

2007 Washington State University Extension Annual Report

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2007 Washington State University Extension Annual Report

I. Report Overview

1. Executive Summary

Washington State University Extension is a 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
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 2007 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:2007	Extension		Research	
	1862	1890	1862	1890
Plan	156.0	0.0	0.0	0.0
Actual	165.2	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

Five mechanisms were used to solicit merit and/or peer review for programs conducted by WSU Extension 2007.

WSU Extension was an active participant in a university wide accreditation review conducted by the Northwest Commission on Colleges and Universities. As part of this process, WSU Extension submitted a college level report to the Commission. This report can be viewed at <http://ext.wsu.edu/documents/SelfStudy.pdf>. WSU Extension will be evaluated as a critical component of the Land Grant University in this process. Our report has been vetted with WSU Administration including the Provost, and it will be submitted to the Commission for further review.

A comprehensive review of WSU Extension programs occurred in late 2007 and is continuing through mid-2008. This was conducted as a system wide review of all academic areas (of which WSU Extension is one). This review required an in depth self study of 21 different extension program areas. In addition, each academic department submitted a self study that included their extension components along with teaching and learning and research and scholarship. All self studies were submitted to the Associate Vice President and Dean, WSU Extension for review and recommendations. Her recommendations along with all supporting data and self studies were then reviewed by a university-wide committee composed of faculty and administrators. Recommendations from the committee have been submitted to the Provost. The Provost will then make decisions on changes, augmentation, reductions and elimination of programs on the basis of merit, centrality, demand, and productivity.

WSU Extension also shared both its Plan of Work and Report of Accomplishments with Oregon State University and University of Idaho extension leadership and solicited feedback and suggestions for improvements.

WSU Extension underwent a civil rights review in 2006 that culminated in 2007.

WSU Extension and the Agricultural Research Center were visited by both CSREES NPL Liaisons (Tom Bewick and Maurice Dorsey) in 2007.

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 non-English language), 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 Vice President and 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. 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 non-profit 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 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 and staff are members of many key organizations at local, statewide and national levels. 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. 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 was 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

- Key stakeholders from across the state were contacted to help develop the 2007 legislative initiative for WSU Extension and the College of Agricultural, Human, and Natural Resource Sciences. This included dozens of meetings with stakeholder groups including commodity commissions, agricultural producers, policy makers, and many others. These groups and individuals helped us craft the 2007 Unified Agricultural Initiative. As a result, new funding structures were created that provided over \$6 million in new state resources for Extension and the College.

- In Spokane County, we engaged with individuals and faith-based organizations in the Slavic community. This resulted in design of culturally appropriate programming and in hiring individuals that are bi-cultural and bi-lingual.

- Two WSU Extension professionals serve on the Governor's Climate Advisory Committee. This group is analyzing climate change, its potential impacts on society, and changes necessary to ensure a positive future for the state.

- The Vice President for Economic Development and Extension frequently confers with industry leaders in the newly-formed Clean Tech Alliance. This organization is creating a vision for a new economy in Washington State built upon clean technologies. Input from this group is helping WSU and WSU Extension develop long-range plans to support this vision.

- In 2007, Elson S. Floyd became the tenth president of WSU. Extension engaged with President Floyd and provided forums for him to meet with the general public and with key statewide and local leaders. These sessions took place throughout the state at county extension offices, research and extension centers, at the Washington State Association of Counties and other venues.

- WSU Extension maintains many key internal relationships within the University. These include a working partnership with the Center for Distance and Professional Education; International Programs; the Edward R. Murrow School of Communications, the College of Agricultural, Human and Natural Resource Sciences; College of Liberal Arts; the College of Engineering; the College of Pharmacy; the College of Veterinary Medicine; the College of Nursing, the College of Sciences, the College of Business, the Office of Research, the Office of Enrollment management and many other components of WSU. These key relationships help us ensure that we utilize the best science-based knowledge and that potential partners from across the University recognize the value and potential of engagement with WSU Extension.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
3912472	0	0	0

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	3914826	0	0	0
Actual Matching	3914826	0	0	0
Actual All Other	34854856	0	0	0
Total Actual Expended	42684508	0	0	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	2354	0	0	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Enhancing Economic Opportunities for Agricultural Producers while Protecting Washington's Resources
2	Building the Capacity of Washington Communities to Create a Desired Future
3	Improving the Health and Wellness Status of Washington Residents
4	Eliminating Barriers to Social, Economic and Educational Success Among Youth and Families
5	Enhancing Stewardship of Natural Resources and the Environment

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Enhancing Economic Opportunities for Agricultural Producers 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	30%			
213	Weeds Affecting Plants	10%			
216	Integrated Pest Management Systems	20%			
307	Animal Management Systems	10%			
601	Economics of Agricultural Production and Farm Management	10%			
Total		100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	50.0	0.0	0.0	0.0
Actual	75.6	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2112734	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2112734	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
10022712	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. Training programs for faculty, staff, volunteers and appropriate partner organizations as well as for specific clientele groups, the general public and underserved populations were conducted. Educational programs addressed the following:

- Sustaining Economically Viable Food Production
- Managing the Risk Associated with Agricultural Production
- Developing Alternative Crops and Markets
- Harvesting Clean Energy from Farm Fields
- Supporting Viable Growth of Organic Agriculture
- Protecting Crops and Animals from Pests and Diseases
- Enhancing Farm Profitability through Value Added Products and Processes
- Protecting and Enhancing the Agricultural Natural Resource Base

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

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

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	50000	100000	25000	0
2007	104622	1143356	16016	57489

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	94	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.

Year	Target	Actual
2007	10	70

Output #2**Output Measure**

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

Year	Target	Actual
2007	10000	22620

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
2007	75	70

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

Agricultural producers need current information to make appropriate management decisions about what crops to plant, how to effectively manage plants and animals, how to effectively market products, and how to mitigate financial and environmental risk. The first step toward positive impacts such is successful transfer of knowledge. WSU Extension programs must provide information that is pertinent and understandable to producers.

What has been done

WSU Extension educators create and deliver programs to agricultural producers and allied industries through workshops, tours, demonstrations, electronic and traditional media, and other mechanisms. These programs are evaluated to ensure that audiences are effectively learning new techniques and technologies and that they plan to apply this newly acquired knowledge.

Results

Overall, approximately 70% of attendees indicated that they had increased their knowledge about practices that can enhance profitability and competitiveness of their operations. The following are examples of survey results from individual programs. Many of the outcomes exceed knowledge acquisition and strongly support application and change in condition.

