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WSMB Continues Enhanced Nematode Testing Program for 2013

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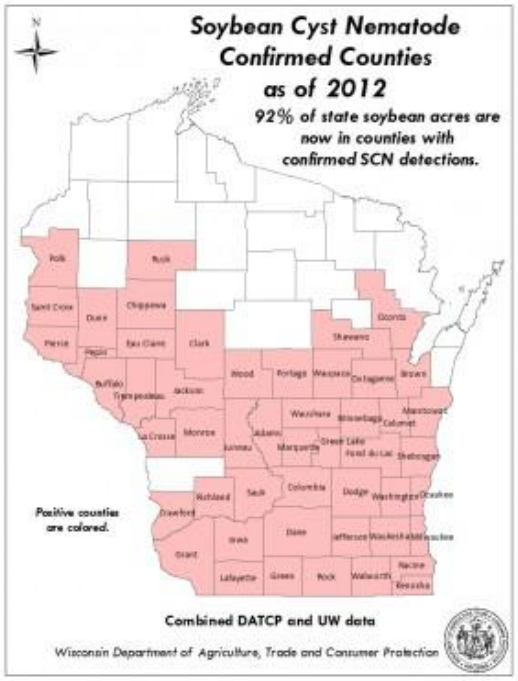
Four out of every five animals on earth today is a nematode so it is not surprising that agricultural fields are home to many nematode species. Fortunately, most nematodes are beneficial to crop growth and soil health because their activities help decompose crop residues and cycle nitrogen and other nutrients. Pest nematodes do not threaten yield if their numbers remain low. The key to avoiding population explosions of nematode pests is to be proactive – know what the situation is and take appropriate measures when nematode numbers indicate a problem is brewing.

The WSMB sponsors free nematode testing to help producers stay ahead of the most important nematode pest of soybean, the soybean cyst nematode (SCN) (Figure 1). Eggs of SCN persist in the soil between soybean crops so a sample can be submitted any time that is convenient. The soil test report indicates the number of eggs in the sample and is useful for selecting the right variety for the next soybean crop. Retests of fields planted with SCN-resistant varieties over multiple years shows how the nematode population is responding to variety resistance and provides an early warning should the nematode population adapt to host genetics.



In 2013, the WSMB is again offering the expanded nematode testing program to include other pest nematodes in addition to SCN. These nematodes are less damaging to soybean than SCN but can cause enough yield loss to warrant treatment. As is the case for SCN, there are no rescue treatments for nematodes so the primary purpose of this year's soil test is to plan for next year's crop. Soil samples collected in corn for nematode analysis have predictive value for explaining yield if they are collected before the corn V6 growth stage. Sampling early in the season will provide information about the risk potential for the current corn crop AND the next soybean crop.

The assays used to recover nematode pests other than SCN in soil require that the nematodes are alive. So, it is important to keep the samples moist and at least room temperature cool. Collecting a sample that includes multiple cores ensures that there will be plenty of root pieces to assay. It is not necessary to include live plants in the sample. The soil test report will indicate which pest nematodes are present and at what quantities and their damage potential to soybean and corn based on the numbers recovered. Free soil sample test kits are available now and can be requested at (freescntest@mailplus.wisc.edu).
For more information on SCN testing and management practices to help reduce the losses from this pest, please contact: Shawn Conley: spconley@wisc.edu; 608-262-7975 or visit www.coolbean.info.

Disease Profile – Leaf Blotch Diseases of Wheat

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Blocky to oval brown lesions, often with yellow haloes, are typical of leaf blotch diseases on small grains.

Photo Courtesy of Craig Grau.

Leaf blotch is a complex of common fungal diseases of small grains (e.g., wheat, barley, oats and rye), and many grasses. In Wisconsin, winter wheat is the most important commercial crop affected by these diseases with potential yield losses of up to a 30%. Leaf blotch diseases are generally favored by cool, wet, windy weather.

Symptoms of leaf blotch diseases usually first appear between the veins of lower leaves as chlorotic (i.e, yellow), water-soaked flecks that enlarge to become dry, yellow, then red-brown, blocky to oval lesions, sometimes surrounded by yellow haloes. Some leaf blotch fungi can infect glumes in seed heads as well as leaves. Rows of tiny black specks (reproductive structures of leaf blotch fungi) are often visible in mature lesions.

