

Washington State University
2007 Joint State Biennial Budget Decision Package

Industry-based Unified Agriculture Initiative

Dozens of food and agriculture organizations join with Washington State University to support a \$10.8 million proposal to add critical scientific capacity to WSU's efforts directed at increasing the economic viability and sustainability of Washington's food and agriculture industries through strategic investment in research and education. This request is coupled with internal reallocations, federal contracts, and private funding aimed at developing technological solutions to assure that this \$29 billion industry remains viable, globally competitive and environmentally sustainable. These outcomes will be accomplished by increasing global competitiveness through improved product quality and reduced costs, developing high-value uses for agricultural products, protecting the environment, and enhancing rural economic development.

The proposal reflects the results of a comprehensive dialogue with the state's food and agriculture industry concerning their needs to remain competitive in a global agricultural economy. Under the direction of a new agriculture dean, Dan Bernardo, and with the full support of President Lane Rawlins, Washington State University hosted more than 50 intensive meetings around the state with key industry leaders, producer associations, commodity commissions, and other stakeholder groups. At these meetings, WSU outlined relevant portions of its agriculture research and extension activities and listened to industry critiques of its programs and budget allocations. Industry representatives identified critical gaps in current research and outreach efforts that needed to be addressed through budget reallocation, federal grants, industry funding, and, as a last resort, new state funding.

The university has responded by reallocating 23 faculty positions into high priority areas such as biofuels, horticultural genomics, international trade, food safety, value-added food processing, and irrigation management. State commodity commissions contribute over \$4 million annually to support food and agriculture research at WSU, and WSU faculty earn over \$40 million annually from external grants and contracts to support food and agricultural research and outreach activities.

Washington State University, in cooperation with dozens of agricultural organizations throughout the state, requests \$10.8 million to fund critical research that cannot be covered with existing, federal, state or private funding sources. The proposed investment in food and agriculture research and education will conservatively result in \$250 million of economic benefits over the next few years, and will generate significantly more income in the longer run as research investments generate new technologies that are adopted by industry participants. The requested funds target three critical areas of need:

1. **Faculty and staff positions to address critical and emerging issues facing Washington's food and agriculture industry.** Twenty-six new faculty positions are requested to fill major gaps in research and extension teams. In many cases, faculty positions were not considered the most critical gaps; thirty-five support staff are also included in the request. These priority faculty and

staff positions fall under two overarching themes – value-added agricultural products and economically and environmentally sustainable food production systems – comprised of seven focus areas. Over the past year, significant reallocation of existing resources has occurred, resulting in the hiring (or currently in the process of hiring) of 23 faculty positions into these strategic areas. The new positions proposed represent additional positions identified by WSU and industry partners necessary to develop viable research and extension teams to address issues in these high priority areas.

2. **Operating support for the university’s research and extension centers located throughout the state.** Research and extension centers include the Irrigated Agriculture Research and Extension Center located in Prosser, the Tree Fruit Research and Extension Center in Wenatchee, the Northwest Washington Research and Extension Center in Mount Vernon, and the Puyallup Research and Extension Center. Six additional research farms, as well as the Pullman Research Station, are located in eastern Washington. A total of \$1.2 million is requested to support operation and maintenance of these facilities. Annual operating funds of \$280,000 also are requested to operate and maintain a state-of-the-art research orchard recently purchased by WSU near Wenatchee and being developed in partnership with the tree fruit industry.
3. **\$1.4 million annually to implement two internal competitive grant pools advised by industry leaders to enable greater responsiveness to emerging research and outreach needs.**

The first fund (\$1 million annually) would be allocated to WSU faculty through a competitive process administered by the WSU Agricultural Research Center and WSU Extension. To assure that funds are allocated to issues of greatest relevance to the state, priorities for this internal grant competition would be established by an advisory board comprised of representatives from the food and agriculture industry (e.g., producers, agribusiness representatives, consumers). Selection of projects for funding also would involve review and input from the industry advisory board. Projects would be required to be interdisciplinary, outcome oriented, and include an outreach component to assure that research results have an immediate impact on the state.

