension programs are designed to train natural resource managers to effectively conserve natural resources while concurrently providing jobs and income to the state.

**What has been done**

Numerous natural resource based programs are conducted annually by WSU Extension professionals. This includes programs such as Coached Forest Stewardship, Integrated Weed Control, training for forest product harvesters, Sustainable Landscapes, and the Climate Friendly Farming research and demonstration project. These programs employ various methods to educate landowners and resource managers how to balance economic returns with the need to sustain the resource base.

**Results**

\* As a result of the Forest Stewardship Coached Planning Program, approximately 15,479 acres of forest lands had their parcel taxes reduced by as much as 98 to 99%.

\* The invasive species, Dalmatian toadflax, once threatened over 1 million acres of rangeland and was spreading exponentially. WSU Extension faculty worked with local tribal officials to release a bioagent. The biocontrol has

been very effective and has largely arrested or reversed the spread of the invasive species. The alternative process would have resulted in expenditure of \$5,879,480 to achieve similar control with chemical herbicides.

\* Other Extension programs have facilitated the control of Dalmatian Toadflax through the use of biocontrol agents. The reduction in reliance on chemical controls have saved an estimated \$500,000 to \$700,000 annually.

\* A 2008 regional evaluation of recreational crabber use of escape cord showed that of those who were not previously using the cord, 96-100% of them planned to do so after WSU interaction. Annual Dungeness crab lost due to lost pots and failure to use proper escape cord material was estimated at 178,875 legal male equivalent crabs weighing 178,874 kg with a value of \$861,816 or 5.2% of the value of the recent commercial harvests.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
124	Urban Forestry
125	Agroforestry
605	Natural Resource and Environmental Economics

#### Outcome #3

##### 1. Outcome Measures

Percentage of program participants that report learning new techniques that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	85	87

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

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

Natural resource managers and land owners are critical audiences that must be effectively engaged to facilitate the ultimate landscape wide impacts that WSU Extension strives to achieve. The first step in the process is to ensure that participants acquire new skills and clearly understand how to effectively apply these skills. Learning assessment is therefore incorporated into virtually all natural resource based programming

###### What has been done

A broad array of programs were designed and delivered to targeted audiences across the state Topics include enhancing the health of Puget Sound, developing sustainable landscapes, forest stewardship, youth education, community horticulture, watershed management, and Master Gardener volunteer training.

**Results**

\* In 2009, 94% of a sample (500) of the 1500 clients surveyed said they would change their gardening practices based on what they learned from Master Gardeners. 40% of those stated they would make changes in the area of plant selection and care, 40% in the use of pesticides and fertilizers, 25% in their watering practices, 10% in their treatment of weeds, and 22% stated they now realized the importance of proper disease and pest identification.

\* Of the Master Gardeners trainees in a southwestern Washington County responding to a post-training evaluation 100% indicated they had increased their knowledge of the MG core competencies of environmentally sound gardening techniques, increasing their skills in pest identification and management by an average of 4.5 on a scale of 1 to 10, growing fruits and vegetables by 4.3, irrigation management by 4.5, lawn care by 4.2, proper landscape planting techniques by 4.5, and environmentally sound gardening practices by 5.4.

\* Of those residents attending the Water Management Workshop, 86% indicated an increase in knowledge and 71% indicated an intended change in their irrigation practices.

\* Property Tours drew 111 participants to look at BMPs on small acreage properties; 71% of respondents increased their knowledge one to four levels about pasture management; 83% of respondents increased their knowledge one to four levels about manure management; 82% of respondents increased their knowledge one to four levels about managing runoff; and 76% of respondents increased their knowledge one to four levels about how their management practices impact water quality.

\* In Sustainability programs two Green Cleaning workshops showed that 35 of 42 survey respondents (69 participants) increased their knowledge one to four levels about the benefits of using green cleaning supplies.

\* The Class of 2009 WSU Beach Watchers experienced a 8.5% increase in understanding about Puget Sound issues and processes, based on the results of pre-post tests given upon the start and end of the 100 hour WSU Beach Watcher training.

