COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT, LEXINGTON, KY 40546

Wheat Science News

UNIVERSITY OF KENTUCKY
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In This Issue:

ALS-RESISTANT COMMON CHICKWEED IN WHEAT IN KENTUCKY

Jim Martin—Extension Weed Scientist

Last fall we reported there were a number of fields in 2013 where common chickweed was not controlled with ALS-inhibitor herbicides such as Harmony Extra (thifensulfuron + tribenuron) and Finesse (chlorsulfuron + metsulfuron). With the help of Wheat Tech and Kentucky Small Grain Growers Association, we conducted greenhouse and field trials that confirmed ALS-resistant common chickweed was present in Kentucky. Figure 1 shows chickweed survived Harmony Extra and Finesse applied at ten times the labeled rate.

A field trial was initiated last fall in Christian County to focus on postemergence treatments applied in the fall and spring (See Table 1). Metribuzin 75% DF at 2 or 4 oz/A applied to chickweed at 0.6 inches in diameter (Early Post Fall) provided 97% control of common chickweed. Similar results were observed when metribuzin, Huskie, or Starane Ultra were applied to chickweed 2.33 inches in diameter (Mid Post Fall). Delaying applications until spring when chickweed was 5.5 inches in diameter resulted in less control with Huskie and Starane Ultra. However, control was at least 93% for metribuzin applied in the spring at 4, 6, and 8 oz/A.

One concern with metribuzin is the risk of crop injury due to susceptibility of wheat varieties. In order to minimize the risk of crop injury, some growers are using metribuzin at low rates in the fall when wheat begins tillering and chickweed plants are small.

Scientists at other Universities indicates Valor (flumioxazin) is also an effective option for managing ALS-resistant common chickweed. Abnormally warm soil temperatures will limit the length of weed control with Valor. Valor needs to be applied at 2 oz/A at least 7 days before planting no-till wheat. Seeds need to be planted at least 1 inch deep.

FIGURE 1. Chickweed Response to 10 X rate of Harmony Extra and Finesse for Non-treated checks (samples 1 & 2) and Three Suspect Populations from Grower's Fields. (Samples 3, 4, & 5)

Table 1. ALS-Resistant Common Chickweed Control with Postemergence Herbicides Christian County 2013 – 2014*			
Herbicide	Application Timing		
	Early Post Fall	Mid Fall Post	Spring Post
	----------% Chickweed Control ----------		
Axiom 6 oz/A	87	---	---
Metribuzin 2 oz/A	97	96	73
4 oz/A	97	96	93
6 oz/A	---	---	100
8 oz/A	---	---	100
Huskie 13.5 oz/A		98	77
Starane Ultra 0.3 pt/A	---	93	---
0.4 pt/A	---	---	80
Clarity 4 oz/A	---	---	90
	LSD 8%		

		Chickweed	Wheat
Early Post Fall (EP Fall):	(11-07-13)	0.6" diameter	1 tiller
Mid Fall Post:	(12-02-13)	2.33" diameter	2 tiller
Spring Post:	(04-01-14)	5.5" diameter	7 tiller

**** These data are based on research conducted at one site and one season. Results may vary in other environmental conditions.***

Acknowledgments: ***Thanks to Kentucky Small Grain Growers Association for their support of this research and to Wheat Tech for their assistance in collecting samples for the greenhouse study and identifying a site for the field trial.***

WHEAT DISEASE MANAGEMENT FOR 2015 STARTS NOW

Don Hershman—Extension Plant Pathologist

Wheat diseases reduce grain yield and/or quality in most years. Many wheat producers rely on foliar fungicides as their primary disease management weapon. Foliar fungicides are certainly an important disease management tool. However, pre-plant decisions made – that is, decisions being made right now for the 2015 wheat crop - have the greatest impact on which diseases develop during the season and to what extent. Thus, it is critical to make as many of the "right" decisions as possible to reduce the potential for diseases to reduce both grain yield and quality next spring.

