



Pest e-alerts



Entomology and Plant Pathology, Oklahoma State University
127 Noble Research Center, Stillwater, OK74078
405.744.5527

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Wheat Disease Update

Bob Hunger, Extension Wheat Pathologist



Although not severe, powdery mildew (PM) can be found with ease in most trials on susceptible varieties if the growth is thick. Weather this week was favorable for wheat growth and disease development with highs between 75-85°F, lows in the mid-60s °F, and with high humidity and dew formation most mornings. This should lead to a dramatic increase in PM levels and also provides favorable conditions for leaf rust; it actually may be a little warm for stripe rust (one day this past week reached 88°F!). Our early foliar fungicide application was done on 14-Mar at GS 7. Two nodes were easy to find on most tillers with emergence of the flag leaf not all that far away on some tillers (variety is Jagger). Still no leaf rust observed this far north in Oklahoma, but observation of sparse pustules were reported to me last week by Gary Strickland (Extension Educator, Jackson County – SW Oklahoma). Septoria is evident on lower leaves but is not severe. Soilborne-spindle streak symptoms are disappearing quickly in that nursery. As indicated below and also confirmed by other Extension Educators around the state, aphids are abundant. I have seen both bird cherry oat aphids and greenbug around Stillwater. Symptoms of BYD continue to develop.



Dr. Jeff Edwards (OSU Small Grains Extension Specialist) reported on 15-Mar, “I did not see much disease at all. I saw just a little PM at McCloud (just east of Oklahoma City) in wheat that should have been loaded with it. Plenty of aphids, though!

Dr. Brett Carver (OSU Wheat Breeder) reported on 15-Mar, “Even with a loaded canopy at Granite (SW Oklahoma), Marshall (30 miles west of Stillwater), and Lahoma (15 miles west of Enid), diseases are AWOL, only some minor leaf spotting in the lower canopy. Jeff is right about the aphids - BCO, I presume, were out in full force at Lahoma. Where we got a jump on planting at Lahoma (Oct. 6th) after a fallow year, I'm pretty confident we'll be taking heading notes there in less than 10 days. Not so in the variety trial - it looks more normal.”

Texas: Dr. Amir Ibrahim (Assoc. Prof, Small Grains Breeding and Genetics, Texas A&M), 14-Mar: I toured our rust evaluation nursery located 12 miles west of San Antonio, TX on Mar-14. These 25 acres have yield trials, segregating populations, and head-rows, with winter and spring types planted in mid-Nov and Dec, respectively. The nursery looks great and the growth is lush. All entries have satisfied their vernalization requirements, including those from Nebraska and South Dakota. Spring wheat has not headed yet, but the early winter types have already done so. None of the northern Great Plains entries have headed yet. The wheat crop is early by at least a week this year.



Leaf rust is developing rapidly and uniformly in the spreaders, ranging from 60S – 80S. Consistent with previous years, there is more leaf rust in the observation head-rows as compared to the yield trials. Some entries were rated 100S. I have found yellow rust in some of the head-rows with ratings as high as 60S. No indication of leaf or yellow rust race change but it is early to tell at this point. The highest rating I could find in the Texas Uniform Variety Trial (UVT) for leaf rust was 60S.

Powdery mildew is very heavy on some lines.

James Swart (IPM Entomologist, Texas AgriLife Extension, Texas A&M-Commerce) 13-Mar: The following are quotes from James’ report, which covers northeast Texas:

“To describe this year as unusual would be an understatement. Although, most fields were planted around the optimum planting date (Nov-1), plants have progressed rapidly due to one of the mildest winters on record. The earliest maturing varieties are approaching the boot stage (Feekes 10), while the latest maturing varieties are in Feekes 7 (two nodes above ground). By our estimate, wheat development is 10 days to two weeks ahead of normal.”

“Bird cherry oat aphid populations have virtually exploded in many area fields. This has been a recent development, as there were very few aphids observed as late as the end of last month. These aphids are usually considered minor pests that are kept under damaging levels by beneficial insects (parasitic wasps, ladybeetles, and lacewings). But I have seen populations in excess of 1000 aphids per foot of row this week, causing visible plant stunting.”

“Stripe rust (*Puccinia striiformis*) has infected some experiments in our research trials. Leaf rust (*Puccinia recondita*) has not yet been observed in this region, but the warmer than normal temperatures we are observing are ideal for leaf rust development.”



Arkansas: Dr. Gene Milus (Small Grains Pathologist, University of Arkansas), 14-Mar: “I looked at wheat plots in Fayetteville yesterday. Growth stage ranges from tillering to 1 node for most of the commonly-grown cultivars to close to flag leaf emergence for earliest lines in nurseries. This wide range in maturity may be due to presence or absence of photoperiod sensitivity among the cultivars and lines. Freeze damage occurred on stems of some of the earliest lines, as we had frost this past weekend.

