PLANT DISEASE AND INSECT ADVISORY

Bird Cherry Oat Aphids in Wheat: To Control or Not to Control
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Greenbug and bird cherry oat aphid numbers have been increasing in wheat during the past several weeks in some parts of Oklahoma. As populations become more visible, questions will be asked about the need for control.

Research conducted by Dr. Kristopher Giles (OSU) and Dr. Norman Elliott (USDA-ARS) has revealed that bird cherry oat aphids DEFINITELY cause more yield loss to forage and grain than we previously believed. Bird cherry-oat aphid also is a vector of Barley Yellow Dwarf Virus, which can also reduce yield. Despite that information, you will be hard pressed to find any treatment recommendations for this insect in the southern hard red winter wheat belt.

This spring we are seeing aphid buildups in some wheat fields that similar to those seen in 1997, when populations were so dense the wheat plants were sticky with honeydew and aphid densities exceeded 500+ aphids per linear foot of row. A producer is very likely to be concerned about such a build-up.

For greenbugs, we have the Glance 'n Go System for sampling and estimating treatment thresholds, found at: http://www.pswcrl.ars.usda.gov/gbweb/index.htm.

Simply estimate the treatment thresholds by using the aphid threshold calculator, and print off the form. If you want to bypass that calculator, as a general rule of thumb you can print off a Glance 'n Go form for spring infestations of 4 or 6 greenbugs/tiller and use it to sample your fields.

What are my thoughts and suggestions regarding control of Bird cherry oat aphid in winter wheat?
- Bird cherry-oat aphid causes very little, if any visible damage and populations are usually controlled by weather, parasites, predators, and disease; therefore infestations may go unnoticed.

- Research information provided by Drs. Giles and Elliott suggest that BCO is almost as damaging to wheat yield as is the greenbug. Data from studies conducted in the northern grain producing states of South Dakota, Minnesota, and North Dakota on spring wheat have also shown that it causes yield loss, particularly if the wheat has not yet reached the boot stage.
- The data shows that if populations were to exceed 20 aphids per tiller BEFORE boot, (400 aphids per foot of row) for 10 days, a 5% yield loss could be expected. If populations exceeded 40 aphids per tiller for 10 days, (800 per foot of row) BEFORE boot, a 9% yield loss could be expected.

So where does that leave us? My suggestion is as follows:

Aphids are preyed upon by tiny wasp parasitoids, which sting them and lay an egg inside of the aphid. As the wasp larva develops inside the aphid, it causes the aphid to become a "mummy". Look for the presence of mummies (they will be light tan colored) on wheat stems. If more you see mummies on at least 7 of 25 stems, don't treat because parasites are likely working on the other aphids as well.

If mummies are not evident, and a producer is trying to decide whether to treat, use the following steps to determine if a field should be treated:

Count the number of aphids on 25 individual tillers. Determine a potential Yield Loss from the aphids. Then determine your Crop Value, and your Control Costs. Use those numbers to estimate Preventable Loss. If Preventable Loss exceeds Control Costs, then treat, otherwise, Do Not Treat.

- Step 1: Estimate **Yield Loss from BCOA**: _____

  - Total # aphids_____/25 stems = average # aphids/tiller_____

- Step 2: Estimate **Crop Value** /acre

  - Yield potential = #_____ bushels/acre
  - Grain Value = $_____ per bushel

    Crop Value = Yield potential x GrainValue = $_____ per acre

- Step 3: Estimate Control Cost:

  - Insecticide cost = $_____ /acre
  - Application Cost = $_____/acre

    Control Cost = Insecticide Cost + Application Cost = $ _____/acre

- Step 4: Estimate **Preventable Loss**

  - **Crop value** = $_____/acre
  - **Yield Loss from BCO** = _____   **0.00** if counts are less than 20/tiller

    0.05 if counts are 20-39 aphids/tiller

    0.09 if are 40 or more/tiller

    Preventable Loss = Crop value x Yield loss estimate = $_____

IF **Preventable Loss** $_____ is greater than **Control Cost** $_____ TREAT

IF **Preventable Loss** $_____ is less than **Control Cost** $_____ DON'T TREAT

The bottom line is that you shouldn't push the panic button. Natural enemies can reduce aphid numbers rapidly, so give them some time to work. If they are not present, use the guidelines I outlined before deciding to spray.

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