



Potato Progress

Research and Extension for Washington's Potato Industry
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Zebra Chip and Potato Psyllid – Helpful Resources

Andy Jensen, WSPC Director of Research

The 2011 season brought for the first time the potato disease called “zebra chip” to the Pacific Northwest states of Idaho, Oregon, and Washington. This is a disease that has been a serious problem in Central America, Mexico, and southwestern U.S. for several years. The name “zebra chip” is an unfortunate misnomer because the disease is in no way limited to chipping potatoes or to the chipping industry. Potatoes affected by the zebra chip pathogen are severely discolored, exhibit low specific gravity and high sugars, and are unacceptable for any market class. A better way to refer to this disease is perhaps the simple term “ZC.”

ZC is thought to be caused by a special kind of bacterium referred to as *Liberibacter*, and this bacterium is transmitted to potatoes by the potato psyllid. The disease appears to be new to the PNW, but the psyllid is not. It is possible that the cool weather of 2011 was a primary cause behind the outbreak, however, everyone should be preparing to watch for psyllids and ZC in 2012. Photos of the insect and an affected tuber are presented on the following page.

The severe damage and economic impact of ZC on the Texas potato industry has led to much research on the problem, and many scientists studying it from all angles. The WSPC sent a team of 5 commissioners and staff to the November 7-9 ZC conference in San Antonio to learn first hand what is known and being studied. We expect to fund a team of PNW scientists on ZC research and extension in 2012, carefully building on or extending work already conducted in Texas, California, and neighboring states. There are many good sources of information on ZC and potato psyllid including the following:

A slide show with photos and details on ZC is available here, prepared by Joseph Munyaneza. This presentation will be available free of charge only through the end of January.

<http://www.plantmanagementnetwork.org /edcenter/seminars/potato/PotatoPsyllid/>

Information on the ZC problem and research in Texas and other southwestern states can be found here:

<http://zebrachipscri.tamu.edu/>

Presentations on ZC will be featured at the Hermiston Farm Fair on November 30th in Hermiston, OR. [See page 3 of this newsletter for the program.](#)

The WA/OR Potato Conference will also feature presentations on ZC during the morning of January 25. For details on the conference, see:

<http://www.potatoconference.com/>

Psyllids

See also: <http://www.potatoes.com/research.cfm>



Psyllids are close relatives of aphids and whiteflies, and are also known as “jumping plant lice.” These pictures are all of the **potato psyllid**. This is the only psyllid found in potatoes in the U.S.

Adult potato psyllid - white stripes on the head and thorax, and bold white bands on the abdomen are distinctive for potato psyllid. They are able to jump long distances very quickly when disturbed.



Psyllid egg on leaf edge. Each egg is on a short stalk.



Young psyllid nymph.



Older psyllid nymphs, showing their strange tubes of excrement.



Psyllid nymph side view - psyllid nymphs have functional legs and are capable of walking, unlike whitefly nymphs (see reverse).

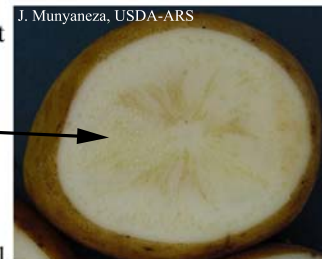
Psyllid nymphs and adults on a penny for size reference.



Psyllid biology and damage

1. Potato psyllids are thought not to overwinter in Washington, but arrive here from southern locales by mid-summer. Many fields will have some psyllids present by mid-July.
2. Potato psyllid transmits the bacteria that causes “zebra chip.” Zebra chip symptoms had not been seen in the Northwest until 2011 when the disease was widespread in OR, WA, and ID.
3. Psyllids can rapidly develop resistance to insecticides. Great care must be taken to alternate modes of action in psyllid control.

J. Muniyaneza, USDA-ARS



Washington State Potato Commission (Phone: 509-765-8845)

38th Annual Hermiston Farm Fair & Trade Show

Hermiston Conference Center, 415 S. Hwy 395

WEDNESDAY, NOVEMBER 30, 2011

POTATO PRODUCTION SEMINAR, AM – Main Stage

Moderator – Don Horneck, OSU

- 8:00 Specialty N Fertilizers for Potato's - Don Horneck, OSU
- 8:30 Herbicide Resistant Weeds in Potato and Mint Production - Rick Boydston, USDA
- 9:00 Zebra Chip Disease Strikes Columbia Basin Potatoes - Jim Crosslin, USDA
- 9:30 Potato Psyllid: Geographic Distribution, Biology, and Zebra Chip Transmission - Joe Munyaneza, USDA-ARS
- 10:00 Break
- 10:30 Approaches to Potato Psyllid Management in Texas - Don Henne, Texas A& M University
- 11:00 Top 10 Things to Know About Phosphorous Acid for Potato Disease Control - Jeff Miller, Miller Research
- 11:30 Phosphorous Acid as a Post-harvest Spray for Controlling Potato Storage Diseases - Lynn Woodell, U of Idaho
- 12:00 Session Ends