A second competitive grant pool would be administered in the area of Biological Intensive and Organic Agriculture (BIOAg). “Biologically intensive agriculture” refers to the use of biological approaches that work in concert with natural systems to maximize on-farm resource management and minimize off-farm impacts. WSU requested \$800,000 for the BIOAg program during the 2006 legislative session, and received \$400,000. The competitive grants portion of the program was reduced drastically as a result of this reduced level of funding. This additional funding will be used to conduct research, outreach, and demonstration projects in areas such as biofuels and bioproducts, organic agriculture, sustainable production systems, and greenhouse gas mitigation.

In addition, agricultural organizations and the university made recommendations for three new positions in the areas of Biofuels and Bioproducts, which is part of a separate budget request requested by WSU and the Washington State Department of Agriculture, partnered with Pacific Northwest National Laboratory

Background:

The state’s \$29 billion food and agriculture industry contributes 13 percent to the state’s economy, including more than \$6 billion of annual farm gate value. The food and agriculture industry employs

more than 170,000 people in every corner of the state, making it Washington's No. 1 employer. More than 250 commodities are produced commercially in the state, making Washington's agricultural economy the second most diverse in the nation.

A unique combination of human and physical resources, knit together with science and technology, has made this industry a success. Today, however, agriculture is challenged as never before. Forces such as globalization, high energy costs, reduced labor availability, and environmental pressures all threaten to compromise Washington's position as a leading agriculture state. We can meet this challenge by refocusing on innovative science and technology that enables a more profitable and sustainable harnessing of the region's human and physical resources.

Historically, federal funds have not been readily available to address applied, regionally focused food and agriculture programs. Private funds are already being utilized, as state agricultural commodity commissions currently provide over \$4 million annually to support WSU food and agriculture programs. Despite its expansive and highly diverse agricultural sector, Washington is 28th in the nation in state appropriations for agricultural research and extension. In addition, despite aggressive reallocation of existing resources, critical gaps remain in research and education activities that will be addressed with this request.

The industry listening sessions and meetings revealed dramatic program gaps needed to better serve the industry. They also provided many suggestions about how to better serve the industry through improved communication, greater industry interaction, enhanced integration, and additional partnerships. WSU has implemented many of these suggested changes over the past year, resulting in significant improvements in the partnership between WSU and the food and agriculture industry. Faculty positions and resources also have been reallocated to areas of priority identified by this external priority setting exercise.

This budget request, representing substantial unanimity among a very diverse agricultural industry, is a the unified state budget request after reallocations. Agricultural leaders meeting with Dean Bernardo and President Lane Rawlins at Snoqualmie Pass on July 19 finalized this request for funding, emphasizing positions that could serve multiple commodities and interests through:

- value-added agricultural product development,
- food processing and technology,
- plant breeding and genomics,
- value-added business development and economics, and
- sustainable crop and livestock production systems.

The \$6.87 million in 2007-08 is requested as annual base funding to be included in future biennia.

Problems Addressed By This Request:

This request reflects the food and agriculture industry's collective input as to funding priorities for WSU to provide the research and education leadership in transforming the state's food and agriculture industry. The following issues were identified as of utmost priority by the industry and are addressed specifically through the requested positions.

Many Washington-grown products are shipped overseas, with little value-added manufacturing occurring within the state that could produce more jobs and boost the economy.

- A food technologist is needed to provide critical research and educational programs focused on developing new products from Washington-produced wheat and other grains.
- An enologist and a statewide Viticulture and Enology Program Leader will provide critical capacity in continuing to serve the state's rapidly expanding wine industry.
- A position focused on the value of health and nutritional characteristics and consumer preferences for food products will provide critical input to industry and research programs aimed at increasing the value of Washington-grown food products.

The non-instructional cuts in state funding during the 1990s took a disproportionate toll on WSU's horticulture programs, compromising the capacity of Washington's tree fruit industry to compete globally. New horticultural crop varieties, bred for Washington State's unique climate and consumer demands, are necessary.

