

## Federal Potato Programs.

### Potato Cyst Nematode.

*Globoderapallida*, the pale Potato Cyst Nematode (PCN), is a quarantined pest that can limit or prevent the export of potatoes to several countries. The University of Idaho project was created in response to the discovery of the nematode in fields near Shelley, ID in 2006.

The UI PCN Laboratory has succeeded in producing PCN cysts for use in research and for use as controls in APHIS viability studies and bioassays for field deregulation. Research continues on understanding the specific conditions necessary to induce hatching of PCN, including determining the duration of diapause necessary to maximize hatching. Once a stable cyst production system was established, research was initiated on developing short and long term control strategies to aid in eradication of the current infestation in Idaho. The biocontrol research project successfully isolated both bacterial and fungal organisms from cysts collected in infested fields. These micro-organisms are currently being evaluated in the greenhouse for their effectiveness at preventing infection of potatoes.

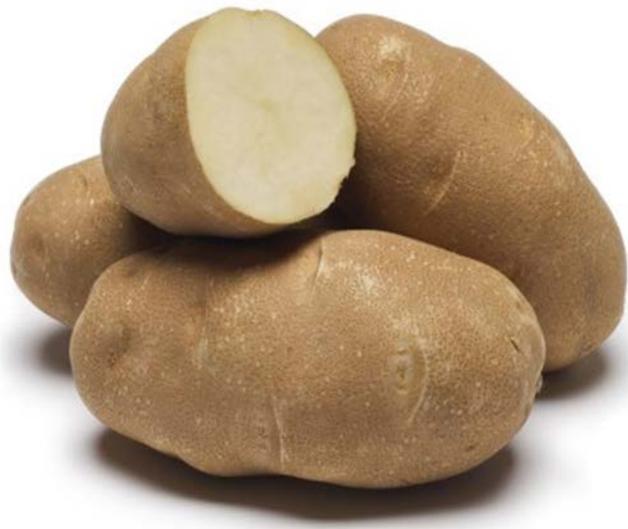
Since the UI-PCN laboratory is the only laboratory in the western region approved by APHIS to work with *G. pallidain* the laboratory and greenhouse, it is the only facility that can collaborate with the ARS researchers on experiments on the control and eradication of PCN, and also conducts the bioassays required to deregulate the PCN infested fields in Idaho.

### Tri-State Potato Variety Development Program.

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

Idaho, as part of the Northwest Potato Variety Development Program (Tri-State Program), collaborates with the Agricultural Research Service (ARS) and university personnel in Oregon and Washington in developing and commercializing improved potato varieties for the Northwest. University of Idaho researchers participate in 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 and potato processors have incorporated many varieties developed through the Tri-State program into their businesses. Tri-State varieties accounted for 17%, 39% and 38% of total potato acreage in Idaho, Washington and Oregon, respectively in 2011 and are produced on over 115,000 acres in the Pacific Northwest with value to growers estimated at approximately \$500 million. The new varieties use nitrogen fertilizer 20-40% more



efficiently than the old standard varieties, potentially reducing the amount of nitrogen applied to the soil by 4.8 million pounds compared with Russet Burbank, with estimated economic savings to NW growers of over \$3.1 million. The reduced use of nitrogen also significantly reduces the potential for nitrate-contaminated ground water in the region.

The Tri-State program also breeds varieties that feature antioxidant nutrients like vitamin C, anthocyanins, carotenoids and phenolic acids. In addition, several of the new potato varieties developed by the Tri-State program have substantially lower acrylamide levels than the current standard varieties.

### **Consequences of Reduced Funding.**

The Pacific Northwest produces more than half of all U.S. potatoes and provides the majority of potato exports. Continued funding of the unique, UI-PCN facility is critical for completion of the bioassays to allow for deregulation of the PCN infested fields in Idaho and to allow research efforts to identify short term and long term solutions to PCN as a way to protect the potato industry in this region. It is anticipated that the bioassay work will take until late 2012 or early 2013 to complete if everything goes as anticipated.

New varieties with improved production efficiency and higher nutritional value provide regional growers with a competitive advantage. The rapid adoption of varieties from this program illustrates that market-based forces are encouraging producers to increase efficiency and sustainability through improved genetics. Reductions in funding for the Tri-State program will result in fewer new varieties being released and substantially slowing the rate of adoption.

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