- Growers have utilized results from the small grains variety testing program to make critical decisions about the varieties that they will plant in the coming year. Information provided by the program have affected these decisions on approximately 70% of acres planted to small grains in Eastern Washington.
- As a result of hard red winter wheat research, demonstration and associated educational venues, acreage of this crop increased by 100% (200,000 acres) in 2007.
- Application of novel wheat varieties with Clearfield technology developed at WSU exceeded 100,000 acres in the first year of commercial availability.
- 74% of alfalfa producers indicate that they consult WSU variety trials before purchasing seed.
- 94% of participants in the 2007 Beef 300 program indicated that they planned to implement at least one acquired technique to improve the economic status of their operations.
- Information provided to potato growers via workshops, conferences, and a hotline has resulted in 70% of producers changing timing of fungicide application to effectively manage white mold.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
112	Watershed Protection and Management
213	Weeds Affecting Plants
205	Plant Management Systems

102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management
216	Integrated Pest Management Systems

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
2007	25	61

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

While risk is inherent to agricultural production and marketing, many steps can be taken to avoid or minimize it. Risk management involves choosing alternatives that can reduce negative financial impacts from weather, differential yields, market changes, governmental policy, global issues, and consumer response to real or perceived issues.

What has been done

WSU Extension educators conducted applied research, workshops, tours, and other educational venues along with delivery of print and electronic materials to educate agricultural producers about risk management techniques.

Results

Risk management takes on numerous forms and impacts all phases of agriculture including fisheries. The following are examples of knowledge gained and intent to apply knowledge related with risk mitigation.

- Over 50% of landscape professionals attending sudden oak death workshops indicate that they learned techniques that have saved them from costly eradication that would result from infestations on their property.
- Beef producers attending the Beef 300 series indicated that they had increased their knowledge related to reduction of the risk of carcass defects by 1.25 units on a 5-point scale overall.
- WSU Extension marine educators have produced educational materials, conducted workshops, and engaged policy makers to clearly delineate tow lanes along the Pacific Coast. New advisory tow lanes have been established along with charts to help separate fishers and barge traffic. This has led to reduce risk to fishers by minimizing the contact between tow barges and crabbing and fishing grounds.
- Every commercial fisher attending Commercial Fishing Vessel Safety Courses made significant improvements in safety equipment on board their vessels.
- 57% of persons participating in statewide EFNEP programs indicated that they improved one or more food safety practices.
- In a cooperative venture with Washington and Oregon Sea Grant programs, a new weather buoy was launched 75 miles west of Seaside Oregon. This is providing key information about current weather conditions to mariners and providing critical data to the National Weather Service.
- Over 80% of program participants indicated that they changed management strategies to avoid spreading *P. ramorum* (a fungus that causes Sudden Oak Death and Ramorum Blight).
- 50% of participants at Cultivating Success - Agricultural Entrepreneurship and Business Planning Classes indicated that they significantly increased their knowledge about business planning, marketing, and other financial management practices.
- One third of participants of Financial Analysis and Planning workshops modified their financial record keeping systems to facilitate future economic analyses and enterprise evaluations.
- 100% of youth exhibiting market animals (N=734) completed the Market Animal Health Records program resulting in reduction in defects and risk to human health.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems
112	Watershed Protection and Management
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
2007	50	45

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

Alternative production techniques can lead to expanded markets, decreased environmental impacts and an improved image for agriculture when properly applied. However, many of these techniques are unproven. Therefore careful assessment is necessary in advance of application. Additionally, producers need to be aware of both the risks and the benefits associated with conversion to these production processes.

What has been done

WSU Extension and the Center for Sustaining Agriculture and Natural Resources conducted applied research, workshops, tours, and seminars related to alternative production techniques. Additionally, numerous electronic and print materials have been developed and distributed.

Results

Producers are successfully incorporating alternative and sustainable production practices. The following outlines several successes.

- 100 persons increased their knowledge of issues related to intensive grazing and riparian management as well as application of best management practices for riparian buffer areas.
- 20 producers implemented managed intensive grazing programs.
- WSU Extension educators have worked jointly with individuals in Oregon to develop statistics on organic tree fruit production. These data are currently unavailable through USDA or any other sources. Data are posted on the Center for Sustaining Agriculture and Natural Resources web site: <http://csanr.wsu.edu/Organic/OrganicStats.htm>. This information has been cited by a number of publications including the Wall Street Journal.
- As a result of WSU's Tree Fruit Pest Management program, several environmentally-friendly pest management products have been registered for use for control of the cherry fruit fly. These have been employed leading to a reduction of 90,000 pounds of organophosphates applied annually.

4. Associated Knowledge Areas

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

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

Year	Quantitative Target	Actual
2007	85	85

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

Interest in bio-intensive and organic agriculture is growing rapidly. Research and general knowledge are lacking in many areas. Producers need current information about general management of land, plant and animal resources.

What has been done

Twelve privately owned properties have become biologically intensive and organic learning sites to support applied research and demonstration of non-traditional production techniques. Additionally, WSU Extension educators have conducted seminars, workshops, tours and demonstration projects related to organic and other biologically intensive production systems.

Results

This is a new program and outcomes are in the initial stages. Some early indicators of progress are listed below.

- In 2007, 120 farmers, students and agricultural professionals were trained in soil monitoring and non-traditional nutrient management techniques.
- A nationally-prominent database was created to track organic tree fruit production in the Pacific Northwest.

4. Associated Knowledge Areas

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

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

Year	Quantitative Target	Actual
2007	85	85

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

Agricultural production near waterways may negatively impact water quality as a result of leaching of animal waste and agricultural chemicals from the land into waterways. Additionally, with the average slope of farmland in the Palouse region being about 13%, and with some tilled acreage exceeding 50%, soil stability is a major issue across this productive farming region. Conservation tillage and other soil-stabilizing practices are necessary to reduce soil loss and stream sedimentation. Finally, agricultural pesticides used to control insects and nematodes are often extremely toxic and may be transported into waterways.

Effective mechanisms are evolving to allow agricultural producers to minimize impacts on waterways by stabilizing soils, more effectively managing animal waste and by transitioning to less toxic insect and nematode control mechanisms. These should be rapidly applied to reduce the environmental impacts resulting from agricultural production while reducing costs of production and/or creating new income streams.

What has been done

Applied research, demonstration, and educational programming are being conducted to develop new products and processes and to help livestock and crop producers recognize the importance of management techniques that minimize negative environmental impacts.