Pesticide Recertification Credits: 3
CCA Credits: 5NM, 3PM

POTATO PRODUCTION SEMINAR, PM – Main Stage

Moderator – Phil Hamm, OSU

- 1:00 Impact of Powdery Scab Galls on Yield of Potato - Dennis Johnson, WSU
- 1:30 Long-distance Movement of Verticillium in Soils Associated with Potato Seed Tuber Transport - Jeremiah Dung, WSU
- 2:00 Sustainable Approaches to Nematode Control - Russ Ingham, OSU
- 2:30 Nitrogen Management for Organic Potatoes – Dan Sullivan, OSU
- 3:00 Break
- 3:30 Managing Insects in Potatoes without Organophosphate, Carbamate, Pyrethroid or Neonicotinoid Insecticides - Alan Schreiber, Agriculture Development Group, Inc.
- 4:00 Misadventures Dealing with Beet Leafhoppers in 2011 - Alexzandra Murphy, OSU and Silvia Rondon, OSU
- 4:30 How Well Do You Know Your Potato Diseases? - Phil Hamm, OSU
- 5:00 Session Ends

Pesticide Recertification Credits: 3
CCA Credits: 5NM, 3PM

CROP SEMINAR – Altrusa Room

Moderator – Don Wysocki, OSU

- 1:00** Seeding Rates and Alfalfa Production - Mylen Bohle, OSU
- 1:30** Weed Control in Edamame – Rick Boydston, OSU
- 2:00** What We Have Learned About Soil H₂O Penetration – Priscilla Woolverton, OSU
- 2:30** Ergot Management in Grass Seed - Darrin Walenta, OSU
- 3:00** Break
- 3:30** New Broad Spectrum Potato Storage Product for Post Harvest Disease Control - Chris Clemens, Syngenta
- 4:00** Arundo Donax Growth Habits, First Year Work - Don Wysocki, OSU
- 4:30** Where We Are In Making Electricity From Arundo Donax (Giant Cane) – Wayne Lei, PGE
- 5:00** Session Ends

Pesticide Recertification Credits: 1
CCA Credits: 5SW, 1.5PM, 1.5CM

New Plant Pest Diagnostic Lab in Pullman: WSPC Supports Sample Processing and Shipping from Moses Lake

Washington State University now operates two plant diagnostic labs: one at the Puyallup Research and Extension Center; and the other on the main campus in Pullman. Diagnosticians at these peer labs make plant disease diagnoses, and provide disease management information. Additionally, samples of insects and weeds received by these labs will either be identified or referred to appropriate experts. Diagnosticians: Jenny Glass glass@puyallup.wsu.edu (253-445-4582) and Karen Ward karen_flint.ward@wsu.edu (509-335-3292).

The potato commission strongly supported the recent creation of the Pullman lab, including partially funding the start-up costs. The commission will offer support to potato growers using the lab by offering free packing and shipping (via UPS) of potato samples from the commission office in Moses Lake. Staff at the office will help fill out the forms, and get your sample packed and on its way to the lab. Each sample will require a \$25 diagnostic fee (cash or check) with the shipment, to be paid by the grower. Depending on sample difficulty, additional fees may be incurred.

There is much information about WSU's diagnostic services at the website of the Puyallup lab: <http://www.puyallup.wsu.edu/plantclinic/samples/ppd.html>.

WSPC Provides Information Resources to Help Growers Pass “Sustainability” Audits

As many of you know, various buyers of potatoes are beginning to require farm audits that deal with “sustainability” issues including integrated pest management, pesticide use patterns, etc. A number of resources helpful in these audits can be found at the research section of the WSPC website: www.potatoes.com/research.cfm. Some examples include:

1. Information on pesticide resistance management.
2. Lists of pesticides registered for use on potatoes, including relative toxicity, modes of action, spectra of control, and various other information.
3. Electronic versions of all 20 pest/disease/beneficial information cards.
4. The research library, which includes all past Proceedings from the potato conference, all past issues of Potato Progress, and much more.
5. PNW Insect and Mite Management Guidelines, authored and updated regularly by regional entomologists.