University of Kentucky
College of Agriculture, Food and Environment
Cooperative Extension Service

Wheat Science

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What's inside

University of Kentucky
College of Agriculture, Food and Environment
Grain and Forage Center of Excellence

Aphids in Winter Wheat and Their Control During Spring in Kentucky

Dr. Raul Villanueva —Extension Entomologist

Aphid species and Barley yellow dwarf virus

In Kentucky, two aphid species are the key species in wheat, the bird-cherry oat aphid and the English grain aphid. There are other aphid species, but these two are the most common and abundant. Bird-cherry-oat aphids are olive-green colored bodies and reddish-orange patches near the base of cornicles (tailpipes), their antennae, eyes, and tips of legs and cornicles are black colored (Fig. 1a). English grain aphids are easily identified by their relatively long legs, antennae and cornicles. English grain aphids can be yellow-green to reddish brown, and have black antennae, cornicles, and leg joints (Fig. 1b).

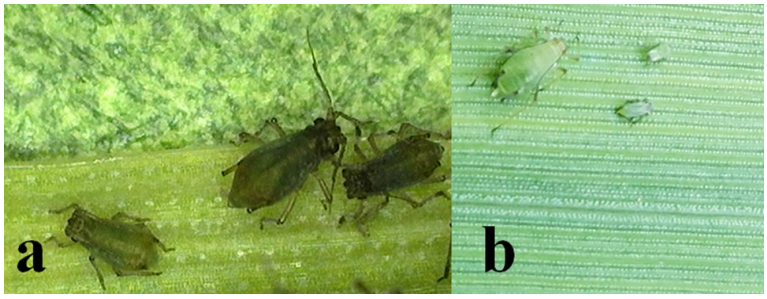

Figure 1. (a) Bird-cherry oat aphids, and (b) English grain aphids

These species feed by sucking the phloem of plants. This direct damage may not be important unless aphids reach high populations. However, the transmission of barley yellow dwarf virus (BYDV) can cause yield reductions with negative impacts to wheat farmers' profits. This infection can be triggered by small numbers of aphids especially if they attack in the fall or early spring.

Current conditions

Several stages of wheat development have been observed across several counties in Kentucky. Due to environmental condition planting in the 2019 fall were well spread (Fig. 2a). Although the winter season was not severe, tallies for aphids conducted by late February, and 6, and 17 of March 2020 did result in total absence to insignificant numbers of aphids. However, as tempera-

tures increased by mid-March, many insects appeared in fields and came out of their "winter nap" or diapause (Fig 2b). My last aphid counts on 1 April 2020, resulted in an average of 3.1 aphids per foot row from different locations in western Kentucky. This average did not exceed the economic threshold of 10 aphids per foot of row (for more than 60 days post emergence).

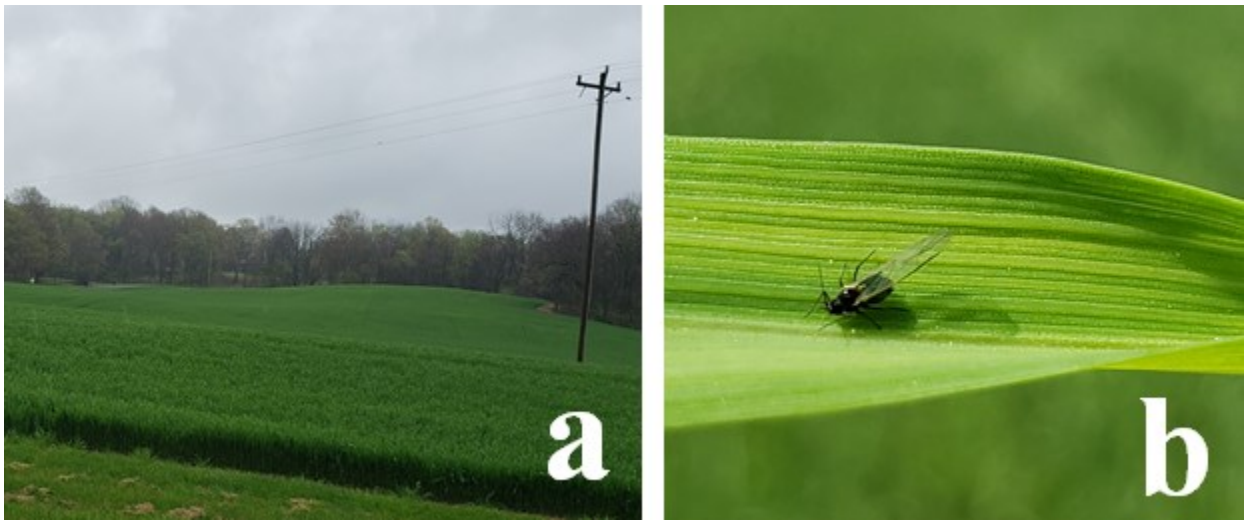

Figure 2. (a) Wheat field in Logan Co. in March 30, and (b) Winged aphid foundress resting in a wheat blade.