Results

- A WSU Extension faculty member has developed a product from digested animal waste that has similar properties to peat moss. This product may help dairy farmers create an additional income stream while reducing the need to harvest peat moss. Because significant quantities of carbon are sequestered in peat moss, this alternative product also holds promise for reducing greenhouse gas production.
- Another WSU Extension faculty member is perfecting technologies for extracting phosphorous from dairy manure creating a dry, commercially saleable fertilizer. This will permit transportation of phosphorus away from farms reducing impact on soils and adjacent waterways.
- The Center for Sustaining Agriculture and Natural Resources in cooperation with the Paul G. Allen Foundation has supported creation of a pilot anaerobic digester that is yielding on-farm electricity and biogas which has been used experimentally as a vehicle fuel.
- The number of acres in direct seeding is increasing rapidly as a result of applied research and extension educational programs. This positively impacts soil stability and reduces energy inputs used in small grains production.
- 200 persons have indicated grazing animal management changes to improve riparian quality.
- Siltation and nitrate, phosphorus, coliform, and pesticide levels have decreased in the Yakima River.
- GF-120 bait was registered as a result of applied research conducted by WSU Extension faculty. This provides a viable non-organophosphate-based control mechanism for the cherry fly.
- Biologically-derived nematicides were evaluated by a WSU Extension faculty member. Based on her results, 8 growers have begun to utilize these biocontrols.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
213	Weeds Affecting Plants
601	Economics of Agricultural Production and Farm Management
205	Plant Management Systems
216	Integrated Pest Management Systems
112	Watershed Protection and Management
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
2007	20	62

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Immigrants often bring agrarian legacies from their native lands. In Washington State, this is especially the case with recent immigrants from Latin America, SE Asia and Eastern Europe. Production of high value crops offers great opportunities for these farmers by maximizing profit potential on a relatively small land mass. However, production and marketing techniques must be learned in these new surroundings in order for immigrants to effectively compete and to create a livelihood for their families.

What has been done

Extension educators have been hired with in depth knowledge of the cultures and languages among Latino, Hmong, and Russian communities throughout the state. Educational programming such as Cultivating Success, pesticide safety, and other programs have been re-designed to address the needs of diverse clientele including crop production methods, pest and soil management, marketing and business management, and enterprise development.

Results

- 75% of those participating in Cultivating Success programs indicated that they have increased their awareness of issues and concerns among small farmers.
- 86% of those participating in Cultivating Success programs indicate increased awareness of agency, university, and community resources.
- 64% indicate that their knowledge of marketing strategies has been significantly increased.
- As a result of outreach to the Hmong community, farmers have become much more prepared for natural disasters such as flooding. Therefore, impacts of December 2007 flooding was minimal as compared to previous events.
- Latino farmers represent the fastest growing sector within agriculture in Washington State. WSU Extension programs are teaching farm management and marketing skills in Spanish. Educational materials have also been converted to Spanish language.
- WSU educators engaged Slavic seniors in Spokane along with youth from their communities to produce flowers, herbs, vegetables, and strawberries. This culminated in a Harvest Festival in September 2007 creating a greater sense of community across three generations.

4. Associated Knowledge Areas

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

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
2007	50	200

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

Organic production systems are rapidly growing in the Pacific Northwest. The research base supporting these enterprises is often lacking. Producers need best available information to effectively manage risk and to exploit profit opportunities associated with organic production techniques.

What has been done

WSU Extension has developed and delivered educational programs to support these production systems with science-based information, and biologically intensive and organic (bio-ag) program partnerships have been formed with 12 farms statewide to demonstrate and monitor effectiveness of varying production methodologies.

Results

Extension programs support over 200 organic tree fruit producers

In 2007, more than 120 farmers, students, and agricultural professionals learned about simple soil quality measurements, soil management and nutrient management. We have applied for funding for a survey to learn about practice changes made by farmers who have taken the Cultivating Success classes in past years, so that we can assess the long-term impacts of the classes.

4. Associated Knowledge Areas

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

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
2007	1000000	11600000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Research has shown direct relationships between certain weather factors and the outbreak/occurrence of many plant diseases and pest infestations. The ability to monitor critical climatological factors, coupled with research based knowledge of weather related disease and insect surges, allows predictive modeling to be implemented to alert growers about the optimum times for applying plant protection measures. Additionally, diseases such as late blight and potato white mold have required substantial applications of fungicides. Expenditures for such crop protection measures impact the profitability of potato growers in the Central Columbia Basin of Washington State. Effective integrated pest management relies on a full complement of plant protection options including effective pesticides. The search for new and more effective products that are safer and more environmentally compatible than older products is one of the objectives of applied research conducted by WSU scientists and extension faculty, supported in part by grants from the Washington State Commission for Pesticide Registration. Cranberry production has been an area of concentrated effort, given the aquatic environment in which this crop is grown. Onions are another crop where plant protection is required for weed control and new, safer products are being sought.

What has been done

Washington State University has created Washington Ag Weather Net comprised of a strategically located system of climatological monitoring stations across the primary crop production areas of the state. This system provides growers with up-to-date weather data near their growing areas. This provides the basis for recommended pest and disease measures to be implemented for maximum effectiveness.

Through collaborative programs involving research and extension, potato growers have become more knowledgeable concerning the biological and environment conditions favoring late blight. Number of calls on the potato late blight information line was 682 in 2007.

New pesticide registrations (Section 18's and Section 3's) were obtained for use in cranberry production. These new reduced risk pesticides (Callisto in particular) were used on a majority of all the cranberry acres in the PNW and resulted in a significant increase in yield, reduced crop loss and reduced overall herbicide usage.

Using the preemergence application of ethofumesate has shown to give excellent control of weeds while allowing a safer, more effective product to be used in integrated pest management.

Results

- Potato growers (70%) changed timing of initial fungicide application to full bloom of primary inflorescences and subsequently successfully managed white mold in potato. (Labels on fungicides have also changed to account for the new research.)
- A 10.5% increase in tuber yields was demonstrated in a replicated field trial at Othello with the new application timing. In the case of wine grapes, Ag Weather Net model-based disease management has helped to reduce fungicide usage by 73%.
- In tree fruits such as cherries, several modern and more environmentally-friendly products have been registered to control cherry fruit fly, reducing the dependence on the use of organophosphate or carbamate insecticides.
- GF-120 bait was registered as a result of this work, and judging by the acres treated with this bait, it has become the number one method to control cherry fruit fly.
- GF-120 bait- Cherry growers in Washington have saved over \$ 4.50 million in labor, materials and application cost over the past four seasons. The use of organophosphate and carbamate was reduced by about 90,000 pounds in Washington in 2007. Employee exposure to OP and carbamate while applying control sprays was reduced by at least 10,000 hours.
- Data from this project led to the registration of GF-120 bait in Canada.
- Growers that followed management recommendations from the information line (75% of the potato growers in the Columbia Basin) successfully managed late blight at a cost saving due to more efficient use of fungicides (6 fewer applications in 2007), less late blight on foliage in the field and less tube blight in storage than those that did not follow disease management recommendation.
- Surveys of potato fields and growers indicate that the mean number of fungicide applications now used for effective management is 1.3 and the man cost of an application has decreased because of a shift of products to \$24.37/ acre/ application. This is a mean reduction of 1.2 fungicide applications and a savings of \$63.32/ acre (change from \$100/ acre to \$36.68) in the white mold areas which is at least 85% of the acreage in the Columbia Basin. Multiplied over 85% of 142,000 acres in Washington's Columbia Basin the annual savings is \$7,642,700 plus a 10.5% increase in yield.
- Overall savings to in the PNW cranberry industry was >\$1million/yr and a reduction of total pesticide usage by >300,000 pounds/yr.
- Use of ethofumesate will save \$95 to \$100/Acre over the standard herbicide that was previously being used. Additionally, rate of ethofumesate is 12 to 16 ounces/acre versus 6 to 8 pounds/acre of the herbicide it will replace. Assuming onion growers 20,000 acres of the onions produced in Washington use ethofumesate on the 20,000 planted to onions, these growers will save between \$1.9 and 2 million dollars per year and reduce the amount of herbicide applied in Washington State by approximately 120,000 pounds.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems
112	Watershed Protection and Management
213	Weeds Affecting Plants
205	Plant 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)
- Other (Leveraging research data to assess economic and environmental impacts.)

