



Potato Progress

Research & Extension for the Potato Industry of
Idaho, Oregon, & Washington

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Columbia Basin Insect Trapping Reports

Oregon State University and Washington State University insect trapping reports have begun for the 2013 growing season. Trap catches are displayed graphically at the IPM section of our regional research website,

<http://www.nwpotatoresearch.com/IPM-Home.cfm>

Also, e-mail alerts can be requested for various regions in the Northwest, details also at the above website. Below is an excerpt from Carrie Wohleb's WSU alert issued today.

“BEET LEAFHOPPERS (BLH): Beet leafhopper populations are building up in some parts of the Columbia Basin. Yellow sticky traps near Mattawa had the highest counts this week, ranging from 47 to 261 BLH per trap, and averaging 137. This is a lot more than we found last season! Traps on the Royal Slope also had high BLH counts, ranging from 1 to 77 BLH per trap, and averaging 24.

BLH are important pests because they transmit a phytoplasma that causes purple top disease. Treatment thresholds based on BLH numbers on traps have not been established, but we know that the risk of infection increases as BLH populations become large. If the numbers on traps increase to 40 or more BLH per week, then it is probably time to be concerned. A typical weekly catch during peak activity is 100. Potato cultivars vary in susceptibility to purple top; Ranger, Umatilla, and Norkotah are considered highly susceptible. A number of insecticides are labeled for use on potatoes to control leafhoppers (see 2013 PNW Insect Management Handbook). Systemic insecticides, especially those with longer residual activity, may provide adequate early season control of BLH. Results will vary depending on the product used, application rate, and insect pressure. Foliar insecticides may also be used to control BLH. These are usually applied in May, June, and sometimes July. Those with long residual activity (10-14 days) are preferred. Remember to always read and follow instructions on the pesticide label.

POTATO PSYLLIDS: Updates about potato psyllids will be coming soon. Last season, we first detected potato psyllids in Columbia Basin potato fields on June 11th.”

For more information on both of these insects and more, see the website above.

Extension Bulletins from the University of Idaho and Washington State University

'Portable test kits for diagnosing potato disease' available at www.cals.uidaho.edu/edcomm/pdf/BUL/BUL0883.pdf

This bulletin highlights the use and accuracy of commercially available pathogen test kits for diagnosing disease in the field and storage. Multiple test kits for numerous diseases, such as PVY and Pythium, were used, assessed and compared to results from traditional diagnostic methods. Ease of test kit use and storage were also assessed and discussed. Overall, the test kits did a good job of accurately identifying the pathogen causing the problem, and in some cases, ruling out potential pathogens. They are relatively easy to use and can typically provide a result within 3 to 5 minutes. They are portable for use in the field, storage or office.

'Superficial growth on potatoes' available at www.cals.uidaho.edu/edcomm/pdf/CIS/CIS1191.pdf

This bulletin outlines factors that may promote superficial growth of non-pathogenic fungi and bacteria that can grow on the surface of a potato. Management practices to reduce the potential for superficial growth are also discussed.

'Storage Management of Blazer Russet Potatoes' available at www.cals.uidaho.edu/edcomm/pdf/CIS/CIS1192.pdf

This bulletin describes best storage management practices for 'Blazer Russet' released in 2005 by the USDA ARS and the agricultural experiment stations of Idaho, Oregon, and Washington. This is an early-maturing and high-yielding variety acceptable for fresh market or early season processing. This variety has acceptable fry color when stored at 48° F and has a shorter dormancy length than Russet Burbank.

Two extension fact sheets on bacterial diseases of potato have been published online by WSU Extension.

'Bacterial Ring Rot on Potatoes' by D.A. Inglis, D.A. Johnson, B.K. Schroeder, and C. Benedict. This fact sheet outlines the disease cycle of ring rot, and approaches for sanitation and control by commercial potato growers and seed potato growers alike. It is available free, online at <http://cru.cahe.wsu.edu/CEPublications/FS102E/FS102E.pdf>

'Bacterial Soft Rot and Lenticel Spot on Potato Tubers' by Debra Inglis, B.K. Schroeder, and Dennis A. Johnson. Bacterial lenticel spot is one manifestation of bacterial soft rot on potato which is initiated at tuber lenticels. Soft rot is a wet, mushy rot of plant tissues that progresses rapidly, especially when temperatures are warm and moisture is present. Lenticels are the pores in the tuber surface that allow for the exchange of oxygen and carbon dioxide during cellular respiration of the potato tuber. This publication discusses symptoms, disease cycle, and management approaches for lenticel spot and soft rot on potato. It also is available free, online at <http://cru.cahe.wsu.edu/CEPublications/FS066E/FS066E.pdf>

Scientist Profiles – Expertise Available to Northwest Agriculture

Andy Jensen, Regional Research Director

As Regional Research Director and editor of *Potato Progress*, I try to keep the Northwest potato industry informed of the latest research, events, and expertise available to us. There are many scientists in the Northwest who have a lot to offer producers, consultants, and others in agriculture. We will periodically present short profiles of experts who work on potatoes for the potato commissions, or who are excellent resources for us and the industry. This will give you names, faces, and interesting biographical tidbits to go along with the many scientists supporting Northwest potatoes, mostly in the background.