Several species of fungi can cause leaf blotch. These include *Septoria* and *Stagnospora* species. Leaf blotch fungi survive in infested residues, seeds, volunteer wheat plants and some weed grass hosts. Initial infections typically occur in the fall as seedlings emerge, and are caused by spores (called ascospores) that are produced on wheat residue from a previous wheat crop. Additional infections can occur the following spring and are due to spores (called conidia) that are produced in lesions on infected wheat plants.

Successful management of leaf blotch can be accomplished through an integrated approach that combines use of resistant varieties, pathogen-free seed, crop rotation, proper crop debris management, volunteer wheat eradication, and fungicide treatments.

For more information about leaf blotch diseases of wheat CLICK HERE TO DOWNLOAD A PDF.

Using Fungicides on Wheat

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As of this writing there is still at least 6 inches of snow as I look out the window. It is hard to believe that just a year ago it was 80F! Despite the cold and snowy conditions now, we will be right in the middle of spring in a month or so. With that said, now is a good time to begin preparing for management of your winter wheat crop for diseases.

While the decisions about tillage and resistant varieties have already been made for the 2013 wheat crop in Wisconsin, there are an increasing number of fungicides available for in-season management of winter wheat diseases. The decision to apply a fungicide shouldn't be taken lightly and you should scout diligently and weigh all options prior to choosing to apply a fungicide.

In Wisconsin, the primary disease of concern will be powdery mildew. However, leaf blotches, Fusarium head scab and rusts can be of important yield-robbing diseases in some years. For example, in 2012 stripe rust was prevalent on moderately susceptible varieties of winter wheat grown in Wisconsin.

Scouting for powdery mildew and leaf blotches should commence even while plants are in the late-tiller stages (Feekes growth stage 4 and 5; April in most years in Wisconsin) and tracked regularly. On varieties highly susceptible to powdery mildew and in years when weather is favorable (cool temperatures; 50 – 70F and high humidity) resulting in high powdery mildew pressure, an application of fungicide tank-mixed with the spring herbicide application might be warranted.

Other diseases like rust may show up later during the stem elongation growth stages (Feekes 6-10). Applications of fungicide might be warranted to manage rust if the variety is highly susceptible, weather conditions are favorable for rust development, and scouting reveals high severity especially near flag leaf emergence (Feekes 8). All rusts (stripe rust, leaf rust, and stem rust) are favored by wet weather and periods of extended leaf wetness. However, temperature optimums vary among the different rusts. Stripe rust is favored during periods when temperatures are between 55 and 65F, while leaf rust tends to occur at a higher temperature range of 60 to 72F. Stem rust tends to occur at temperatures between 60 and 104F. In most years, spores of the rust pathogens will not readily overwinter in Wisconsin. Cold temperatures (<32 F) will reduce the ability of rust to overwinter. Spores are typically carried into Wisconsin on wind currents from southern states. In years like 2012 where the winter was mild, it is likely that rust pathogens were able to overwinter on wheat debris in Wisconsin. This could be one reason for the unusually high incidence and severity of stripe rust observed in 2012 in Wisconsin.