Evaluation Results

The WSU Extension Agriculture Program is very diverse. Therefore, a number of evaluation techniques are utilized. Many of the results leverage the collaboration between extension programs and applied research conducted at research and extension centers and elsewhere. An overview of evaluation results follows.

- As a result of research and demonstration programs and stimulated by substantially higher value for HRW over SWH winter wheat, hard red winter (HRW) wheat acreage in Washington State for 2007 production is expected to exceed 400,000 acres. This is a 100% increase from 2007 (200,000 acres) and represents over \$10 million in increased value to producers shifting from Soft White Winter to HRW.

- Based on seed sales of WSU-developed varieties, grower adoption of novel trait winter wheat varieties with the Clearfield technology exceeded over 100,000 winter wheat acres in the first year of commercial availability and represented over 5% of all winter wheat acres. The ability for producers to utilize this variety with the Clearfield system has an estimated increased value in excess of \$3 million in 2007.

- Based on post program surveys, forty-five percent of growers changed their practices and adopted recommendations for soil testing and applying micronutrients to increase green pea yields. Growers have independently verified yield increases of 300 to 500 lb/acre on green pea production fields when following these practices. On acreages where testing and appropriate fertilization are known to have been adopted, this resulted in an economic impact of \$360,000 in 2007.

- Participants in the Beef 300 program reported that their knowledge and understanding of "Beef Production from Farm to Table" increased by 1.25 units on a 5 point scale and 94% of participants identified at least one practice change they planned to implement that would positively impact the economic status of their operation.

- Based on post program surveys, two hundred people indicated that they changed management practices to include best management practices of riparian areas, and twenty producers have changed heifer development practices to include managed intensive grazing instead of total confinement.

- Producer surveys indicated that application of Ag Weather Net model-based disease management has helped them reduce fungicide usage by 73%.

- As a result of applied research and extension programs, modern and more environmentally-friendly products have been registered to control cherry fruit fly, reducing the dependence on the use of organophosphate or carbamate insecticides. GF-120 bait was registered as a result of this work, and has become the dominant method for control of cherry fruit fly.

- Surveys indicate that cherry growers in Washington have saved over \$ 4.50 million in labor, materials and application cost over the past four seasons through the use of GF-120 bait in contrast to other pesticide strategies. Consequently, the use of organophosphate and carbamate was reduced by about 90,000 pounds in Washington in 2007. Employee exposure to OP and carbamate while applying control sprays was reduced by at least 10,000 hours.

- Data from WSU research and extension projects led to the registration of GF-120 bait in Canada.

- 75% of the potato growers in the Columbia Basin applied information from the information hotline to successfully manage late blight. This resulted in a cost saving due to more efficient use of fungicides (6 fewer applications in 2007), less late blight on foliage in the field and less tube blight in storage than those that did not follow disease management recommendation.

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Surveys of potato fields and growers indicate that the mean number of fungicide applications now used for effective management is 1.3 and the mean cost of an application has decreased because of a shift of products to \$24.37/ acre/ application. This is a mean reduction of 1.2 fungicide applications and a savings of \$63.32/ acre (change from \$100/ acre to \$36.68) in the white mold areas which is at least 85% of the acreage in the Columbia Basin. Multiplied over 85% of 142,000

Key Items of Evaluation

•As a result of research and demonstration programs and stimulated by substantially higher value for HRW over SWH winter wheat, hard red winter (HRW) wheat acreage in Washington State for 2007 production is expected to exceed 400,000 acres. This is a 100% increase from 2007 (200,000 acres) and represents over \$10 million in increased value to producers shifting from Soft White Winter to HRW.

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Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Building the Capacity of Washington Communities to Create a Desired Future

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%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	30.0	0.0	0.0	0.0
Actual	27.0	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
244929	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
244929	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
9464717	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 created 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, the Policy Consensus Center, and the Partnership for Rural Improvement.
- 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

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	20000	5000	100	0
2007	55000	13750	550	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	21	0	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
2007	5	22

Output #2

Output Measure

- Number of contacts with minority stakeholders within the state.

Year	Target	Actual
2007	3000	3850

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
2007	40	139

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

Strong leadership remains key to organizational, community and local government success. With retirement of the bulk of the 'baby boomers' looming on the horizon, training the next generation of local leaders is more important than ever. Leaders retiring or getting close to retirement in non-profits and governmental entities is increasingly evident. At the same time, the turnover of local government officials in Washington remains very high. Approximately one-third of all Washington county commissioners are replaced each election.

What has been done

WSU Extension has a long history of local leadership training, and in 2007, leadership training was conducted through a number of Extension entities. These included: the Division of Governmental Studies and Services that supports the Natural Resources Leadership Academy aimed at state agency resource managers; the Horizon Project, aimed at poverty reduction in small communities that uses the PEW Foundation LeadershipPlenty approach; the Certified Public Officials program that provides training for county elected and appointed offices; a new south Puget Sound Intertribal Leadership Program and 3 county based leadership training efforts.

Results

All of the programs listed above have a rigorous and comprehensive curriculum. The aim is to provide an intensive experience for the existing and next generation decision-makers rather than trying to reach large numbers. At the same time, Extension programs positively impacted almost half of the counties in the state, six tribes, 30 communities, multiple non-profits and community organizations. We monitor the graduates of this program to ascertain the number of graduates that hold leadership positions in the state. In 2007, 139 graduates occupied leadership roles in state, county or local government; state agencies; or within non-profit or volunteer organizations.

4. Associated Knowledge Areas

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

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
2007	90	90

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Effective leadership is key to the success of public and private organizations where leaders are responsible for managing change, creating and communicating vision, and ensuring results. Often those assigned or seeking leadership roles have not had the opportunity to participate in training or other forms of skill development. This is especially true within small organizations, agencies, and communities.

