INSECT MONITORING REPORTS
Report for July 19, 2013

BEET LEAFHOPPERS (BLH): **We found BLH at most of our trapping sites across the Columbia Basin this week. The average trap counts have been decreasing since they peaked at the beginning of June. Go to the pest data mapping section below to see all of the BLH trap counts for this week.**

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. 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. Systemic at-planting insecticides, especially those with longer residual activity applied at the maximum allowed rate, have been shown to provide some 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 *IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes* and the *2013 PNW Insect Management Handbook*.

POTATO PSYLLIDS **We are continuing to find potato psyllids on yellow sticky cards in potato fields across the Columbia Basin. We found a total of 28 adult potato psyllids (1 to 4 psyllids per card) in fields near Plymouth, east of Pasco (Kahlotus Hwy. area), Mesa, Basin City, Othello (near Bruce), Quincy (near Winchester), west of Moses Lake (Dodson Rd. area), and Royal City. We also identified 12 potato psyllids (1 per card) on sticky cards brought to us by crop advisers from fields east of Tri-Cities, Eltopia, Basin City, Connell, Warden, and north of Moses Lake. We have also been finding them in sentinel plots near Paterson, Pasco, Othello, west of Moses Lake (Dodson Rd.), Yakima, and Prosser. In other words, potato psyllids are being seen in potato fields across the Columbia Basin. All of these psyllids will be tested to determine if they carry the bacterium (Lso) that causes zebra chip. So far, none of the potato psyllids that have been submitted for testing (in Washington) this spring have come back positive for Lso. If you find potato psyllids,**

please let us know by sending an email to cwohleb@wsu.edu. We can help you submit psyllids for Lso testing.

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 occurred again in 2012. Yellow sticky cards are recommended for detecting psyllid migration into an area. The cards should be placed inside the field, near the field edge, and just above the canopy level. It is best to have five or more yellow sticky cards around the field. For more information, read *Psyllid Monitoring with Yellow Sticky Cards.* Another method for sampling adult psyllids is to use an inverted leaf blower with a mesh net secured to the end of the cylinder (see photo on the sidebar). This method is better for detecting low population densities than the sticky cards. 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*.

APHIDS: **Aphids were detected in 57% of the potato fields we sampled this week. Many of these were winged, migratory aphids (green peach aphids and other species). Wingless green peach aphids were found in 17% of the fields. These wingless aphids are colonizing potato plants and their populations are increasing; they averaged 0.6 aphids per plant, which is the highest population density for aphids we have seen so far this season. Fields should be scouted at least weekly. It is recommended that ten locations per 100 acres are checked. Use a beat sheet or bucket to sample; we use a bucket, which is placed underneath plants and then the plants are shaken vigorously to dislodge the aphids (see photo on the sidebar). Go to the pest data mapping section below to see all of the aphid counts for this week.**

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.

POTATO TUBERWORM (PTW): **Moths were found at three locations this week in the lower Columbia Basin of Washington; near Paterson and two fields near Pasco. Go to the pest data mapping section below to see all of the PTW moth trap counts for this week.**

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*". It only takes a few weeks for PTW to complete a generation (egg, larva, adult), so there are several generations completed in a season. In the Columbia Basin, the time that tuberworm are most important is in the 3 to 4 weeks before harvest. This is because almost all tuber damage occurs after vine death. Insecticide applications beginning 4-8 weeks before harvest have been shown to reduce PTW in tubers. Cultural practices that reduce PTW damage include 1) eliminate cull piles and volunteer potatoes; 2) maintain soil moisture after vine kill to prevent soil cracking; 3) minimize the time between vine kill and harvest; and 4) maintain more than 2" of soil over tubers.

STINK BUGS: Some stink bugs are occasional pests and others are beneficial predators. The green stink bugs we often find in potato fields are occasional pests. These are in the *Chlorochora* genus. They usually move into potato fields from neighboring crops and weeds. They feed by sucking plant sap and cause damage that includes flagging of leaflets, whole leaves, and growing tips. When there are a lot of them, they can cause an entire stem to wilt. Sink bugs will often congregate in a small area within the field, which may lead to an incorrect assumption that the infestation is throughout the field. Treatment of entire fields is rarely required, but several insecticide products can be used when needed. More information is provided in the *2013 PNW Insect Management Handbook* (under Irish Potatoes – Sting Bugs). The beneficial stink bugs we most often see in potato fields are in the genus *Perillus*. These are the black ones with orange/red markings. They are known for feeding on Colorado potato beetle eggs and larvae.

BENEFICIAL INSECTS: Big-eyed bugs were found in 69% of the potato fields we monitored this week, and damsel bugs were found in 23% of the fields. These are good insects to have in the fields, because they are voracious predators. Unfortunately, they can be very susceptible to certain insecticides, especially the broad-spectrum insecticides. Dr. Bill Snyder, WSU Entomologist, has found that big-eyed bugs can be 6 xs more abundant in fields sprayed with selective insecticides compared to fields treated with broad-spectrum insecticides.