Wheat Entomology Newsletter 4, June 23, 2025

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Aphid and leafhopper outbreaks

While the wheat stem sawfly remains the predominant pest of concern in Colorado wheat production, we have observed increased populations of cereal aphids and leafhoppers this year. Several cereal aphids are important vectors of plant diseases such as bird-cherry oat aphids that causes barley yellow dwarf disease (BYDV). We are working with Dr. Robyn Roberts to confirm the presence of BYDV in symptomatic plants. We did not observe any wheat curl mites in these plants, but Dr. Roberts's lab is testing for presence of wheat streak mosaic virus, triticum mosaic virus and High Plains wheat mosaic virus. If you observe unusual or concerning insect activity in your fields, please don't hesitate to contact us.

Aphid Identification

Bird cherry-oat aphid (*Rhopalosiphum padi*): The insect is 1/16 inch long, olive-green colored with a red-orange patch surrounding the base of the body **(Figure 1)**. Most of the aphids we found were bird cherry-oat aphids. Populations were observed in Burlington, Byers, Julesburg, and New Raymer. This insect is a known vector of barley yellow dwarf virus (BYDV), which causes leaf discoloration and diminished plant growth.

Figure 1: Bird cherry-oat aphids. Photo credit: Ashley Raffa.

Russian wheat aphid (*Diruaphis noxia*): This aphid is about 1/16 inch long, lime green in color and "spindle shaped" (**Figure 2)**. This aphid is a historically troublesome pest of Colorado wheat crops. Although it has rarely reached treatment thresholds in recent years, confirmed populations have been found in Byers and New Raymer. Leaves infested by Russian wheat aphids have long white, purple or yellowish streaks.. The grain heads will often have a "fishhook" appearance, which results from the awns becoming trapped in curled leaves. Thankfully, the Russian wheat aphid is not a vector of virus diseases!

Figure 2: Russian wheat aphid and fish hook distortion caused by trapped awns. Photo credit: Ashley Raffa.

Greenbug (*Schizaphis graminum*): These aphids are also 1/16 inch long with an oval-shaped, light green body and a darker green stripe down its back **(Figure 3)**. It is a known vector of BYDV and also injects toxins while feeding (Peairs, 2016). It has been confirmed at Byers and New Raymer. We will continue to monitor for populations at different locations throughout the state. Damage from greenbug feeding first appears as tiny reddish or copper colored spots on leaves. As greenbugs continue to feed and reproduce, the infested leaf becomes yellowed, then dies.

Figure 3: Greenbug. Photo credit: Ashley Raffa.

Here is a picture of both bird cherry-oat aphids and green bugs on the same plant.

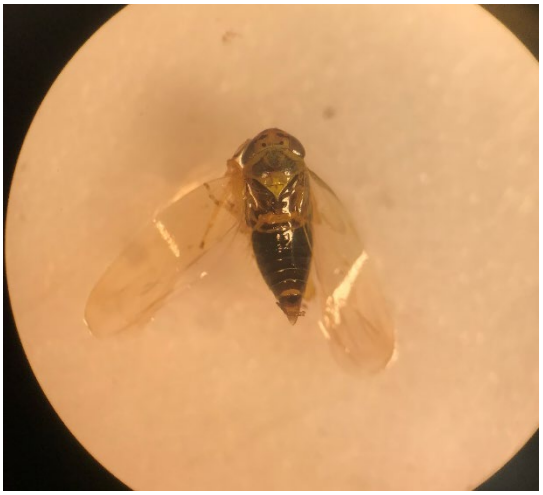
Aphid management:
Aphids have numerous natural enemies such as lady bird beetles, green lacewing larvae, hoverfly and parasitoid wasps, which are effective in controlling aphid populations without the need for insecticides.