What has been done

WSU Extension has a long history of local leadership training, and in 2007, leadership training was conducted through a number of Extension entities. These included: the Division of Governmental Studies and Services that supports the Natural Resources Leadership Academy aimed at state agency resource managers; the Horizon Project, aimed at poverty reduction in small communities that uses the PEW Foundation LeadershipPlenty approach; the Certified Public Officials program that provides training for county elected and appointed offices; a new south Puget Sound Intertribal Leadership Program and 3 county based leadership training efforts.

Results

To judge whether the goal of leadership training is met, Extension staff include participant self-reporting in all of their programs. This often takes the form of session and program evaluation to gauge training quality and knowledge gain. In addition the leadership programs funded through private foundations include formative and/or summative evaluations of program effectiveness. In 2007, the Horizon Project's and its LeadershipPlenty activities were evaluated by a third party set of consultants funded by the Northwest Area Foundation; the Intertribal Leadership Academy (a south Puget Sound tribal program) was internally evaluated with support from the Bill & Melinda Gates Foundation. In 2007, 90% of participants indicated that they had gained knowledge about leadership, organizational management, or community betterment. In addition, 139 individuals graduating from these programs occupy key leadership roles within the state.

4. Associated Knowledge Areas

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

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
2007	80	98

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Public policy issues in the Northwest are more complex and numerous than ever. Moreover, conflicts among stakeholders on how to 'best' resolve these problems are becoming increasingly intense and polarized. These 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 the Division of Governmental Studies and Services (DGSS) located in the WSU College of Liberal Arts and through the William D. Ruckelshaus Center, a joint venture of WSU Extension and the University of Washington. Additionally, a number of county-based Extension activities are undertaken each year.

Results

WSU Extension faculty 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. As a direct result, virtually everyone involved in these programs (98%) indicated that they have changed methods of operation to include more collaborative approaches to policy development and/or included research-based recommendations into policy.

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

Year	Quantitative Target	Actual
2007	60	87

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

Washington is a very culturally diverse state. We are home to 30 plus Native American tribes, with Washington also being Asia's gateway to the USA. The first wave of immigrants were the Chinese who came to build our railroads, followed by the Japanese who developed our truck farming industry and later followed by ethnic groups from southeast Asia after the Viet Nam conflict. Many of our communities on the eastside are populated by the descendents of Russian speaking areas. Establishment of orchard farming brought Mexican farm workers and the fall of the Communist Eastern Block brought an influx of Ukrainians. All of have settled in Washington to make new life for themselves and their families.

What has been done

Latinos represent the fastest growing component of the population of Washington state. WSU has undertaken a number of initiatives to develop culturally competent programs to serve this population and other ethnic groups. These consist of: five Full Immersion/Spanish Institutes across the state; an Intertribal Leadership Academy in the south Puget Sound; the hiring of a Hispanic Community Development Specialist; the tailoring of the Horizon Project efforts in central Washington to work with Latino communities.

Results

- 244 participants completed the Full Immersion Spanish Institute programs in 2007 including school teachers, law enforcement personnel, social service employees, health care providers and WSU Extension faculty members.
- The Intertribal Leadership Academy graduated a cohort of 16 tribal members
- The Horizons Project undertook poverty reduction work in 4 Latino and 2 tribal communities in 2007. These programs have resulted in development of medium and long-term plans for poverty reduction in these communities. Overall, 61% of respondents indicate that they have increased leadership skills; 50% indicate that they plan to recruit qualified individuals into leadership roles in their communities; and 50% indicate that they plan to become more involved in leadership activities within their communities.

4. Associated Knowledge Areas

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

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

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

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Improving the Health and Wellness Status of Washington Residents

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%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	0.0	0.0
Actual	11.6	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
188793	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
188793	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
6254020	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

WSU Extension developed, evaluated and delivered educational programs and curricula that increase health literacy and facilitate the 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: nutrition education including dietary quality, healthy lifestyle promotion, and food security issues; food safety including safe food handling and preservation, and hand sanitation/hygiene; and 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 City: Clean Hands, Healthy People Program. Volunteers are engaged in food safety program delivery in some areas.

Disease management programs were delivered to individuals through workshops and series lessons, and also in partnership with health care providers and employers. Indirect methods included 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

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	50000	100000	25000	0
2007	281671	230998	154484	130208

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	5	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.

Year	Target	Actual
2007	45	42

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
2007	40	68

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

Given limited success of school-based programs in reducing the epidemic of childhood obesity, researchers have argued that programs that involve the family are likely to have the greatest success (Floodmark, Marcus & Britton, 2006). To date, relatively few family interventions have been developed and evaluated for school-age children.

What has been done

The FSNEP program in Washington State (Food \$ense) utilizes parent newsletters as an outreach tool to reinforce student learning in elementary and middle-school classrooms. In 2007, 27,196 parents received newsletters that offered practical suggestions for improving diet quality and physical activity at home. Evaluations were designed to assess the degree to which parents reported changes in behaviors related to childhood obesity reduction. Of the 16,204 surveys distributed, 3,928 were returned (24 percent return rate).

Results

Parents reported the following diet and physical activity behaviors:

- 82 percent reported doing physical activity as a family in the current week.
- 80 percent reported that their families ate more fruits and vegetables now than before participating in the program.
- 78 percent reported greater awareness of the MyPyramid serving sizes.
- 76 percent reported buying healthier snacks for children since participating in Food \$ense.
- 73 percent reported eating more meals together as a family now versus before program participation.
- 70 percent reported changes in food preparation to reduce fat, sugar or salt.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
704	Nutrition and Hunger in the Population
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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
2007	25	71

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

An emerging threat to health security is the growing prevalence of MRSA (methicillin resistant *Staphylococcus aureus*) infections. In recent years, MRSA strains have evolved and are resistant to a growing number of antibiotics. Although the infections begin on the skin, MRSA can spread to internal organs and become life-threatening. Patients in health care settings are at higher risk of contracting MRSA infections because of skin breaks (from surgery, burns, IV lines) and/or depressed immune systems. Health care workers as a group are repeatedly exposed to MRSA-positive patients and risk a high rate of infection if they do not exercise precautions. Hand-washing is a key safeguard to protection from MRSA infections.

What has been done

Hand-washing education was offered in a Washington State health care facility as a pilot project to address MRSA infections. The Germ City simulation was utilized as the educational mechanism for training clinic-based registered nurses. In the simulation, nurses received basic instructions on hand-washing, utilized a special gel to practice, and examined the results under black light conditions. Education on hand-washing frequency and other safeguards accompanied the experience. Two on-site sessions were conducted for the health care staff.

Results

In a six month follow-up, 84 percent of respondents (n=34 registered nurses) maintained improvement in hand-washing practices as measured by a repeated Germ City simulation. In addition, 91 percent reported that they had increased their frequency of hand-washing and 85 percent reported washing their hands for longer periods of time since participating in the Germ City experience.