The count of 3.1 aphids/1 ft row might be representative of aphid populations in many areas of Kentucky; however, farmers might have already conducted or will be conducting an application of insecticide (usually a pyrethroid). In Kentucky, the spring pesticide application usually includes insecticides, fungicides, fertilizers, or herbicides. Nonetheless, the addition of insecticide in this mixture must be based on aphid tallies indicated above. Additionally, farmers should consider the presence of natural enemies. At this time, lady bugs, syrphid flies and parasitoids have been observed actively searching for prey in wheat fields.

2020 VIRTUAL WHEAT FIELD DAY AND SAFE SOCIAL DISTANCING…

The UK Wheat Science Group will be presenting the 2020 WHEAT FIELD DAY via Zoom this year!
Our speakers are taking extra time to put together presentations that maintain a "field day feel" while keeping everyone safe.
To ensure that you get the most out of your experience, we are asking your help with the following.

Decide how you would like to view the presentations (Zoom online or Zoom app)

Watch online - click link below

Download and install the Zoom application.

Go to https://zoom.us/download and from the Download Center, click on the Download button under "Zoom Client For Meetings". This application will automatically download when you start your first Zoom Meeting. (follow the instructions in Bullet 2 to join the 2020 Wheat Field Day)

Download and install the Zoom mobile Application for iPhone or Android.

Go to https://zoom.us/download and from the Download Center, click on the Download button under "Zoom Client For Meetings". This application will automatically download when you start your first Zoom Meeting.

On May 12, 2020 at 8:45am (central time) **please join the meeting** by entering the link below or calling one of the numbers listed.

The Wheat Science Group is inviting you to a scheduled Zoom meeting.

Join from PC, Mac, Linux, or mobile device: https://uky.zoom.us/j/517288978?pwd=NVRwdmZsVDRPZ25YNlJVVmsxSHZ3UT09

Password: 028622

Or iPhone one-tap (US Toll): 13126266799,517288978# or 16468769923,517288978#

Or Telephone: Dial:

+1 312 626 6799 (US Toll)	+ 253 215 8782 (US Toll)
+1 646 876 9923 (US Toll)	+ 301 715 8592 (US Toll)
+1 346 248 7799 (US Toll)	Meeting ID: 517 288 978
+1 669 900 6833 (US Toll)	

Please note: Those on our Newsletter distribution list will receive an email reminder with the above information prior to the Wheat Field Day. If you have any questions email Colette.laurent@uky.edu We look forward to "seeing" you at the Field Day!

UK WHEAT FIELD DAY
A VIRTUAL EVENT

May 12, 2020 **9-Noon (Central)**

Join from PC, Mac, Linux, or mobile device: **Password: 028622**

https://uky.zoom.us/j/517288978?pwd=NVRwdmZsVDRPZ25YNlJVVmsxSHZ3UT09

TOPICS:

- **WHEAT MANAGEMENT UPDATE** DR. CARRIE KNOTT
- **ECONOMICS OF SMALL GRAIN MANAGEMENT STRATEGIES** DR. JORDAN SHOCKLEY
- **UK VARIETY TRIAL** DR. DAVE VAN SANFORD & BILL BRUENING
- **SUSTAINABILITY** MR. CARL SCHWINKE
- **RYE IN KENTUCKY** DR. CHAD LEE
- **WHEAT DISEASE MANAGEMENT CONSIDERATIONS** DR. CARL BRADLEY
- **APHIDS, WIREWORMS & HESSIAN FLY IN WINTER WHEAT** DR. RAUL VILLANUEVA
- **WEED MANAGEMENT IN WHEAT** DR. TRAVIS LEGLEITER

COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT
Grain and Forage Center of Excellence

KENTUCKY Small Grain GROWERS' ASSOCIATION

Considerations for Fungicide Management of Fusarium Head Blight (Scab) of Wheat

Dr. Carl Bradley —Extension Plant Pathologist

When wheat heads begin to flower, it is a critical time, as wheat becomes susceptible to infection by *Fusarium graminearum*, the causal agent of Fusarium head blight (FHB; also known as scab).

(Fig. 1 Symptoms of Fusarium head blight (scab) of wheat (note the "bleached" heads) (Photo by C. Bradley).

This disease can cause reduced grain yield, test weight, and quality. In addition, the fungus can produce toxins that will contaminate grain such as deoxynivalenol (DON; also known as vomitoxin). Harvested grain with high levels of DON may be discounted or outright rejected at the elevator. To achieve the best management of FHB, different management practices must be implemented, such as planting wheat into fields that were previously cropped to soybean (rather than corn), planting wheat varieties with moderate to high levels of resistance to FHB, and applying foliar fungicides at the proper timing. Of these different management practices, the application of foliar fungicides is the only one that can be done during the growing season and is the main focus of this article.

Multiple fungicides are registered for use on wheat, but only a few have efficacy in managing FHB. Fungicides available for FHB and DON management include Caramba (BASF Corporation), Miravis Ace (Syngenta Crop Protection), Prosaro (Bayer CropScience), Proline (Bayer CropScience), and multiple tradenames of products that contain tebuconazole as their solo active ingredient. Of these products, the best efficacy has been obtained with Caramba, Miravis Ace, Prosaro, and Proline in multi-state university field research trials.

