

## Federal Potato Programs

The Pacific Northwest produces more than half of all U.S. potatoes and provides the majority of potato exports. Potatoes are Idaho's most valuable crop, with \$3.5 billion in potato product sales generating \$7 billion of economic activity in the state. Funding to support the University of Idaho's potato-related research is vital to this important crop's health and development.

### Potato Cyst Nematode

The pale potato cyst nematode, *Globodera pallida*, is a serious invasive pest of potato crops. The nematode can cause up to 80 percent yield loss when left uncontrolled, and worldwide it accounts for more than 12 percent of yield losses of potatoes. In 2006, Idaho was the only state in the U.S. where the pest was found.

The spread of this quarantined pest would severely affect the potato industry in the Northwest. Methyl bromide, a pesticide

often used in nematode-eradication efforts, is being phased out worldwide. Therefore, developing effective and environmentally friendly eradication strategies must be a high priority.



The pale potato cyst nematode

The University of Idaho potato cyst nematode program is based on research priorities identified by the Idaho Potato Commission, Northwest Potato Variety Development Program and the National Potato Council as well as federal and state regulatory agencies. U-Idaho is the only institution in the U.S. that provides high-level biosafety laboratory and greenhouse facilities for researchers working on nematode eradication. An important function of the program is to conduct post-fumigation bioassays required to deregulate infested fields. Researchers also raise the nematode in a regulated greenhouse for research purposes.

In addition to providing a facility for federal research collaborators, U-Idaho scientists conduct research on the nematode's biology and on novel strategies such as trap crops, hatching factor and biological control agents to eradicate the problem.

### Tri-State Potato Variety Development Program

Substantial increases in transportation, fuel, fertilizer, pesticide and processing costs and changing consumer preferences have created a need for improved potato production efficiency and nutritional quality. Dominant varieties currently grown, such as Russet Burbank and Russet Norkotah, have serious production and quality limitations. Improvement depends on introducing new potato varieties.

Idaho is part of the Northwest Potato Variety Development Program, also called the Tri-State Program, and collaborates with the Agricultural Research Service and university personnel in Oregon and Washington in developing and commercializing improved potato varieties for the Northwest. University of Idaho researchers participate in potato seedling selection and evaluation, provide initial seed increases, complete in-field management research and post-harvest storage and quality evaluations, and coordinate commercialization efforts with industry.

The fresh market industry, french fry processors and chippers have incorporated many potato varieties developed through the Tri-State Program into their production operations. Tri-State varieties such as Ranger Russet and Alturas were widely grown across the Northwest in 2012, accounting for 17 percent of planted percentage in Idaho, 37 percent in Washington and 38 percent in Oregon. Tri-State varieties were produced on more than 118,000 acres in the Pacific Northwest in 2012 with value to growers estimated at approximately \$500 million.

The new varieties use nitrogen fertilizer 20 to 40 percent more efficiently than standard varieties, potentially reducing the amount of nitrogen applied to the soil by more than 5 million pounds compared with Russet Burbank, with estimated savings to Northwest growers of over \$3.5 million. The Tri-State program also breeds varieties that feature antioxidant nutrients like vitamin C, anthocyanins, carotenoids and phenolic acids. Several of the new potato varieties have substantially lower acrylamide levels than the current standard varieties.

## **Consequences of Reduced Funding**

Continued funding of the University of Idaho's unique potato cyst nematode facility is critical for completing the bioassays necessary to deregulate infested fields in Idaho, as well as supporting research efforts to identify solutions to nematode infestations and protect the region's potato industry. Given the importance of eradicating the potato cyst nematode pest, reducing the program's funding could significantly damage the potato industry in the United States.

New potato varieties with improved production efficiency and higher nutritional value provide regional growers with a competitive advantage. The rapid adoption of varieties developed by the Tri-State Program demonstrates that market-based forces are encouraging producers to increase efficiency and sustainability through improved genetics. Funding reductions for the Tri-State Program will result in fewer new varieties being released, slowing the rate of adoption.

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