4. Associated Knowledge Areas

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

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

In a six month follow-up,

- 84 percent of respondents (n=34 registered nurses) maintained improvement in hand-washing practices as measured by a repeated Germ City simulation.
- 91 percent reported that they had increased their frequency of hand-washing
- 85 percent reported washing their hands for longer periods of time since participating in the Germ City experience.

Parents reported the following diet and physical activity behaviors:

- 82 percent reported doing physical activity as a family in the current week.
- 80 percent reported that their families ate more fruits and vegetables now than before participating in the program.
- 78 percent reported greater awareness of the MyPyramid serving sizes. •76 percent reported buying healthier snacks for children since participating in Food \$ense. •73 percent reported eating more meals together as a family now versus before program participation. •70 percent reported changes in food preparation to reduce fat, sugar or salt.

Key Items of Evaluation

Parents reported the following diet and physical activity behaviors:

- 82 percent reported doing physical activity as a family in the current week. •80 percent reported that their families ate more fruits and vegetables now than before participating in the program. •76 percent reported buying healthier snacks for children since participating in Food \$ense. •73 percent reported eating more meals together as a family now versus before program participation. •70 percent reported changes in food preparation to reduce fat, sugar or salt.

In a six month follow-up,

- 84 percent of respondents (n=34 registered nurses) maintained improvement in hand-washing practices as measured by a repeated Germ City simulation.

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Eliminating Barriers to Social, Economic and Educational Success Among Youth and Families

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%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	26.0	0.0	0.0	0.0
Actual	30.0	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
619872	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
619872	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
5692468	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

WSU Extension addressed positive youth development issues by providing information, experiential education, activities, technical assistance and local capacity enhancement. Our programs are available to all without discrimination. In fact, we proactively address the special needs of unique youth audiences and the adults who support their efforts.

WSU Extension addressed this goal 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 to reach underserved and emerging populations.

Educational programs addressed 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

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	9000	15000	70000	0
2007	13596	172185	108989	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	21	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.

Year	Target	Actual
2007	500	610

Output #2

Output Measure

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

Year	Target	Actual
2007	1	12

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	5

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

Academic success for students is essential for their transition to successful adulthood. Parents, community leaders and funders are expressing concern about where the next generation of skilled workers will be found.

What has been done

Science, Engineering, and Technology programs are designed to enhance understanding and interest in these key areas. Other 4-H youth development programs focus on skills related to public speaking, critical thinking and life skill attainment. All are designed to improve the lifelong success of these youth.

To validate the impact of these efforts, incoming freshman GPA's were tracked at WSU and compared to the incoming WSU freshman population who self-identified as 4-H members.

Results

- In 2007 the incoming freshman GPA at WSU was 3.42, the incoming freshman GPA of self-identified 4-H members was 3.59 indicating a .17 GPA increase. This statistic would indicate that as a pool 4-H members are stronger students.
- Twenty-five WSUE 4-H Youth Development members were honored with WSU Regents' Scholarships for their academic success and outstanding citizenship. Of those, six received the Distinguished Regents Award that includes a scholarship worth \$60,000.
- Each year WSU recognizes high school students who have been nominated by their schools during their junior year in high school based on a grade point average of 3.80 or higher and at least 1200 on the SAT or 26 on the ACT or 180 on the PSAT. The youth are also judged on leadership, community and extracurricular involvement. 4-H youth continue to excel academically and are superior in their leadership and citizenship skills.

4. Associated Knowledge Areas

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

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
2007	10	0

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

Academic success for students is essential for their transition to successful adulthood. Parents, community leaders and funders are expressing concern about where the next generation of skilled workers will be found.

What has been done

Washington State is one of the 16 states participating in the Tufts Study of Positive Youth Development. This is providing preliminary information about student attitudes about education.

Results

In preliminary data of 8th graders 4-H youth have a more positive attitude about school, more positive attitude toward their teachers and higher personal academic expectations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Year	Quantitative Target	Actual
2007	75	82

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

Youth are tomorrow's leaders but they are clearly capable of leadership today. A young person's engagement in life skill building pays dividends throughout their life span. 4-H YD creates and promotes programs and activities that help young people acquire critical life skills and assist youth in developing a greater sense of connectedness to their communities. Researchers, youth workers and political decision makers recognize that it is both short-sighted and expensive to focus our attention entirely on acute problems of youth while ignoring more effective and economically viable preventative measures. When increased emphasis is placed on building the resilience of young people to overcome adversity and more complete, holistic youth development principles are applied young people are better able to make a successful transition to adulthood and reach their fullest potential.

What has been done

A myriad for youth development activities, structures and programs were conducted in 2007 to enhance the life skill development of young people across Washington. Such outreach efforts including after school and out of school time programming for low income and socially disadvantaged youth. Other programs included forestry, watershed, animal science and fisheries education. Educational programs were also conducted in citizenship, healthy living, computer/robotics technology, textile science and basic science. The over-arching educational and social objectives are based upon the principles of positive youth development. One particular effort was made in the cluster of lifeskills known as citizenship through our 4-H Know Your Government Conference.

Results

The Washington State University Extension 4-H Youth Development Program has a formal Life Skills Evaluation System that we use to objectively measure pre and post experience life skills of the youth. The amalgamation of statewide activities and events indicates an 82% increase in overall life skill development.

The 4-H Know Your Government Conference reached over 300 youth and adults across Washington with a 2007 theme of Politics and the Media, the youth who participated in pre/post testing expressed increased capacities to :

- use time wisely; work effectively in groups;
- express clearly and listen effectively;
- self management and ability to apply personal values to choices.

The 4-H Network News program engaged youth as young as 8 years old in developing over 100 video blogs with interviews that have included Washington's Governor a Federal Congressman and several state representatives. The purpose of 4-H network News is to focus young people that via technology even youth in rural isolated parts of the state can have an effective voice in the wider world.

148 students in Northeast rural Washington gained specific forest industry skills on technical tree health and forest sanitation

- As a result of the 4-H Forestry Education Program 17% of the participants gained successful employment
- 16 of the high school seniors have entered a 2 or 4 year college with 7 of those choosing natural resource majors.
- Three of the program graduates are recipients of college scholarships.
- In 2007 the Governor of the State of Washington identified the 4-H Forestry Education Program as one of the top 5 environmental science education programs in the state.

4. Associated Knowledge Areas

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

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
2007	60	66

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Teens in Washington State are using and abusing alcohol and other drugs at alarming rates. Despite community-based education efforts and national social marketing campaigns, teen substance use trends show a decline in use but not elimination. Twenty-six percent of high school seniors who completed the Washington State Healthy Youth Survey in 2006 reported that they had drunk heavily within the last two weeks, and 24% had driven a car after drinking or driven with someone who had been drinking. Annual dollar costs of drug and alcohol abuse in Washington were estimated at more than \$2.5 billion in 1996. Economic and behavioral studies of substance abuse costs show that prevention efforts pay off in health and economic terms.

