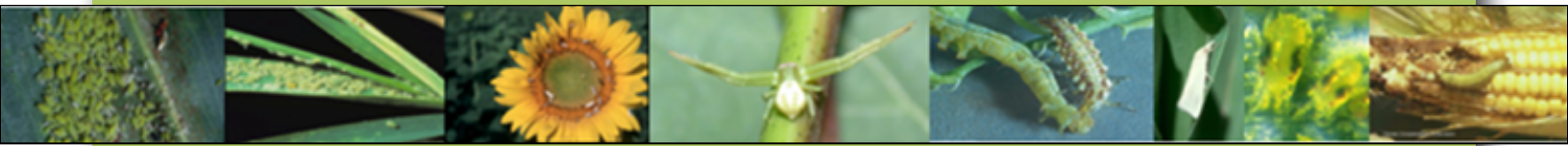


Panhandle Pest Update



TEXAS A&M
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March 10, 2017

Volume IX, issue 1

Wheat Pests

With the warm weather wheat pests are starting to become active. So, now is the time to be scouting fields for those developing or damaging pest infestations. Since we have had a relatively mild dry winter wheat pest such as greenbugs, bird cherry-oat aphids, Russian wheat aphids, brown wheat mites, and wheat curl mites could be pests of concern.

Greenbug and Bird cherry-oat aphid

The greenbug and bird cherry-oat aphid are most likely to be found together, but one of the aphids may be more abundant than the other aphid. The greenbug is light green and has a characteristic darker green stripe down its back. Greenbugs inject a toxin when feeding causing localized reddish spots on leaves, but under heavy infestations yellow and irregular shaped patches can spread across the field.

The bird cherry-oat aphid can be yellowish-green to a dark green or almost black in color. With the use of a hand lens there can be seen a reddish-orange area at the base of the abdomen around the cornicles. Feeding from the bird cherry-oat aphid does not cause any visible damage.



Greenbug

Photo: Frank Peairs, Colorado State Univ.



Bird cherry-oat aphid

Photo: Erin Hodgson, Iowa State Univ.



<https://twitter.com/TXPIPM>

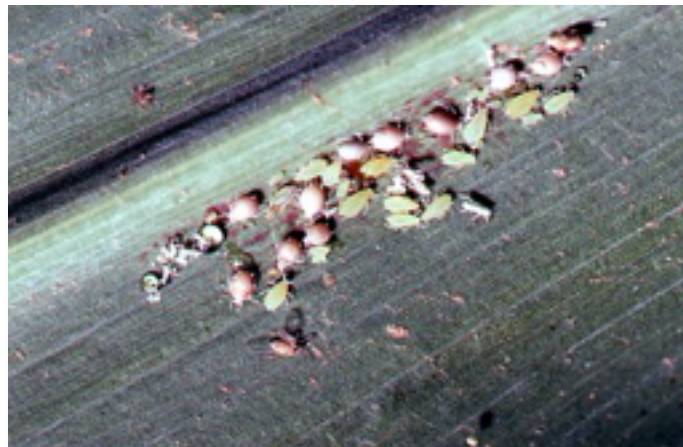


<http://txppipm.blogspot.com>

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Sampling Fields. Since lady beetles and parasitic wasps (shown below) are also active now and could help control aphids naturally, **fields should be inspected and decisions to treat should be based on threshold levels.** The “Glance ‘n Go” sampling system (<http://entoweb.okstate.edu/gbweb/index3.htm>), as developed by Oklahoma State University and USDA-ARS, is a good tool for determining if greenbug or Russian wheat aphid infestations are at treatable levels. This sampling method takes into account the presence of parasitic wasp mummies when recommending treatment decisions. Our standard action threshold table for greenbugs can still be used for determining the need for a treatment, but it does not account for treatment costs and value of the crop. When using this action threshold take into account that when there are one to two lady beetles (adults and larvae) per foot of row, or 15 to 20 percent of the greenbugs have been parasitized, control measures should be delayed until you can determine whether the greenbug population is continuing to increase or declining.



Action Threshold Table for Greenbugs	
Plant Height (inches)	Number of greenbugs per linear foot
3 - 6	100 - 300
4 - 8	200 - 400
6 - 16	300 - 800

Oklahoma State University along with South Dakota, Minnesota, and North Dakota have conducted studies that indicate bird cherry-oat aphids can cause from 5-9% yield loss from 20-40 aphids per tiller before wheat reaches the boot stage. The following procedure and table from Dr. Tom Royer, Oklahoma State University, can be used to calculate when bird cherry-oat aphid infestations should be treated:

Estimate APHIDS PER TILLER _____/tiller = Total # aphids _____/25 tillers
 Estimate CROP VALUE \$ _____/acre = Expected yield _____ bushels/acre X \$ _____/bushel
 Calculate CONTROL COSTS \$ _____/acre = Insecticide \$ _____/acre + Application \$ _____/Acre

PREVENTABLE LOSS \$ _____/acre = Crop value \$ _____ X _____ loss from aphids/tiller .