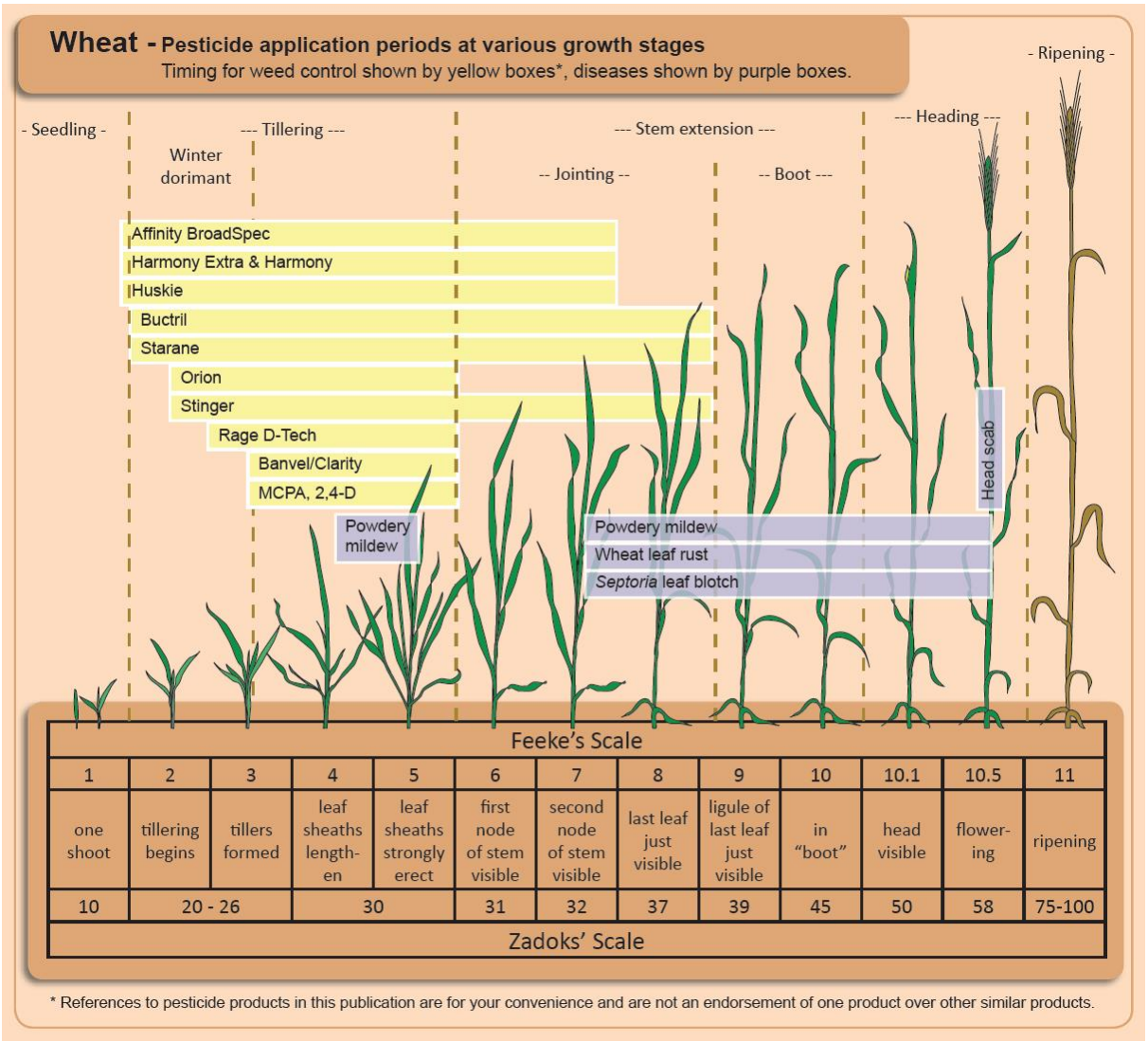
Fusarium head blight (FHB; a.k.a Fusarium head scab) is a disease of concern during the heading growth stage of wheat (Feekes 10 and later). Severe FHB can result in high levels of the mycotoxin deoxynivalenol (DON or vomitoxin). Dockage at the elevator can occur if a load of wheat grain tests positive

for DON at levels above 2ppm. Therefore, managing FHB can be important in areas with a history of the disease and where susceptible varieties are grown. Decisions to apply a fungicide to manage FHB should be made at Feekes 10.5 (early flowering). A web-based tool is available that assists crop managers in making a decision to apply a fungicide based on weather inputs over the 7-day period prior to flowering. The Fusarium Risk Assessment Tool can be found at http://www.wheatscab.psu.edu.

If a decision to apply a fungicide is made, it is important for the crop manager to then consider the proper choice of fungicide. Fungicide tests on wheat are conducted each year in many states east of the Rocky Mountains. These tests are compiled each year and can be found in the accompanying table assembled by the Committee for "Management of Small Grains Diseases". It is important to note that fungicides containing a strobilurin fungicide are not labeled for control of FHB (head scab). Research has demonstrated that strobilurin fungicides can actually increase DON levels in wheat with FHB. Therefore, always choose a triazole fungicide when targeting FHB. If strobilurin fungicides are to be used to control foliar diseases of wheat, they should be applied prior to the Feekes 8 growth stage.