\* Eighty-four percent of respondents to a Coached Forest Stewardship Planning program survey indicated that they had implemented new or different practices that improved forest health, enhanced wildlife habitat, reduced invasive weeds, and reduced fire risk across 500 acres of forestland and four miles of streams.

\* One lost or abandoned crab pot can kill an estimated 75 crabs per year. WSU Extension program have targeted crabbers who have not previously used escape cords on their pots. As a result 96-100% of participants indicated that they would begin using escape cords on their crab pots.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics

**Outcome #4**

**1. Outcome Measures**

Percentage of program participants that apply at least one new technique that may lead to improvement in terrestrial and aquatic habitats, enhanced forest and rangeland stewardship, more effective public policy, control of invasive species, reduced ecosystem fragmentation, and/or increased economic opportunities for natural resource-based industries.



## 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	40	64

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Appropriate application of land and water management techniques is necessary to realize improvements in land and water resources. Once training occurs, it is generally incumbent upon the land owner or natural resource managers to make changes in their methods to enhance the resource base.

#### What has been done

A broad array of programs were designed and delivered to targeted audiences across the state. Topics include enhancing the health of Puget Sound, developing sustainable landscapes, forest stewardship, youth education, community horticulture, watershed management, and Master Gardener volunteer training.

#### Results

Over 70% of a training course on building rain gardens indicated that they used information from a previous year's class to modify their home or business; 100% of participants have started or completed changes to their landscapes such as stabilizing eroding slopes, replacing a high-maintenance lawn with plants and mulch, adding retaining walls to control erosion, modifying existing beds to increase water infiltration, using native plants or other site appropriate plants, and digging a drainage ditch to divert runoff. Three rain gardens were built as a direct result of this program.

Living on the Land series training survey results showed that over 30% of households tested their soil, 50% of respondents with septic systems inspected their system, and 43% of households tested their wells. Over 83% thought the class was a good use of their Clean Water fee.

The Living on the Land program graduated 23 people owning 111 acres in 2009. Since 2003, participants implemented 419 best management practices on at least 1973 acres affecting at least 979 livestock (excluding poultry) and shared what they learned with over 2,108 other people.

After two Shore Steward Bluff Workshops were completed, 44% of the attendees completed an evaluation and 85% of indicated that would change at least one practice on their property, based on what they had learned. The top intended practices dealt with altering how water ran off their property and encouraging native plants on their property.

A follow up survey of Shore Stewards indicated that all program participants, upon enrolling, implemented from 4 - 10 of the recommended "Guidelines for Shoreline Living". This is a 30% increase in best management practice use from pre-enrollment.

Based on evaluations sent to attendees well after their training and initial service 71% reported they had changed their gardening practices to incorporate information they learned in class; 66% reported growing their own fruits and vegetables; 51% reported gaining a better sense of physical well-being and mental health from gardening.

Yellow Star Thistle is a noxious weed in the state of Washington posing great hazard to grazing livestock in range and pasture land situations. In eastern Washington multiple workshops and a field day produced end results wherein 28 new land operators agreed to make biological weed management releases on the lands using GPS technology after learning the benefits. 5 of them collected their own biocontrols at the NPTC BC Lab in Lapwai, Idaho after training, and released them in Garfield County. The others participated in releasing the insects with the help of the Ag Faculty member reporting and the Weed Board Coordinator.

In a series of workshops and training sessions the Forest Stewardship Coached Planning team was able to see 187 Forest Stewardship Plans developed. 2,882 landowners and managers indicating increased knowledge of forest stewardship practices, and 2,190 landowners and managers indicating they had implemented at least one new practice on their land. 486,115 acres were directly impacted by this WSU program. Program participants estimate execution of practices on 10% of their ownership, with a cost earnings or savings estimate of \$72,917,250.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics

#### 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

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

##### 1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

## **Evaluation Results**

### **Key Items of Evaluation**