For more on how pre-plant decisions impact disease potential, go to this link:
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/ppfsagsg6.pdf

WAIT FOR THAT WHEAT PLANTING WINDOW

Doug Johnson—Extension Entomologist

Typical Kentucky weather... It has been quite cool but now we have had some wide spread rain and temperatures that will be warming into the 80's through mid-October. So we can expect that corn seedlings will be springing up from the just harvested crop, along with other grassy weeds. This is not a good time for wheat to be doing the same thing. Rain breaks the over-summering of Hessian fly and brings new hosts for Hessian fly, the grain aphid complex and perhaps even fall armyworm. All of these pests can maintain themselves on these alternate hosts until our commercial wheat crop is up and growing, especially if planted early.

There is little we can do about the rain but we can provide some control of the alternative weed hosts and we can avoid planting too soon; an age old, simple and proven technique.
Following are some things to consider. These have really not changed much over recent years.

Figure 2. Adult Hessian Fly on a Wheat Leaf

Hessian Fly is an annual pest, but for the most part, does not do a great deal of damage in Kentucky's wheat production system. As far as I know, there is no reason to think that the 2013 season will be different. Planting after the Hessian Fly Free date is the single most important management tool. The best controls for HF are preventative. Systemic seed-applied insecticides may be used at planting, but the seed treatment rates used in KY for control of cereal aphids will not control Hessian fly; therefore, a greater rate must be used. Timing of rescue treatments (foliar insecticides) is exceedingly difficult, requiring significant scouting to detect the insect eggs (which are very tiny) laid end to end in long rows aligned with the wheat leaf veins. Once the eggs hatch and the maggots move underneath the leaf sheath, foliar applications are ineffective.

Figure 3. Corn Leaf Aphids on Wheat Head

The Cereal Aphid Complex is composed of four main species in Kentucky: the corn leaf aphid, bird cherry-oat aphid, rice root aphid and English grain aphid. These aphids are important due to their ability to vector the viruses that cause Barley Yellow Dwarf disease in small grains. Of these four species, corn leaf and bird cherry-oat aphid are most important in the fall; and their population growth will be greatly aided by a "Green Bridge". Planting after the Hessian Fly free date is of significant help (providing there is no Green Bridge). In addition, seed-applied systemic insecticides and foliar insecticides applied at 30 days after planting have shown to be effective.

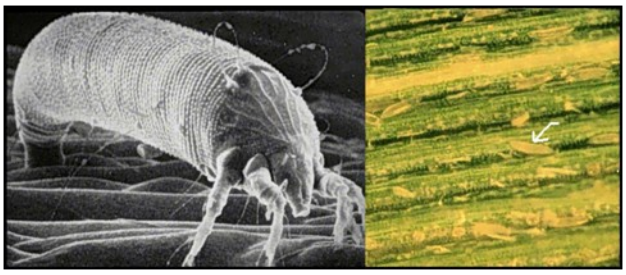


Figure 4. Electron micrograph of (L) Adult Wheat Curl Mite and (R) Wheat Curl Mite eggs laid on Wheat Leaf.

The Wheat Curl Mite is occasionally important in KY wheat because it is the vector for wheat streak mosaic virus. This mite can survive on grasses other than wheat, one of which is corn. So, this pest is abundant in the environment at least until corn harvest. If no host plant is available (usually volunteer wheat or corn) between corn harvest and wheat emergence, we do not have a problem. However, if a "Green Bridge" is present then the mites can move from corn to wheat bringing the virus with them (corn is an asymptomatic host of the mite and the virus). It is vitally important to destroy any "green bridge" at least two weeks before wheat emergence.

Cover Crops: if you must plant a cover crop, DO NOT use wheat. Though all of the grasses usually used for cover crops will support aphids those aphids will not produce as many offspring on rye and even less on oats, than will be produced on wheat. If at all possible plant your cover crop after the Hessian Fly free date. If the cover has already been planted it may be worth your time to look at the stand to see if it is infested with a large number of aphids (especially if you see a lot of winged aphids); cover is near (especially up wind) of your wheat crop it may be worth treating.