IF PREVENTABLE LOSS IS **GREATER THAN** CONTROL COSTS **TREAT**
 IF PREVENTABLE LOSS IS **LESS THAN** CONTROL COSTS **DON'T TREAT**

Expected Yield (Bushels/Acre)	Expected Price (\$ per bushel)	Crop Value (\$ per acre)	Preventable Loss from BCO Aphids (\$ per acre)		
			10-20 aphids/plant	20-40 aphids/plant	More than 40/plant
30	\$3.00	\$90.00	\$4.50	\$6.30	\$8.10
35	\$3.00	\$105.00	\$5.25	\$7.35	\$9.45
40	\$3.00	\$120.00	\$6.00	\$8.40	\$10.80
45	\$3.00	\$135.00	\$6.75	\$9.45	\$12.15
50	\$3.00	\$150.00	\$7.50	\$10.50	\$13.50
30	\$3.50	\$105.00	\$5.25	\$7.35	\$9.45
35	\$3.50	\$122.50	\$6.13	\$8.58	\$11.03
40	\$3.50	\$140.00	\$7.00	\$9.80	\$12.60
45	\$3.50	\$157.50	\$7.88	\$11.30	\$14.18
50	\$3.50	\$175.00	\$8.75	\$12.25	\$15.75
30	\$4.00	\$120.00	\$6.00	\$8.40	\$10.80
35	\$4.00	\$140.00	\$7.00	\$9.80	\$12.60
40	\$4.00	\$160.00	\$8.00	\$11.20	\$14.40
45	\$4.00	\$180.00	\$9.00	\$12.60	\$16.20
50	\$4.00	\$200.00	\$10.00	\$14.00	\$18.00

Brown Wheat Mite

Our above normal temperatures and dry conditions are ideal for the heavy buildup of brown wheat mite. They actively feed on the wheat foliage on clear warm days, particularly during the mid-afternoon, and look like black specks moving on the leaves. At night they move down to the soil. A distinguishing trait for identifying these mites is the front legs which are about twice as long as their body. The life cycle from egg to adult is completed in just 10 to 14 days. All Brown wheat mite life stages are females (no males). They feed by piercing plant cells in the leaf that causes "stippling" leaf discoloration. Under heavy infestations plants become yellow, then dry out and die. When to treat for infestations is difficult because drought stress can severely reduce crop yields, making treatments uneconomical. For most situations dryland wheat fields have more problems but with our



Brown wheat mite,
Photo C. Patrick



Brown wheat mite damage to under irrigated field

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dry conditions limited irrigated fields could be infested. In this situation an irrigation should reduce the mite population without a need for a miticide application. When the field becomes moisture stressed again mites may re-infest the field. Unfortunately a good economic threshold is not currently available for determining when to treat. A rule of thumb for treating in early spring is when there are several hundred mites per foot of row, or 25-50 mites per leaf. If we were able to get a hard driving rain this would control the mite infestations.

Pest Control

Insecticide products commonly used on the Texas High Plains for control of brown wheat mites is primarily dimethoate and, generally, chlorpyrifos for greenbug, Russian wheat aphid, and other aphids. Each will provide effective control but the pre-harvest interval may be important depending on harvesting for grain, grazing, and cutting for forage.

Product	Rate	PHI
Chlorpyrifos 4E(many different products)	1/2 to 1 pt/A Aphids (including greenbugs, bird cherry-oat aphid, Russian wheat aphids) and Brown wheat mites	Do not apply within 14 days of harvest for forage and hay and within 28 days of harvest for grain and straw. Do not allow livestock to graze or feed on treated forage within 14 days of application.
Cobalt and Cobalt Advanced (chlorpyrifos plus gamma-cyhalothrin)	7-13 fl. oz./A (including greenbugs, bird cherry-oat aphid, Russian wheat aphids) and Brown wheat mites	Do not apply within 14 days before harvest for forage and hay and within 30 days before harvest for grain and straw. Do not allow meat or dairy animals to graze or otherwise feed on treated forage within 7 days after last treatment.
Dimethoate 2.67	0.75 to 1.13 pts/A (Aphids-greenbugs) 0.75 to 1.5 pts/A (Brown wheat mites)	Harvest for grain - 35 days Do not apply within 14 days of grazing
Dimethoate 4E and Dimethoate 400	1/2 to 3/4 pt/A (Aphids-greenbugs) 1/3 to 1/2 pt/A (Brown wheat mites)	Harvest for grain - 35 days Do not apply within 14 days of grazing (some labels do not have this statement)
Proaxis (gamma-cyhalothrin) Declare (gamma-cyhalothrin)	3.84 fl. oz./A (greenbug and mite spp.) 2.56 -3.84 fl. oz./A (bird cherry-oat aphid, Russian wheat aphid) 1.54 fl. oz./A (greenbug and mite spp.) 1.02 - 1.54 fl. oz./A bird cherry-oat aphid, Russian wheat aphid)	Do not apply within 30 days of harvest. Do not allow livestock to graze in treated areas or harvest treated wheat forage as feed for meat or dairy animals within 7 days after last treatment. Do not feed treated straw to meat or dairy animals within 30 days after the last treatment. Greenbug is known to have many biotypes. DECLARE and PROAXIS may provide suppression only.
Karate with Zeon technology (lambda-cyhalothrin) Warrior with Zeon technology (lambda-cyhalothrin)	1.92 fl. oz./A (greenbug and mite spp.) 1.28-1.92 fl. oz./A (bird cherry-oat aphid, Russian wheat aphid) 3.84 fl. oz./A (greenbug and mite spp.) 2.56 - 3.84 fl. oz./A (bird cherry-oat aphid, Russian wheat aphid)	Do not apply within 30 days of harvest. Do not allow livestock to graze in treated areas or harvest treated wheat forage as feed for meat or dairy animals within 7 days after last treatment. Do not feed treated straw to meat or dairy animals within 30 days after the last treatment. Greenbug is known to have many biotypes. KARATE with Zeon technology and WARRIOR with Zeon technology may provide suppression only.