An IPM approach for controlling aphids:

- Field scouting should be conducted regularly. One sample should not represent more than 160 acres, so if the field is larger than a section (160 acres), divide it into one-section blocks and take additional samples. Use a "W" or "U" shaped pattern and combine patterns for irregularly shaped fields. More details about scotuing can be found here- https://extension.okstate.edu/fact-sheets/small-grain-aphids-in-oklahoma-and-their-management.html
- Cultural control:
    - Controlling volunteer wheat near their fields. Try to have a three week volunteer-free period prior to emergence of fall seedings.
    - Adjust planting dates. Plant winter wheat as late as possible in northeastern, southwestern and western Colorado. Recommended planting dates have not been determined for southeast Colorado. Plant spring grains as early as possible.
- Planting certified resistant varieties of wheat. For example, Hatcher is resistant to aphids.
- Insecticides should be utilized based on the following guidelines-HPIPM:Russian Wheat Aphid - Bugwoodwiki. These thresholds are typically tailored to Russian wheat aphids and greenbugs, as bird cherry-oat aphids are often found in mixed colonies with them.

Leafhopper Identification

Aster leafhopper (*Macrosteles quadrilineatus*): Adult aster leafhoppers are olive-green, wedge-shaped insects about 4 mm in length. They're also called six-spotted leafhoppers because of the three pairs of spots on the tops of their heads **(Figure 4)**. It vectors the aster yellows phytoplasma, which can cause a variety of plant symptoms. Excessive feeding results in yellow discoloration of the leaf, and the characteristic symptoms of "hopper burn." Hopper burn is often mistaken for drought stress, as the leaves of affected plants begin to turn yellow and will dry out beginning at the leaf tip (Figure 4). Our lab has a population confirmed in New Raymer, and another suspected in Byers.



(P. Beauzay, NDSU)

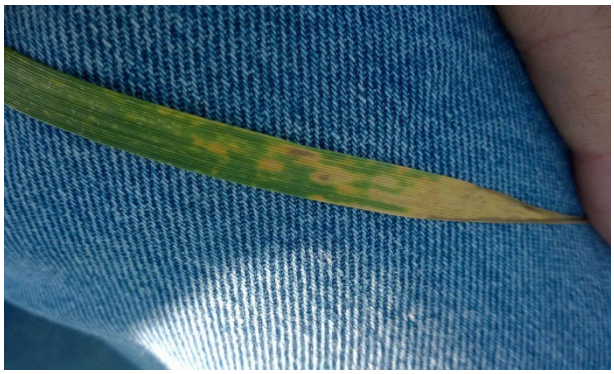


Figure 4: Aster leafhopper adult (Photo credit: Ashley Raffa), the three-pairs of spots on the head (NDSU) and wheat leaf showing hopper feeding injury (SDSU).

Leafhopper management: As with the aphids discussed previously, scouting is necessary for detecting leafhopper infestations. There are no management recommendations for aster leafhoppers, management decisions can be based on the presence of observable feeding injury and population size.

Additional Resources

Michaud, J. P. (2024, June 6). *Bird cherry-oat aphid*. Facts and Information on Wheat Pests. Retrieved June 20, 2025, from https://entomology.k-state.edu/extension/crop-protection/wheat/bird-cherry.html

Peairs, F. B. (2016, April 1). *Russian Wheat Aphid*. Aphids in Small Grains. Retrieved June 20, 2025, from https://extension.colostate.edu/docs/pubs/insect/05568.pdf

Small Grain Aphids in Oklahoma and Their Management-https://extension.okstate.edu/fact-sheets/small-grain-aphids-in-oklahoma-and-their-management.html

Aster Leafhoppers Showing up in South Dakota Wheat- https://extension.sdstate.edu/aster-leafhoppers-showing-south-dakota-wheat-

Wheat Diseases

For wheat disease updates by Dr. Robyn Roberts, please see:
https://coloradowheat.org/category/news-events/wheat-pest-and-disease-update/

Acknowledgements

We would like to acknowledge the tireless work of CSU researchers and extension agents for reporting pest problems throughout the state.