Planting Date: Make no mistake, in reference to arthropod pests, planting date may be the most important decision you make in your wheat crop this year. This is quite simply because all arthropod pests' growth, reproduction, and movement rates are governed by temperature. In addition, the growth rate of wheat is, in-the-main, governed by temperature. Simply stated, on average, the earlier wheat is planted, temperatures will be warmer, and the warm temperatures will last longer than if wheat is planted later. This generally results in more insect/mite infestation, reproduction, feeding and movement of pathogens on earlier as opposed to later planted wheat. In addition, in the case of insect vectored pathogens, (for example, Barley yellow dwarf viruses and wheat streak mosaic virus) early planting will result in more infected plants and earlier infected plants. Earlier infected plants will produce more virus per plant than later infected plants. This is why earlier infected plants are more damaged than later infected plants and why fall infected plants suffer more damage than spring infected plants.

Green bridge: Beyond planting date, insuring that there is not a Green Bridge between the previous (if a grass crop) and upcoming wheat crops, is the second most important arthropod management strategy. In Kentucky, with our three crops in two years system, we have crop rotation as a built-in control process because it does not allow wheat in the same field over multiple years. Nevertheless, our common practice of planting wheat following corn (both being grasses), and because our current wheat fields are never very far from last year's wheat fields, a Green Bridge can easily occur. While the wheat curl mite and wheat streak mosaic virus do not harm corn, this corn can serve as an "over summering" place for both pests. If volunteer wheat/corn or grass is allowed to remain alive from before the corn matures until after the wheat emergence, the wheat curl mite has a "Green Bridge" from one wheat crop to another, thus allowing the mite to vector wheat streak mosaic virus into our current crop at a greater rate.

This same idea can also increase Barley yellow dwarf problems by allowing cereal aphids access to hosts (which may also be virus sources) between the corn and wheat crops. However, because these aphids have a much broader host range and the ability to move and locate wheat fields, preventing a green bridge will aid but not prevent aphid and virus movement.

Fall Weather: Short term weather is certainly an important factor in insect damage and vector management. Unfortunately, we have no ability to control the weather. On the other hand, one should understand how this fall's weather will affect our insect management plans. Planting and control decisions should be viewed in consideration of what the short term (Oct-Dec) weather outlook indicates.

Insecticide Considerations:

Pre/at-plant soil applied systemic insecticides - There are no longer any products available with these properties.

Seed applied systemic insecticides - These products could provide aid against the cereal aphid complex and Hessian fly. Rates generally used for control of cereal aphids will not control Hessian fly; higher rates would be required. These products are not likely to provide control of fall armyworm or wheat curl mite.

Scout and Spray: Scout your wheat and apply a foliar insecticide treatment when the population exceeds 6 aphids per row foot, at 30 days after planting.

If controls are warranted insecticides for use on wheat pests may be found in ENT-14 at your local county extension office or on line at: http://pest.ca.uky.edu/EXT/welcome.html.

LOWER WHEAT PRICES FOR 2014-15

Todd Davis—Extension Ag Economist

The USDA's October *World Agricultural Supply and Demand Estimates (WASDE)* were released on October 10. The October report is a key driver for the corn and soybean markets as harvest is just getting underway for both crops and USDA is still honing in on production estimates for those crops. The wheat production estimates, while still uncertain, are better defined since the winter wheat crop is in the silos.

The following table shows the U.S. wheat markets supply and use projections for this current marketing-year (2014-15) as compared to the previous two marketing-years. The lingering drought in the Southern Plains continued to challenge winter wheat production and reduced the overall U.S. average yield 3.3 bushels from the 2013 crop. Producers are projected to harvest 1.2 million more acres this year than in 2013 which reduces the yield impact on supply. The 2014 crop is projected to come in at 2.035 billion bushels which is 100 million bushels less than last year's crop.

