

INSECT MONITORING REPORTS

Report for Sept. 1-7, 2011

APHIDS: Aphids were found in 14 of the 24 fields (58%) we surveyed in the Basin this week. These were mostly wingless green peach aphids (GPA). The fields that had wingless aphids averaged 1.9 aphids/plant. The fields with the largest populations of aphids were in the south Columbia Basin (i.e. south of Othello). One of the fields we looked at had more than 12 aphids/plant; that is a lot of aphids! The aphid-virus threat for potatoes in the Columbia Basin is mostly over. The exception is with fields that are still green, actively growing, bulking, and not scheduled for harvest anytime soon.

Management Recommendations: Early recognition and control of aphids is the best tactic in limiting the spread of potato leafroll virus (PLRV). PLRV infections are less common compared to a decade ago, but PLRV continues to be seen occasionally in the Basin. This virus causes a tuber symptom called net necrosis in some cultivars that is unacceptable in processing potatoes. To minimize the spread of virus, university-based recommendations are to treat late-season storage potatoes as soon as non-winged aphids are detected. The low tolerance for net necrosis by processors and the high vectoring capacity of aphids, explains the very low treatment threshold for aphids in potato fields destined for storage and processing. Higher action thresholds may be appropriate for cultivars that do not develop net necrosis when infected with PLRV, and for potatoes that will not be stored. Many foliar insecticides are labeled for the suppression of aphids in potatoes; for a list of products recommended for late-season potatoes go to *IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes*.

POTATO TUBERWORM: Potato tuberworm (PTW) moths were collected in seven of our network traps this week; four traps between Pasco and Eltopia with 1-4 moths/trap, one near Burbank, WA with 5 moths/trap, one south of Kennewick with 1 moth/trap, and one close to the Oregon border with 25 moths/trap. Some PTW moths are also being trapped along the Columbia River in Oregon. No moths have been collected lately in the north Columbia Basin. We expect the numbers of moths to continue to build in the southern Columbia Basin, with peak populations in September-October.

Management Recommendations: If you grow potatoes in the Columbia Basin south of Connell, it would be a good idea to put out your own PTW pheromone traps to monitor the situation. Information about setting up traps and identifying the moths can be found in the article, "*Tuberworm Monitoring with Pheromone Traps*". Infestations of PTW are highly localized, and it is risky to conclude too much from traps that may be several miles away. Unfortunately, we do not have enough information to translate counts from trapping into a risk assessment. It is clear, however, that more moths in traps equal more risk. The traps should be checked weekly. If the moth counts increase from week to week, then control measures may be warranted before harvest. Cultural methods reported to reduce PTW damage include 1) eliminating cull piles and volunteers to reduce overwintering stages of PTW; 2) maintaining soil moisture (apply 0.1" per day) after vine kill to prevent soil cracking; 3) minimizing the time between desiccation and harvest; and 4) maintaining more than 2" of soil over tubers during the season, and covering hills with 1-2" of soil after vine kill. Insecticide spray programs beginning 4-8 weeks before harvest have been successful in reducing tuberworm in potato tubers. For a

list of products recommended for PTW control go to ***IPM Guidelines for Insects and Mites in ID, OR, and WA Potatoes.***

POTATO PSYLLIDS and ZEBRA CHIP: Potato psyllids are small insects that can be problematic in potatoes, mostly because they can transmit a bacterium (*Candidatus Liberibacter*) which causes a disease known as zebra chip. Zebra chip (ZC) is a new disease for the Columbia Basin of WA and OR; it has previously been reported in TX, CA, CO, KS, NE, NM, and WY (mostly on chipping potatoes). This disease reduces both yield and tuber quality and has led to serious economic losses in some regions. Potato plants affected by ZC at an early stage may show leaf curling, purpling in the upper plant, bushy-appearance, and aerial tubers. Early on they may look like plants infected with potato leafroll virus, and later they may look like plants with purple top disease or psyllid yellows. More importantly, ZC can cause a necrotic symptom in the tuber. The necrosis has a characteristic “net-like” appearance when cut that first appears on the stem end of the tuber, but can progress through the tuber. The potato psyllid apparently does not overwinter in the Columbia Basin, but migrates from the south and arrives in the lower Basin in early July (based on trap data). Nymph and adult stages of the psyllid pick up the bacterium when feeding on an infected plant. Once a psyllid picks up the bacterium, it is always a carrier. It can transmit the bacterium to potato plants in as little as 6 hours of feeding. Even a low incidence of bacteria-carrying psyllids can cause widespread infection. Adult potato psyllids resemble miniature (0.5”) cicadas and are often referred to as “jumping plant lice”. They are quick, frequent movers, and are difficult to catch. Psyllid nymphs are small, green, and have a flattened, scale-like appearance. They are slow-moving and can be found on the underside of the leaves. Unfortunately, potato psyllids are not easy to monitor with traps. They are not attracted to yellow, and there is no pheromone currently available to attract potato psyllids. For more information, read the recent report issued by Silvia Rondon and Phil Hamm with OSU Hermiston, “***Essential Information about Zebra Chip in the Columbia Basin: Infection, Late Season Control, and Storage***”. The report includes several photos of the potato psyllid (egg, nymph, and adult stages), and foliar and tuber symptoms of ZC.

SPIDER MITES: We are finding spider mites in more potato fields across the Basin; they were seen in 9 of the 24 fields we surveyed this week. If you plan to use a miticide to control the mites, it may be too late to do much good. Miticides should be applied when mites are first detected, because none of the registered miticide products provide full control once populations reach outbreak levels. Miticides are most effective on eggs and nymphs. A well-timed 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 related to 1) use of non-selective pesticides, like pyrethroids; 2) close proximity to mite harboring crops like corn, alfalfa, hops, and mint; 3) close proximity to dusty roads; and 4) hot, dry weather.

BEET LEAFHOPPERS: Beet leafhopper (BLH) populations near potato fields continue to be small throughout the Basin. Our network of yellow sticky traps averaged only 0.7 BLH/trap.

Management Recommendations: Beet leafhoppers are important pests because they transmit BLTVA, a phytoplasma that causes purple top disease in potatoes. Most BLTVA infections occur

early in the season, during May-July, so most chemical treatments for BLH are applied at-planting and/or in May, June, and sometimes in July. It can take a while for purple top symptoms to develop, but if your potatoes were infected with BLTVA you are probably seeing the symptoms of purple top now. Symptoms may include leaf curling with purple coloration, aerial tubers, chlorosis, and early senescence. Potato cultivars vary in susceptibility to purple top. Ranger, Umatilla, and Norkotah are considered highly susceptible; Russet Burbank is susceptible; and Alturas and Shepody are moderately susceptible.

BENEFICIAL INSECTS: We are not finding many big-eyed bugs this late into the growing season, but are continuing to find some damsel bugs. Damsel bugs were found in 21% of the fields we monitored this week. Lady beetle adults and larvae, and minute pirate bugs were also seen in a number of fields across the Basin this week.