INSECT MONITORING REPORTS
Report for Aug 29 - Sep. 4, 2012

APHIDS: Aphids were found in 52% of the fields we sampled this week, but the populations in these fields were quite small. Most of these were wingless, colonizing aphids. The aphid- virus threat for potatoes in the Columbia Basin is mostly over, except for fields that are still green, actively growing, bulking, and not scheduled for harvest anytime soon.

Aphids are important pests because they transmit several important potato viruses, especially potato leafroll virus (PLRV) and potato virus Y (PVY). Green peach aphids are the most important vector of PLRV, which has caused substantial yield and tuber quality losses in the Columbia Basin. PLRV causes net necrosis in some cultivars, an unacceptable tuber defect in processing potatoes. PVY can also result in significant yield losses, and some strains cause tuber defects. Potato growers should monitor fields for aphids at least once a week, because early recognition and control of aphids is the best tactic in limiting spread of potato viruses. Current recommendations are to treat long-season storage potatoes as soon as wingless aphids are detected. Low tolerances have been established because even a low incidence of seed borne PVY and PLRV can spread rapidly if aphids go unchecked. You can find more information about aphids and the viruses they spread in the *2012 IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes*.

BEET LEAFHOPPERS: Beet leafhopper (BLH) populations have been small at most of our trapping sites throughout the season. A graph showing weekly BLH trapping data in the Columbia Basin for the years between 2007 and 2012 can be viewed below. It illustrates how small the BLH populations have been in 2012 compared to previous seasons.

Beet leafhoppers are important pests because they transmit BLTVA, a phytoplasma that causes purple top disease in potatoes. In the Columbia Basin, the first spring generation of BLH usually migrates towards potato fields in late May and early June, with a peak flight in late June. Yellow sticky traps placed near potato fields are one way to monitor BLH. Information about setting up traps and identifying BLH can be found in the article, "*Beet Leafhopper Monitoring with Yellow Sticky Cards*". 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 build up to 40 or more BLH per week, then it is probably time to be concerned. A typical weekly catch during peak BLH activity is 100. Eliminating weed hosts (wild mustards, Russian thistle, kochia) in areas surrounding potato fields is an important cultural management approach for BLH. These weeds are preferred hosts of BLH. Potato growers may also select cultivars that are less susceptible to purple top (Ranger, Umatilla, and Norkotah are considered highly susceptible; Russet Burbank is susceptible; and Alturas and Shepody are moderately susceptible). A number of insecticides are labeled for use on potatoes to control leafhoppers. There has been some research to suggest that systemic at-planting insecticides, especially those with longer residual activity applied at the maximum allowed rate, provide adequate early season control of BLH. Results may vary depending on the product used, application rate, soil and environmental conditions, and insect pressure. Foliar insecticides may also be used to control BLH. These are usually applied in May, June, and sometimes July.

Insecticides with long residual activity (10-14 days) are preferred. If you apply a non-systemic insecticide, it may be necessary to shorten the application interval during periods of rapid plant growth to ensure adequate plant coverage. Remember to always read and follow instructions on the pesticide label. For more information about managing BLH, visit *2012 IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes* and the *2012 PNW Insect Management Handbook*.

POTATO TUBERWORM: **We received some reports of tuberworm damage in potatoes being harvested in the southern Columbia Basin a few weeks ago. If you are growing potatoes south of Othello, we recommend you put out your own pheromone traps, since populations can be spotty. Potato tuberworm moths were found in six of our traps in the Columbia Basin this week; two traps near the OR border with 1 moth each, two traps near Pasco with 1- 2 moths, and two traps between Eltopia and Mesa with 1 moth each. Most of the pheromone traps in Oregon have been collecting tuberworm moths over the past few weeks, and they have been collected in even greater numbers than in WA. For information about this pest, visit *Biology and Management of the Potato Tuberworm*.**

Potato tuberworm (PTW) was first recognized as an important pest of potatoes in the southern Columbia Basin in 2003. PTW larvae feed on tubers causing damage that renders them unmarketable. Potato growers with fields south of Connell, WA are recommended to pay close attention to regional trapping data, and should deploy pheromone traps. Infestations of PTW are highly localized, and it is risky to conclude too much from traps that may be several miles away. Information about setting up traps and identifying PTW moths can be found in the article, "*Tuberworm Monitoring with Pheromone Traps*". Trap counts from mid-season to harvest are particularly important to watch. The more moths you find in the traps, the more tuberworm larvae you are likely to find in the field feeding on plants and tubers. Pre-harvest control measures may be warranted in fields where PTW moths in pheromone traps are found to be increasing every week, especially in August-October. Cultural methods reported to reduce PTW damage include 1) eliminate cull piles and volunteers to reduce overwintering stages of PTW; 2) maintain soil moisture after vine kill to prevent soil cracking; 3) minimize the time between vine desiccation and harvest; and 4) ensure that tubers have more than 2" of soil covering them in the hill. For more information about managing PTW, visit *2012 IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes* and the *2012 PNW Insect Management Handbook*.