Total wheat supply for 2014-15 is projected to be reduced by 226 million bushels due to the slightly smaller crop and a smaller carry-in from the previous marketing-year. Unfortunately, the demand for wheat is projected to be reduced by 291 million bushels from the previous marketing-year. The world has increasing wheat stocks and the foreign competition is projected to reduce exports by 251 million bushel from last year. Feed use is also projected to be slightly lower due to the record large corn crop which will reduce the need to feed wheat. Food use is projected to increase slightly but that demand is not responsive to price – people will not significantly increase bread and cracker consumption in response to lower wheat prices.

Ending stocks are projected to increase to 654 million bushels. The stocks-use ratio, which measures the relative excess supply, is projected to increase to over 30% which is a comfortable level for the market. Another way to think about the ending stocks is that USDA is projecting that there will be about 111 days of wheat available at the end of the 2014-15 marketing-year.

This increase in wheat stocks will not support the prices of the previous years. The U.S. average farm price is projected to be $5.90 per bushel which is about $1.00 less than the 2013-14 price. Some private sector analysts are projecting the 2014-15 average price at $5.75 per bushel and the 2015-16 price, for the winter wheat crop being planted right now, at $5.10 per bushel.

Lower commodity prices will make it harder to cover all of the economic costs, family living expense, and debt payments for the farm. Moving forward, having a written marketing-plan that defines what prices are needed to cover production costs, fixed costs, debt and family living will help managers navigate their way through these lower commodity prices.

U.S. Wheat Supply and Use

	2012-13	2013-14 Estimated	2014-15 Projected	Change from 2013-14
Planted Acres (million)	55.7	56.2	56.8	+0.6
Harvested Acres (million)	48.9	45.3	46.5	+1.2
Yield (bushels/acre)	46.3	47.1	43.8	-3.3
		---------- Million Bushels ----------		
Beginning Stocks	743	718	590	-128
Production	2,266	2,135	2,035	-100
Imports	123	169	170	+1
Total Supply	3,131	3,021	2,795	-226
Food	945	951	960	+9
Seed	73	77	76	-1
Feed and Residual	384	228	180	-48
Exports	1,012	1,176	925	-251
Total Use	2,414	2,432	2,141	-291
Ending Stocks	718	590	654	+64
Supply/Use	29.7%	24.3%	30.5%	+6.3%
Days of Stocks	109	89	111	+23
U.S. Marketing-Year Average Price ($/bu)	$7.77	$6.87	$5.90	-$0.97

We would like to introduce Dr. Todd Davis, our New Crop Marketing/Management Extension Specialist located at the University of Kentucky's Research and Education Center in Princeton. Todd will focus primarily on grains and his extension programming will include assessing various farm bill decisions for grain farms, crop marketing strategies/outlook, and evaluating risk management options. Dr. Davis obtained his PhD and M.S. degrees in Agricultural Economics from Purdue University. Todd comes to us following a three year stint with the American Farm Bureau Federation (AFBF) in Washington D.C. Welcome aboard Todd!

We would like to introduce Dr. Joshua McGrath, UK Soil Management Extension Specialist located in Lexington. Josh will focus on using precision Agriculture tools to improve soil fertility and soil management. Prior to joining UK Josh was an associate professor – soil fertility and nutrient management specialist at the University of Maryland where he was involved in helping farmers adapt to water quality standards in the Chesapeake Bay watershed. Josh is originally from Delaware and earned his PHD in soil science from the University of Delaware. Welcome Josh!

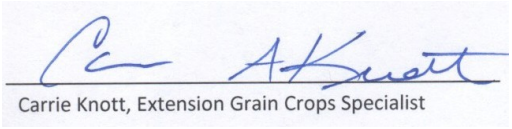
Note: Location Change

University of KY
2015 Winter Wheat Meeting

January 6

Christian Co. Extension Office
Hopkinsville, KY

(more details coming soon)



Carrie Knott, Extension Grain Crops Specialist

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