Proper fungicide application timing is critical in achieving the best efficacy. The best application timing is considered to be when plants are beginning to flower (Feekes growth stage 10.5.1; Fig. 2), but some efficacy may still be achieved within a few days after Feekes 10.5.1. In regards to fungicide application timing, it is important to always follow the label recommendations and consider the preharvest interval (PHI) requirements (PHI for Caramba, Prosaro, Proline, and buconazole products is 30 days, and Miravis Ace cannot be applied after the Feekes 10.5.4 growth stage). Fungicide products that contain strobilurin active ingredients should not be applied for control of FHB, and most do not list FHB control or suppression on their label. In multiple university research trials, strobilurin fungicides have been shown to increase DON levels in grain compared to non-treated checks. Therefore, it is extremely important that only effective fungicides be applied for management of FHB.

When making a decision on if a fungicide application is needed, FHB risk should be assessed. A FHB Prediction Tool is available on-line at www.wheatscab.psu.edu. This risk is based on weather conducive for FHB, and should be assessed for each field as they begin to develop heads in anticipation of flowering. It is important to continually monitoring the FHB Risk Prediction Tool as more and more wheat fields get closer to the flowering stage.

Fig. 2. A wheat head at the Feekes 10.5.1 growth stage (beginning flowering). Note the yellow anthers extruding from the middle part of the head (Photo by C. Bradley).

UK SOIL TESTING LABORATORY

Plans for the University of Kentucky Soil Test Laboratory (STL) in Lexington and Princeton, KY during the COVID-19 threat.

Our labs at Division of Regulatory Services have remained open because University administration has deemed our work essential since it is associated with food production and safety.

We are practicing social distancing, avoiding close physical space, and cleaning surfaces frequently used by others.

DROPPING OFF SAMPLES

The future is unknown on how long we will remain open. We are currently in full operation receiving and testing samples to serve our clientele until we receive directives otherwise. During our current operation, we will follow the plan below to minimize social contact.

1. Buildings are closed to outside visitors. Samples and proper paperwork an be dropped off by Extension Office personnel or other clients having an account with us.
    a. Samples brought to Lexington should be placed in the file cabinet in back of the building.
    b. Samples brought to Princeton should be placed on the cart on the loading dock.
2. Samples can be mailed to either the Lexington or Princeton labs.

UK PLANT DISEASE DIAGNOSTIC LABORATORY

Plans for Plant Disease Diagnosis During the COVID-19 Threat

We, the members of the University of Kentucky Extension Plant Pathology Team, appreciate the high regard Kentuckians have for our plant diagnostic services. Year-round, we work hard to support our fellow citizens in their diverse plant production systems.

The COVID-19 Pandemic of 2020 has created extremely challenging circumstances for all Americans. With consideration of both our responsibilities as plant doctors for the Commonwealth and our responsibilities to safeguard our own health and that of others, we have prepared guidelines for managing our responsibilities during this pandemic.

For your information, the Plant Disease Diagnostic Laboratories (PDDL) at both Princeton and Lexington had been closed (for reasons unrelated to COVID-19) but reopened on 30 Mar 2020. We anticipate that the **PDDL labs will operate as follows, until future notice:**

- Only commercial samples delivered via postal mail or courier service, and originating from County Extension Offices, will be evaluated. (Exceptions will be made for hemp samples when there is agent involvement; guidelines can be found here and through your local Extension office.)
- Walk-in (drop-off) samples will NOT be received by either the PDDL in Lexington or the PDDL in Princeton.
- It is critically important that County Extension Agents/County Extension Offices receive the samples so they can then be mailed to the PDDL.
- Samples directly from the public will not be evaluated.
- No out-of-state samples will be received during this time.

Of course, our circumstances are highly fluid, so the scenario under which we operate, and our operation guidelines, may change with little notice.

We appreciate your understanding in these most difficult times.

Carl Bradley & Nicole Gauthier— Extension Plant Pathologists

Brenda Kennedy & Sara Long— Plant Diagnosticians

Emily Pfeufer, Paul Vincelli & Kiersten Wise—Extension Plant Pathologists

USEFUL RESOURCES

http://wheatscience.ca.uky.edu/home

Crops Marketing and Management Update

http://www.uky.edu/Ag/AgEcon/extcmmu.php

Carrie Knott, Extension Grain Crops Specialist

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Princeton, KY 42445-0469

RETURN SERVICE REQUESTED

Upcoming Events

Please note: The University of Kentucky Research and Education Center/Grain and Forage Center of Excellence is moving forward with its summer educational programming in a COVID-19 safe manner. We look forward to your attendance and the opportunity to participate in our educational outdoor activities and programming.

May 12	UK Wheat Field Day	Virtual
May 28	KATS—Crop Scouting Clinic	TBA
June 18	KATS—Mid-Season	TBA
June 30	Pest Management Field Day	TBA
July 16	KATS—Spray Clinic	TBA
July 28	UK Corn, Soybean & Tobacco Field Day	TBA
July 30	High School Crop Scouting Competition	TBA
Aug. 27	KATS End of Season	TBA