What has been done

The Strengthening Families Program (SFP) for Parents and Youth 10-14 Years is a nationally recognized 'best practice' curriculum with a strong longitudinal research base. Youth whose families attend SFP are significantly less likely to use alcohol, tobacco, marijuana, and methamphetamine years after the program.

Washington State University Extension faculty selected SFP in 1999 as a model for use in Washington and has spearheaded the statewide training, dissemination, and research of the program since that time. We have trained over 650 facilitators from 29 Washington counties and collected evaluation data from 128 programs serving 2660 parents and youth.

Results

Reduction in Substance Use.

- The number of youth who used substances decreased significantly from pretest to posttest. Among youth reporting substance abuse in the pretest, fully 1/3 indicated no substance abuse in the posttest (n reporting on use = 114; Chi Squared = 30.8, $P < .001$). This process uses a standard dichotomous index of substance use that assesses past 30-day use of 7 substances (alcohol, tobacco, marijuana, inhalants, and other illegal drugs). Index items are also used in the Washington Healthy Youth Survey and have been shown to be valid and reliable (Smith, McCarthy & Goldberg, 1995).

Increased Protective Factors.

- Family characteristics that promote healthy development of children and youth are termed 'protective factors.' Short-term increases in parent report of these protective factors were related to lower levels of adolescent substance use 4 years after the program in the randomized clinical trial of SFP (Spath, Redmond, & Shin, 1998). Latino, Native American, and White rents/caregivers all reported statistically significant improvement from pretest to posttest in the four family protective factors targeted by the SFP intervention (n of parents reporting both pretest and posttest data = 509; $p < .001$ on all scales).

4. Associated Knowledge Areas

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

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

At this time, we are unable to document differences in 5-year graduation rates of former 4-H youth. The tracking mechanism is in place to do this within the WSU system, and we should be able to assess data in future years.

Additionally, no survey data are available indicating plans of 4-H youth graduating from high school that plan to attend institutions of higher education. These processes are being assessed currently.

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

148 students in Northeast rural Washington gained specific forest industry skills on technical tree health and forest sanitation

- As a result of the 4-H Forestry Education Program 17% of the participants gained successful employment
- 16 of the high school seniors have entered a 2 or 4 year college with 7 of those choosing natural resource majors.

The 4-H Know Your Government Conference reached over 300 youth and adults across Washington with a 2007 theme of Politics and the Media, the youth who participated in pre/post testing expressed increased capacities to :

- use time wisely;
- work effectively in groups;
- express clearly and listen effectively;
- practice self management and ability to apply personal values to choices.

Analysis of enrollment data at WSU indicates that average grade point averages among former 4Hers exceeds their counterparts at the university by 5%.

In the WSU Strengthening Families Program, the number of youth participants who used substances decreased significantly from pretest to posttest. Among youth reporting substance abuse in the pretest, fully 1/3 indicated no substance abuse in the posttest (n reporting on use = 114; Chi2 = 30.8, P < .001).

Latino, Native American, and White rents/caregivers all reported statistically significant improvement from pretest to posttest in the four family protective factors targeted by the SFP intervention(n of parents reporting both pretest and posttest data = 509; P < .001 on all scales).

Key Items of Evaluation

•Number of youth who used substances decreased significantly from pretest to posttest. Among youth reporting substance abuse in the pretest, fully 1/3 indicated no substance abuse in the posttest (n reporting on use = 114; Chi2 = 30.8, P < .001). •Latino, Native American, and White rents/caregivers all reported statistically significant improvement from pretest to posttest in the four family protective factors targeted by the SFP intervention(n of parents reporting both pretest and posttest data = 509; P < .001 on all scales). •Analysis of enrollment data at WSU indicates that average grade point averages among former 4Hers exceeds their counterparts at the university by 5%.

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Enhancing Stewardship of Natural Resources and the Environment

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	0.0	0.0
Actual	21.0	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
748498	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
748498	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
3420939	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. Training programs for faculty, staff, volunteers and appropriate partner organizations as well as for specific clientele groups, the general public and underserved populations was conducted. Educational programs addressed 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 included field demonstrations, mass media (such as web pages, video streams, newspapers and newsletters), workshops and meetings. Trained volunteers supported 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

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	15000	30000	3000	0
2007	131673	846848	14272	8817

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	16	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.

Year	Target	Actual
2007	300	417

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.

Year	Target	Actual
2007	5000	14583

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
2007	10000	24560

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

Land management in Washington State is critical to the economic viability of natural resource-based industries such as forestry and livestock production. In addition, most of the watersheds of the state are composed of forests and rangeland. These resources are at risk of competition from invasive species, wildfires, erosion, floods and other destructive factors associated with improper management. WSU Extension programs seek to remediate the root causes of these challenges through education and application of research-based solutions across the state.

What has been done

Statewide and locally-focused programs were developed and delivered to improve forest stewardship leading to development of land management plans and healthier forests and greater fire protection. Biological control mechanisms were also initiated to control invasive species such as diffuse knapweed and Dalmatian toadflax.

Results

After attending Coached Planning Forest Stewardship planning sessions....

- 40% indicated that they planned to thin their forests
 - 70% indicated that they would assess insect damage
 - 70% have developed land management plans
 - A net benefit study by the University of Washington indicates that fuel reductions on lands under land management plans developed with the assistance of WSU Extension will result in future net savings of \$5.3 million derived from the reduced wildfire risk on these critical lands.
- Invasive weed control programs in NE Washington and along the coast have generated the following impacts....
- The spread of Dalmatian toadflax across over 1 million acres has been checked by biological control agents released in a cooperative venture led by WSU Extension faculty.
 - Herbicide application on rangeland has been reduced saving \$35 per acre on 138,000 acres in NE Washington resulting in savings to agencies of approximately \$4.8 million.
 - Rapid response resulting from rangeland monitoring has allowed for early control of invasive species on 8156 acres and protecting an additional 10,000 adjacent acres.
 - Over 16,000 acres of Spartina infested tidelands in Willapa Bay and Puget Sound were treated with a new, safer, more cost effective, and more effective herbicide as the direct result of research conducted by a WSU Extension specialist. Spartina populations have dropped to less than 1000 acres (from 16,000). Shorebird populations utilizing these mudflats have increased from near zero to several thousand per hectare.

4. Associated Knowledge Areas

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

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

Year	Quantitative Target	Actual
2007	1000000	5450000

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

Remediation of the impacts of mismanagement and invasive species is costly to private land owners and the general public. Prevention is far more efficient than dealing with the aftermath of wildfires and the invasion on non-native species.