- Two new positions focused on horticultural crop breeding are needed to connect Washington's tree fruit industry to a university that is emerging as a global leader in horticultural genetics.
 - A functional genomics researcher located in Wenatchee will help develop tree fruit varieties with characteristics demanded by domestic and international consumers.
 - A stone fruit breeder co-located in Prosser and Wenatchee will build on recent progress reinvigorating WSU's cherry breeding program.

Additional support for small business entrepreneurship is needed to drive economic prosperity. More support for economic analysis of alternative production systems, crop enterprises, marketing opportunities, and value-added ventures is needed.

- Two value-added business development extension specialists (one located in Puyallup and one located in Wenatchee) will provide educational programming to individuals and producer groups interested in evaluating and implementing value-added ventures. These positions will be added to a similar position recently placed in Mount Vernon.
- An economist working within the BIOAg program will provide critical analysis in the assessment of emerging industries such as biofuels and bioproducts, as well as evaluate the profitability of alternative production systems.
- A crop and horticulture economics position will conduct economic and market research to enhance production and processing efficiencies in the state's horticulture industry.

Livestock production, particularly dairy, is one of the fastest growing sectors of the state's agricultural economy. However, several critical gaps exist in current research and outreach programs aimed at increasing the productivity of this industry.

- Two livestock nutrition and management positions, one located in northwestern Washington and one in eastern Washington, will provide applied research and extension programming to dairy, beef, sheep and other livestock producers in these regions.

- A large animal veterinary clinician located in Pullman will address a critical need of the livestock industry – the development of more large animal veterinarians to serve the state’s growing livestock industry.
- A veterinary outreach specialist located in central Washington is needed to provide extension programming to livestock producers in the region.
- A livestock reproduction researcher will conduct research to improve reproductive efficiency within Washington livestock enterprises.
- A livestock production specialist is needed to provide statewide research and extension programming on grazing management.

Pests continue to negatively impact Washington crops, yet much of this damage could be avoided with research and diagnostic capabilities.

- A plant and insect diagnostic lab dedicated to serve central and eastern Washington will provide one-on-one assistance in the identification of home and commercial pests.
- An integrated pest management specialist will conduct applied research to increase the efficiency of the irrigated vegetable industry in central and western Washington.
- A dryland cropping systems scientist will provide research and educational programs focused on eastern Washington’s intermediate rainfall areas.

Federal and state labor policies have created significant challenges for many of the state’s agricultural producers. In some cases, labor is not available, and when it is, it costs relatively more than in competing states and nations.

- Two positions (one located in Prosser and one in Pullman) are proposed in the areas of automation and mechanization to spur the development of new technologies aimed at reducing farm labor requirements and enhancing farm worker safety.

The management environment faced by agricultural producers continues to increase in complexity and requires state-of-the-art decision tools which incorporate all available data and research information.

- Funds are requested to hire information specialists and related resources to develop an information network and electronic decision tools that will maximize the utilization of all available research information by Washington agricultural producers.

Operating viable agricultural enterprises while protecting the environment and the state’s natural resources is critical challenge to assuring the sustainability of agricultural production in Washington State.

Several of the positions described above will be integrally involved in research and outreach programs aimed at mitigating the impacts of agricultural production on land, water, and air quality. Four additional requests will focus directly on protecting the state’s natural resources.

- A water resource specialist located at WSU's Northwest Washington Research and Extension Center in Mount Vernon will work in western Washington to improve water quality, enhance salmon habitat, and increase the profitability of western Washington farming operations.
- Compliance with increasingly stringent federal and state air pollution regulations pose both economic and technical challenges to agricultural operations. An air quality management specialist located in Pullman will provide research on best management and production practices to mitigate air pollutant emissions from agricultural sources.
- The WSU Environmental Horticulture Program addresses areas such as water conservation, recycled organic materials, and stress and pest resistant trees for modern landscapes. A faculty position is proposed in Puyallup to add capacity to this program and provide an additional person to deliver the turf and landscape industry's No. 1 priority for WSU – continuing education courses and a four year degree in western Washington
- Operating funds are requested for the WSU Salmon Recovery Lab located at the Puyallup Research and Extension Center. This state-of-the-art lab examines the effects of pesticides on salmon behavior, growth, and development. Reductions in federal funding to the National Oceanic and Atmospheric Administration have threatened the lab's continued operation.