A trace of leaf rust was found for the first time here this season. Leaf blotch is at a low level. No powdery mildew or BYD yet. A stripe rust inoculation on Jan-31 in our breeder’s head row nursery was very successful, but there has only been very limited spread to new leaves since then. Currently, overnight lows are too warm for stripe rust infection, and we may break all-time daily high temperature records across the region with temperatures forecast to be in the mid-80s °F.

In eastern Arkansas where there has been a lot of early stripe rust, additional fields with hot spots continue to be found. In general, fields with hot spots are being sprayed with a fungicide as weather permits. (Last week was too rainy and windy for aerial applications.) Current warm temperatures should help slow stripe rust development.

Bird Cherry Oat Aphids in Wheat: They Have Something to Eat This Year

Tom A. Royer, Extension Entomologist

We have a much healthier wheat crop this year than last, and bird cherry oat aphids are taking advantage. Bird cherry oat aphid (BCOA) numbers have been increasing in wheat this past 1-2 weeks in parts of Oklahoma. I checked several wheat fields in Garfield, Logan and Kingfisher counties this week and found numbers that ranged from 1 per tiller, to more than 30 per tiller. I noticed that un-grazed and/or early-planted fields with dense foliage had heavier aphid populations, and grazed and/or late-planted fields with less dense foliage had lower aphid numbers.

Bird cherry oat aphids are small (2mm) olive-green aphids with a red-orange patch surrounding the base of each cornicle (Figure 1). Old, wingless, overwintering adult aphids are darker, almost black. At this time, you will also likely find winged aphids that have moved in to the field (Figure 2).



Fig 1. Bird cherry oat aphids.



Fig 2. Winged bird cherry oat aphid.

What are my suggestions regarding control of Bird cherry oat aphid in winter wheat?

- Unpublished research provided by Dr. Kris Giles (OSU) and Dr. Norm Elliott (USDA-ARS) along with studies conducted in South Dakota, Minnesota, and North Dakota on spring wheat indicated that BCOA causes yield loss before wheat reaches the boot stage.
- Visible damage from bird cherry-oat aphid is not very noticeable so infestations may go unnoticed. It is very important to check fields for infestations and make treatment decisions only after a field has been checked.

My suggestion for making a treatment decision is as follows:

If bird cherry-oat aphid is present alone, count the number of aphids present on each of 25 randomly-selected tillers across a zigzag transect of the field. Look for evidence of parasite activity in the form of mummies (Figure 3). A rule of thumb is that if 5-10% of the aphids are mummies, more than 90% are already parasitized. If mummies are not present, use the guidelines below to make a treatment decision.



Fig 3. Bird cherry oat aphid mummy, photo courtesy of Robert Bellm, University of Illinois.

Use the YIELD LOSS TABLE to determine a potential YIELD LOSS from the aphids. Then estimate your CROP VALUE and calculate your CONTROL COSTS. Use those numbers to estimate PREVENTABLE LOSS. If estimated PREVENTABLE LOSS is greater than CONTROL COSTS, Treat; otherwise, Don't Treat.

Here is an Example:

⇒ Step 1: Estimate **YIELD LOSS**:

- Total # aphids 525 /25 tillers = average # aphids/tiller 21
- **YIELD LOSS TABLE:** = 0.0 if aphid counts are less than 20 per tiller
0.05 (5%) if aphid counts are 20-39 aphids per tiller
0.09 (9%) if aphid counts are 40 or more per tiller

YIELD LOSS: 0.05

⇒ Step 2: Estimate Crop Value: (Crop Value = Yield potential X Price per bushel)

- Yield potential 40 bushels/acre X price per bushel \$ 6.50 per bushel

CROP VALUE = \$ 260

⇒ Step 3: Estimate **CONTROL COST**: (Control Cost = Insecticide Cost + Application Cost)

- Insecticide cost \$ 6 /acre + Application Cost \$ 3 /acre

CONTROL COSTS \$ 9 /acre

⇒ Step 4: Estimate **PREVENTABLE LOSS** (Crop Value X Yield Loss from Aphid)

- Crop value/acre \$ 260 x Yield Loss from aphid 0.05

PREVENTABLE LOSS \$ 13 /acre

IF **PREVENTABLE LOSS** \$ 13 is greater than **CONTROL COSTS** \$ 9 TREAT

IF **PREVENTABLE LOSS** \$ _____ is less than **CONTROL COSTS** \$ _____ DON'T TREAT

Check CR-7194, "Management of Insect and Mite Pests in Small Grains" for registered insecticides, application rates, and grazing/harvest waiting periods. It can be obtained from any County Extension Office, or found at the OSU Extra Website at <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2601/CR-7194web2008.pdf>

Face flies are back in Oklahoma!