Molecular Genetics Expertise at University of Idaho: Joe Kuhl

Dr. Joseph (Joe) Kuhl is a plant molecular geneticist at the University of Idaho, Moscow. His experience with agriculture goes back to middle school in central Iowa and the realization that de-tasseling corn for seed production offered a quick way to make good money. After three years he decided there had to be an easier summer job and secured a position with Dr. Mike Lee, a maize breeder at Iowa State University. He worked in the lab and field for Dr. Lee through high school and college, attending Iowa State University from 1990-1994. After earning a Bachelor's of Science in Biology he moved to California to take a job as a technician with the USDA, ARS in Albany, CA. This included molecular biology and biochemical research related to wheat proteins involved in bread chemistry. Graduate school research at the University of Wisconsin – Madison focused on two wild relatives of potato, *Solanum pinnatisectum* and *S. cardiophyllum*. Specifically, research was directed at characterizing late blight resistance derived from *S. pinnatisectum* and unilateral incompatibility related to interspecific crosses. Ph.D. in hand, he began a two year post-doctoral position at the Boyce Thompson Institute for Plant Research at Cornell University in the laboratory of Dr. Dan Klessig. This work broadly focused on molecular genetic approaches for understanding host-plant resistance in the model plant *Arabidopsis thaliana* to *Turnip Crinkle Virus*. A second post-doctoral position at Michigan State University included work on molecular genetics and genomics analysis of asparagus, onion and garlic. His first career position was with the USDA, ARS in Palmer, Alaska as a research geneticist with the Subarctic Agricultural Research Unit. Research in Alaska involved projects on rhubarb, potato, devil's club, tufted hair grass, lambsquarters, blueberries, and moose digestion/distribution of weed seeds. In 2009 he accepted an assistant professor position at the University of Idaho in Moscow.



Most of Joe's research in Idaho has focused on potato, however one project was in wheat--development of a molecular assay for detection of the mutation causing insensitivity to imidazolinone herbicides. Potato research in Idaho has been diverse, including quality attributes, host resistance, enhanced abiotic stress, and molecular marker development. One project is aimed at determining the contribution of vacuolar acid invertase, a key enzyme generating glucose and fructose, to cold-induced sweetening in a population of potatoes showing variation in fry color. A second project is aimed at molecular characterization of resistance to PLRV, including development of closely linked molecular markers and efforts to identify genetic factors associated with resistance. Another project involves resistance to potato cyst nematode (PCN), including single gene resistance and immunity from litchi tomato. Ongoing research is also focused on developing and evaluating resistance to abiotic stress, such as drought and salinity. A number of related projects are directed at developing molecular markers for detecting gene copy number, including genes for PVY and PVX resistance.

Psyllid/Insect Trapping and Identification Workshops

There are several psyllid/zebra chip/insect recognition workshops planned this spring in Oregon, Idaho, and Washington. Please see specifics below, and note that the Oregon workshops have a different format from those in Idaho and Washington.

Oregon

The Rondon entomology lab will be offering a workshop on zebra chip (ZC) and potato psyllid identification this spring. The workshop will be designed to help those in potato production prepare for or review psyllid monitoring techniques and potato psyllid identification. The workshop will have plenty of opportunities for hands-on identification and demonstrations, and will be offered on one remaining date. Registration is required (Max 12 per session. Cost: \$30/person). Contact the Hermiston Ag Research and Extension Center to register: Annette Teraberry at annette.teraberry@oregonstate.edu or 541-567-6337.

May 24, 9 – 12:00 p.m., Hermiston Ag. Research and Extension Center, 2121 South First Street

Idaho and Washington

The workshops in Washington and Idaho will have an open format, and we ask people to come any time that fits their schedule during each session. This will allow more personal attention and access to specimens and samples as people come and go. This open format also allows us to serve more people per session, answer individual questions in one-on-one conversations, etc. If you have your own traps from the field, and would like help evaluating them as part of the workshop, please bring them.

Washington (we'll help with beet leafhopper and tuberworm traps also, if desired)

June 3, 2:30 – 5:00 pm, Eltopia, Ag Development Group Research Farm, 2621 Ringold Rd.

June 4, 10:00 - 12:30 pm, Moses Lake, Potato Commission office, 108 S Interlake Rd.

Idaho

May 28, 1:00 – 3:00 pm, Parma Research and Extension Center, 29603 U of I Lane, Parma

May 29, 10:00 – noon, Miller Research LLC, 426 East 200 North, Rupert

May 30, 10:00 – noon, Idaho Falls R & E Center, 1776 Science Center Dr.

***WSU Potato Field Day – Thursday, June 27, 8:30 - lunch
Othello Research Unit***

***OSU Hermiston Potato Field Day - Wednesday, June 26,
8:00 - lunch***