Care should also be taken to manage fungicide resistance development in wheat pathogens. Recently the UW Cooperative Extension publication A3878 – "Fungicide Resistance Management in Corn, Soybean, and Wheat in Wisconsin" was updated. This publication explains how fungicide resistance can occur and actions that should be taken to limit its development. A PDF version can be found at http://ipcm.wisc.edu/download/pubsPM/A3878FungicideResistance.pdf.

Winter Wheat at the Flowering Growth Stage



Management of Small Grain Diseases
Fungicide Efficacy for Control of Wheat Diseases (Revised 4-14-12)

The North Central Regional Committee on Management of Small Grain Diseases (NCERA-184) has developed the following information on fungicide efficacy for control of certain foliar diseases of wheat for use by the grain production industry in the U.S. Efficacy ratings for each fungicide listed in the table were determined by field testing the materials over multiple years and locations by the members of the committee. Efficacy is based on proper application timing to achieve optimum effectiveness of the fungicide as determined by labeled instructions and overall level of disease in the field at the time of application. Differences in efficacy among fungicide products were determined by direct comparisons among products in field tests and are based on a single application of the labeled rate as listed in the table. Table includes most widely marketed products, and is not intended to be a list of all labeled products.

Efficacy of fungicides for wheat disease control based on appropriate application timing

Fungicide(s)												
Class	Active ingredient	Product	Rate/A (fl. oz)	Powdery mildew	Stagonospora leaf/glume blotch	Septoria leaf blotch	Tan spot	Stripe rust	Leaf rust	Stem rust	Head scab	Harvest Restriction
Strobilurin	Fluoxastrobin 40.3%	Evito 480 SC	2.0 – 4.0	G	--[3]	--[3]	VG	--[3]	VG	--[3]	NL	40 days
	Pyraclostrobin 23.6%	Headline SC	6.0 - 9.0	G	VG	VG	E	E[2]	E	G	NL	Feekes 10.5
Triazole	Metconazole 8.6%	Caramba 0.75 SL	10.0 - 17.0	VG	VG	--[3]	VG	E	E	E	G	
	Propiconazole 41.8%	Tilt 3.6 EC[4]	4.0	VG	VG	VG	VG	VG	VG	VG	P	Feekes 10.5
	Prothioconazole 41%	Proline 480 SC	5.0 - 5.7	--[3]	VG	VG	VG	--[3]	VG	VG	G	30 days
	Tebuconazole 38.7%	Folicur 3.6 F[4]	4.0	G	VG	VG	VG	E	E	E	F	30 days
	Prothioconazole19% Tebuconazole 19%	Prosaro 421 SC	6.5 - 8.2	G	VG	VG	VG	E	E	E	G	30 days
Mixed mode of action	Metconazole 7.4% Pyraclostrobin 12%	TwinLine 1.75 EC	7.0 – 9.0	G	VG	VG	E	E	E	VG	NL	
	Propiconazole 11.7% Azoxystrobin 7.0%	Quilt 200 SC	14.0	VG	VG	VG	VG	E	E	VG	NL	
	Propiconazole 11.7% Azoxystrobin 13.5%	Quilt Xcel 2.2 SE	10.5 - 14.0	VG	VG	VG	VG	E	E	VG	NL	Feekes 10.5
	Propiconazole 11.4% Trifloxystrobin 11.4%	Stratego 250 EC	10.0	G	VG	VG	VG	VG	VG	VG	NL	35 days
	Prothioconazole 10.8% Trifloxystrobin 32.3%	Stratego YLD	4.0	G	VG	VG	VG	VG	E	VG	NL	35 days
	Tebuconazole 22.6% Trifloxystrobin 22.6%	Absolute 500 SC	5.0	G	VG	VG	VG	VG	E	VG	NL	35 days

[1] Efficacy categories: NL=Not Labeled and Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent.
[2] Efficacy may be significantly reduced if solo strobilurin products are applied after stripe rust infection has occurred
[3] Insufficient data to make statement about efficacy of this product
[4] Multiple generic products containing the active ingredients propiconazole and tebuconazole may also be labeled in some states. Products including tebuconazole incude: Embrace, Monsoon, Muscle 3.6 F, Onset, Orius 3.6 F, Tebucon 3.6 F, Tebustar 3.6 F, Tebuzol 3.6 F, Tegrol , and Toledo. Products containing propiconazole include: Bumper 41.8 EC, Fitness, Propiconazole E-AG, and PropiMax 3.6 EC.