Justin Talley, Extension Livestock Entomologist



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Recently, a population of face flies was found near Covington, OK. This is significant since we have not had a confirmed population in Oklahoma since 1985. Cattle producers need to be diligent in checking their cattle in the next two to three months for flies congregating around the eyes, mouth, and nose. These will be the first flies seen around the eyes of cattle this spring (Fig. 1).

Description: Face flies (*Musca autumnalis*) resemble house flies except they are slightly larger. Adult face flies are active from March to November in warmer areas of the United States. The adults are grayish and are 6 to 9 mm long and 2 to 3 mm wide. Their thorax has four black stripes that are seen lengthwise on top. The abdomen is orange-yellow on the sides in males and gray-black with an orange stripe in females. Also, the eyes are closer together and nearly touch each other whereas house fly eyes are more separated. Face fly adults can be seen on cattle mainly but can occasionally be seen on horses and sheep.



Fig 1. Face fly feeding around the eye of a cow. Photo Credit: A. Broce Kansas State University.

Life Cycle: Face flies deposit their eggs in fresh (<24 hrs old) cattle manure. Larvae hatch from the eggs and disperse throughout the dung pat and when mature they will pupate in the soil. A unique characteristic of a face fly puparium is that they are white from calcification whereas, other important dung breeding flies have a brown to black puparium (Fig. 2). Development time from egg to adult ranges from 20 to 12 days when dung and soil temperatures are between 68°F to 80°F. When the adult emerges they seek sugar and protein sources for their energy requirements. The female face fly requires protein to form eggs after mating and they obtain this protein from various secretions from cattle such as tears, saliva, vaginal discharge, blood from wounds, and milk on calves' face. Male adult face flies feed on plant pollen and nectar.

Face flies overwinter as adults and go into a reproductive diapause when days become shorter and temperatures are cooler. They overwinter in sites such as barns, house attics, sheds, and walls that are not insulated. These sites are considered hibernacula (Fig. 3) that the flies return to every year due to a specific odor that the flies release to recruit other flies. Winter survival is very low if the structure is unheated. Two other types of flies will congregate in the same areas and they are usually some type of cluster fly.



Fig 2. Face fly pupae (L) and house fly pupae (R). Photo Credit: A. Broce Kansas State University.



Fig 3. Face fly hibernaculum in an attic of a Nebraska farm house. Photo credit: C. Jones, USDA, ARS.

Economic Importance: The effects of face flies to cattle include both pathogen transfer and annoyance or irritation. Face flies possess small, rough spines (pre-stomal teeth) on their mouthparts that damage the cattle eye tissue. This damage enhances the transmission of the bacterium *Moraxella bovis*, the principal agent of infectious bovine keratoconjunctivitis (IBK) which is more commonly known as “pinkeye”. Face flies can also transmit a nematode eyeworm (*Thelazia*) and this nematode relies on face flies as an alternative host.

In addition to transmitting diseases, face flies will persistently feed on cattle causing them to bunch or seek shaded areas in a useless attempt to avoid the flies. This behavior will interfere with grazing and reduces weaning weights.

Another concern is the nuisance value these flies present to homeowners where the fly has formed a hibernaculum. These flies will swarm around the house and inside the house on warm spring days and will generally congregate around windows.

Control: Control of the face fly is difficult because it is generally on the face of the animal, an area difficult to treat, and because it spends little time on the animal. Treatment is generally achieved with self-treatment devices; dust bags, oilers and insecticide-impregnated ear tags. Ear tags impregnated with insecticide can provide fairly good control. The problem with ear tags is the management issue of horn fly populations that cattle producers will have to deal

with later in the summer. Specifically, pyrethroid tags work very well on face flies but are not effective tags for horn fly control if the tag has been on that animal for more than three months. This would certainly be an issue since cattle producers would have to treat their cattle for face flies earlier than if they were just treating for horn flies. Another issue with ear tags is that for face fly control you would have to tag both the calf and the cow whereas for horn flies you would only have to tag the cows. This could become costly especially when considering the possibility of not getting sufficient horn fly control later in the fly season.

Probably the best treatment for face flies on cattle is the use of dust bags in a forced use system where every animal within a herd passes through the dust bag to get to water, feed, or mineral. This would allow the producer to utilize an ear tag later on for horn fly control. If dust bags are used free-choice, then usually only bulls and older cows tend to dominate their use. To prevent waste from the whipping action of wind, dust bags should be hung in a manner in which the bottom of the bag is tied to a pole on both sides. If the bags are not water resistant, they should be checked after it rains to assure that the dust hasn't caked, which prevents dust dispersal.

If you see flies on or around the face of cattle in the next 2 to 3 weeks then they could be face flies and cattle producers should contact their local county extension educator.

Dr. Richard Grantham
Director, Plant Disease and Insect Diagnostic Laboratory

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