Predicted Outcomes:

This investment in research and education will enhance the economic vitality and sustainability of Washington's food, fiber, and agricultural industries, resulting in increased global competitiveness through improved product quality and reduced costs, development of high-value uses for agricultural products, enhanced protection of the environment, and rural economic development. **The proposed investment in food and agriculture research and education will conservatively result in \$250 million of economic benefits to the state of Washington over the next several years, and will generate significantly more income in the longer run as research investments generate new technologies that are adopted by industry participants. This estimate was derived by identifying practices and technologies anticipated to be developed from these investments in research and outreach and estimating the additional revenue and/or reduced cost from their adoption. Secondary benefits are estimated using conservative multiplier estimates from economic impact models.**

The following potential outcomes have been identified as likely results of this request coupled with additional funding from other sources.

Outcome 1. Development of high-value uses for Washington-grown agricultural products, leading to income and employment growth.

- Development of new value-added products and processes for wheat and other small grains will increase the percentage of wheat processed within the state and increase the marketability of Washington-grown wheat.
- Through enology research and education, the percentage of Washington wines demonstrating high-quality characteristics will increase, thus preserving the state's premium wine image and catalyzing further growth of this industry.
- New varieties of apples, cherries and other horticultural crops will be developed that are uniquely suited to Washington's climate and growing conditions.

- Research and education programs focusing on value-added business development will lead to an increase in the number and rate of success of new business ventures involving value-added agricultural products.
- Research and education programs focused on community supported agriculture, farmers markets, and other evolving marketing systems, will provide alternative and profitable food supply chains for Washington producers.
- Improved understanding of the health and nutritional characteristics of food products will provide critical information to the industry in meeting consumer demands and adding value to Washington products.

Outcome 2. Increased global competitiveness through improved product quality and reduced costs.

- The introduction of new cropping systems and practices in dryland production regions will increase the economic viability of farmers in central and eastern Washington.
- Improved plant diagnostic capabilities will reduce yield loss from devastating insects and plant diseases.
- Research and development of automation and mechanization technologies for Washington's horticultural industry will result in substantial reductions in production costs and increased farm worker safety.
- Providing new grazing strategies and land management approaches to the livestock industry, will increase the efficiency and long-term viability of dairy, cattle, and other livestock industries within the state.
- Veterinary research and outreach will improve the health of the state's livestock, leading to increased efficiency, profitability, and growth of these enterprises.
- Research and education on alternative crops will provide growers with new crops to introduce into their operations, resulting in enhanced profitability and enterprise diversification.
- Highly trained human capital will be added in high-demand areas such as advanced biological sciences, viticulture and enology, urban and environmental horticulture, and food science and engineering.
- New electronic decision tools will be made available to Washington agricultural producers to improve their on-farm management related to nutrient use, pest control, and irrigation management.

Outcome 3. Improved environmental quality through mitigation of the impacts of agricultural production on land, water, and air quality.

- Reducing soil erosion through direct seeding and other dryland production practices will prevent wind and water caused soil loss.
- "Biologically intensive and organic agriculture" research and education programs will provide economically viable alternatives for producers opting for lower input, sustainable production systems.
- Improved management of animal wastes will reduce the potential contamination of surface and groundwater resources.
- Introduction of new biological pest control methods will reduce the use of pesticides and reduce costs of production for the state's agricultural producers.
- Research focusing on the mitigation of air pollutant emissions through on-farm management practices will improve air quality in areas affected by agricultural production.
- On-farm best management practices will be developed to improve water quality, enhance salmon habitat, and increase the profitability of farming operations.
- Research findings on the effect of pesticides on salmon behavior and development will provide critical science to be used in the development of policies to improve salmon habitat.

Washington State University proposes biennial reports to the governor and the Washington Legislature on the progress this partnership has made on this budget request, including performance measured against these short-term and long-term outcomes. An Office of Assessment will be developed to develop rigorous assessment of the impact of WSU food and agriculture research and outreach on the outcomes listed above, as well as income, employment, technology adoption, and environmental quality.