POTATO PSYLLIDS: We found potato psyllids in our sentinel plot located near Othello, WA last week. This is the last of our sentinel plots to have potato psyllids. Potato psyllids were first detected in the sentinel plots that were established in Paterson, Pasco, Prosser, Hermiston, and Yakima in late June. These sentinel plots are small plantings of potatoes, with no insecticides, which were devised to aid first detection of psyllids. Potato psyllids appear to be spreading northward, but the largest numbers of psyllids continue to be found in the southernmost parts of the Columbia Basin, especially near the WA/OR border. A very low percentage of psyllids collected in the Basin have been reported to carry the bacterium that causes zebra chip, but it is enough to cause great concern as only a tiny number of the total population is actually collected, and the disease is so easily spread. When a psyllid picks up the bacterium it carries it for life, and even passes it on to its offspring. Moreover, it only takes a few hours to transmit the bacterium to potato plants. Many potato growers in the region are applying foliar insecticides on a regular schedule to control potato psyllids that may be migrating into their fields. Potato

harvesting is underway, so psyllids in these fields will be moving to nearby potato fields that are still actively growing. A number of insecticides are registered for use on potatoes that have activity against psyllids. For more information about control options, read *Biology and Management of Potato Psyllid in Pacific Northwest Potatoes*. Always read and follow label instructions. And continue to scout for potato psyllids and plants with zebra chip, so you know which products and application timings are working well, or not working so well.

Potato psyllids are important pests mostly because they can transmit a bacterium (*Candidatus* Liberibacter *solanacearum*) to potatoes that causes zebra chip disease (ZC). This disease reduces both yield and tuber quality and has lead to serious economic losses in some regions. ZC was first detected in potato fields in the Columbia Basin in 2011, and it has occurred again in 2012. Early detection is critical for controlling psyllids and minimizing transmission of zebra chip disease. Adult psyllids are monitored using yellow sticky cards placed inside the field, just above the plants, and near the field edge. It is best to have five or more yellow sticky cards around the field. Another method for sampling adult psyllids is to use a leaf blower/vacuum with a mesh net secured to the end of the cylinder (see photo on the sidebar). This method may be better for detecting low population densities. Operate the machine (in vacuum mode) above the potato plants for at least 5 minutes, 5-10 feet from the edge of the field, and then carefully remove the net from the end of the cylinder. It helps to transfer the insects from the net to a plastic bag that you can seal, and then look for the tiny winged adults. If you place the bag in the freezer for a while, you can slow the buzzing insects down which will make it easier to scan the bag. Other life stages of the psyllid may be found by collecting several leaves (mid-plant) from the outer rows of the field, and then scanning the underside (with a hand-lens) for the tiny nymphs and eggs. It is also recommended to scout for psyllids in cull piles and volunteer potatoes. For more information about psyllids, including insect identification, monitoring, and control recommendations, read *Biology and Management of Potato Psyllid in Pacific Northwest Potatoes* and *Potato Psyllid Vector of Zebra Chip Disease in the Pacific Northwest*.

SPIDER MITES: We found mites in about 25% of the fields we monitored this week.

Sampling for mites requires close visual inspection because they are tiny and difficult to see. It helps to shake plants over white paper and then look for the tiny moving dots. Mite populations increase rapidly and the damage they cause can go unnoticed, so it is important to scout often. If you plant to apply a miticide, apply it early because none of the registered miticide products provide full control once populations reach outbreak levels. A well-timed miticide application is made when mite populations reach 2 mites per leaf, which is close to the detection limit for the pest. Include a surfactant to improve coverage. In most cases, a single, well-timed application will control mites. Mite outbreaks have been associated with 1) use of non-selective insecticides, like pyrethroids, that reduce natural enemy populations; 2) close proximity to mite harboring crops like corn, alfalfa, hops, and mint; 3) close proximity to dusty roads; and 4) hot, dry weather. More information is available at *2012 IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes* and the *2012 PNW Insect Management Handbook*.