What has been done

Two major programmatic foci have been initiated by WSU Extension faculty to move critical land to a more sustainable level of management. These employ two basic strategies. First, forest health is restored by proper thinning and other management practices enhancing fire resistance and improving the health of the land and watersheds. Secondly, invasive species are controlled by release of environmentally friendly insects leading to effective biological control of invasive species.

Results**Outcomes and Impacts**

- Forest health has been restored on 3600 acres in critical areas as a direct result of WSU Extension programs. This led to a reduction of the risk of wildfire and an expected savings state and federal agencies of \$180 per acre or \$650,000 annually.
- Herbicide application on rangeland has been reduced by utilizing biological control mechanisms. This saved \$35 per acre on 138,000 acres in NE Washington or \$4.8 million annually.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
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
2007	85	82

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

Natural resources management ultimately affects every resident of Washington. Our ability to address critical issues related to the environment begins with the transfer of science-based knowledge to those that own, manage and oversee our lands and waters. WSU Extension monitors the degree to which learning is achieved in these critical training sessions.

What has been done

The WSU Extension Natural Resources program conducted over 400 seminars, workshops, tours, and other educational venues in 2007. Each was designed to facilitate transfer of knowledge that could in turn be applied to enhance the quality and sustainability of the natural resource base of the state. Evaluation of change in learning was assessed at appropriate venues and summarized to aid in program effectiveness.

Results

Numerous educational programs were delivered related to natural resource stewardship. These addressed critical issues such as forest and range management, coastal and marine issues, watershed management, control of invasive species, and forestland entrepreneurship. Samples of documented learning include the following.

- 70% of adults utilizing Master Gardener volunteer delivered services indicated that their knowledge of environmentally sustainable gardening practices was increased.
- Among participants in Water-wise Gardening and Landscaping workshops, 60% increased knowledge about plant groupings; 52% increased knowledge about water-wise plants; and 50% increased knowledge about how to reduce turf size in yards and gardens.
- 100% of private landowners attending forest stewardship workshops indicated that they had learned sound forest management practices.
- 100% of private landowners indicated that they gained increased knowledge about where to find critical resources supporting future land management decisions.
- Over 92% of classroom teachers indicated that their students had a positive learning experience as an outcome of Master Gardener led 'Plants Grow Children' programs.
- 75% of Sustainable Small Farming and Ranching course participants indicated that they had increased their awareness of current issues and concerns related to land management.
- 77% of participants in the Living on the Land program indicated significant changes in their knowledge levels.

4. Associated Knowledge Areas

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

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
2007	35	56

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Behavior change among those that control and manage natural resources in Washington State is a necessary precursor to positive change in condition. Land owners, land managers, and decision-makers need to not only understand science-based solutions, but they also must move forward to broadly apply the solutions in order to set the stage for environmental improvement.

What has been done

Several approaches are used by WSU Extension educators to initiate behavior changes. Natural resources educational programs tend to be very 'hands-on' allowing individuals to recognize problems in a natural, real world setting. Additionally, the consequences of inaction are clearly documented. These can be catastrophic in the cases of wildfire or invasive species (both terrestrial and aquatic). In general, the programs leverage the desire among Washingtonians to do what is best for the environment. This passion is also leveraged through large volunteer networks such as Master Gardeners, Beach Watchers and Shore Stewards. These networks extend the knowledge base of educators and allow for more labor intensive enterprises such as surveying invasive species and creosote logs in Puget Sound.

Results

Numerous behavior changes have been documented that lead to improvement in the quality of the natural environment in Washington State. For example:

- 53% of new Beach Watcher volunteers provide service on a monthly basis and 10% volunteer weekly.
- Beach Watcher volunteers conducted surveys in the Puget Sound that will lead to future removal of new Spartina (invasive aquatic plant) and removal of 200 tons of creosoted materials by the Washington Department of Natural Resources.
- The City of Tacoma is marketing Targo mulch and potting mix - derived from biosolid waste materials. These products were developed in partnership with WSU Extension faculty.
- Statewide, 40% of participants in the Coached Planning program developed plans to thin forestlands.
- Statewide, 85% of FireWise program participants produced and began implementing a plan to fire proof their properties.
- In Spokane County, 33% of horticulture education program participants have reduced water use, 44% have reduced pesticide use, 38% have used proper plant placement, and 23% have initiated low maintenance landscaping.
- Volunteers mapped 9.4 nautical miles of shoreline along the Juan de Fuca Strait for eelgrass.
- In King County, 65% of past class participants reported implementing recommended forest practices on their land.
- Three counties and four municipalities have adopted the Low Impact Development Technical Guidance Manual developed by a WSU Extension faculty member.
- 98% of King County participants in the Acting Food Policy Council's 'Eat Local for Thanksgiving' campaign indicated that they included locally-grown foods on their holiday menu.
- 80% of attendees at the Pend Oreille County 'Sense of Place Program' have taken steps to protect homes from wildfire, conserve water, and enhance wildlife habitat.
- The percentage of landowners practicing the 10 'Puget Sound-friendly' practices 60-100 percent of the time in Jefferson, Kitsap and Mason counties increased by 21%.
- Public demand for toadflax bioagents has increased by 110% in 2007 statewide.
- As a result of the educational programs, the Mason County Health Department reports that over 50% of participants had their sewage systems pumped and inspected.
- The Washington Department of Natural Resources removed 40 tons of creosote-treated wood from Jackson Beach as a result of information provided by Beach Watchers volunteers.

4. Associated Knowledge Areas

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V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

No major challenges were encountered in 2007.

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

Knowledge Gained or Intent to Change Behavior (Learning)

- 40% indicated that they planned to thin their forests
- 70% indicated that they would assess insect damage
- 70% have developed land management plans
- A net benefit study by the University of Washington indicates that fuel reductions on lands under land management plans developed with the assistance of WSU Extension will result in future net savings of \$5.3 million derived from the reduced wildfire risk on these critical lands.
- 70% of adults utilizing Master Gardener volunteer delivered services indicated that their knowledge of environmentally sustainable gardening practices was increased.
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- The Washington Department of Natural Resources removed 40 tons of creosote-treated wood from Jackson Beach as a result of information provided by Beach Watchers volunteers.

- Condition Change

- Spread of Dalmatian toadflax across over 1 million acres has been checked by biological control agents released in a cooperative venture led by WSU Extension faculty.

- Herbicide application on rangeland has been reduced saving \$35 per acre on 138,000 acres in NE Washington resulting in savings to agencies of approximately \$4.8 million.

- Rapid response resulting from rangeland monitoring has allowed for early control of invasive species on 8156 acres and protecting an additional 10,000 adjacent acres.

- Forest health has been restored on 3600 acres in critical areas as a direct result of WSU Extension programs. This led to a reduction of the risk of wildfire and an expected savings state and federal agencies of \$180 per acre or \$650,000 annually.

Key Items of Evaluation

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