Wisconsin Crop Manager

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Wisconsin Pest Bulletin 6/26/14

A new issue of the Wisconsin Pest Bulletin from the Wisconsin Department of Agriculture, Trade and Consumer Protection is now available. The Wisconsin Pest Bulletin provides up-to-date pest population estimates, pest distribution and development data, pest survey and inspection results, alerts to new pest finds in the state, and forecasts for Wisconsin's most damaging plant pests.

Issue No. 9 of the Wisconsin Pest Bulletin is now available at:

http://datcpservices.wisconsin.gov/pb/pdf/06-26-14.pdf

http://datcpservices.wisconsin.gov/pb/index.jsp

Resilient Agriculture: Adapting to a Changing Climate – A Conference for Farmers, Scientists, and Ag. Professionals

Dick Wolkowski, CSCAP Project Extension Educator

August 5-7, 2014
Ames, Iowa

Corn production is essential in America. This highly versatile crop is an economic powerhouse, employing millions and producing food, feed and fuel. American farmers heavily invest their time, land and money in the crop's production. As global and domestic demand for corn continues to rise there is increasing uncertainty about how long-term US climate trends will impact corn-based cropping systems. Farmers and scientists are seeking new ways to ensure continued crop productivity and profitability, while minimizing environmental impacts.

This conference will bring together scientists, farmers and invited ag. industry partners to discuss climate uncertainty, impacts on agriculture and our water and soil resources, and most importantly what can be done to make the agricultural landscape both environmentally healthy and productive. Farmers and professional crop advisers are invited to attend. CCA CEU credits will be available. You'll meet and talk with other farmers, scientists and industry leaders who are exploring ways to make corn-based systems more resilient to weather extremes.

This conference is sponsored by the Climate Change, Mitigation, and Adaptation in Corn-based Cropping Systems Project, a USDA funded study that gathers data from 35 field sites and thousands of farmers in 9 Midwestern states, with the goal of creating a suite of practices for corn-based systems that:

- protect the soil and enhance soil organic matter and nutrient stocks
- reduce off-field nitrogen losses that contribute to water pollution
- limit greenhouse gas emissions from corn production systems
- better withstand weather variability effects from temperature extremes, droughts and floods
- ensure productivity under different climatic conditions

Information on the program and registration can be found at: http://www.sustainablecorn.org/conf-pages/2014NationalConference.html. If you have questions contact Dr. Wolkowski at rpwolkow@wisc.edu.

Vegetable Crop Update 6/27/14

The 11th issue of the Vegetable Crop Update is now available. This issue contains late blight updates, Blitecast and P-Days for late blight and early blight management, onion fungicide updates, a plant disease diagnostic clinic report, and a Hancock ARS Potato Field Day Agenda. Click here to view this update.

Bloomin Beans, Glyphosate, and Wheel Track Damage

Shawn Conley, Soybean and Wheat Extension Specialist

The WI soybean crop ranges anywhere from just planted (JP) to beginning flower (R1). As we enter the soybean reproductive growth phase there are a few things to keep in mind. The first is that soybean will produce flowers for ~3 to five weeks, depending upon planting date and environment. During that time soybean will abort anywhere from 20 to 80% of the flowers that they produce. Generally it is the first and last flush of flowers produced that are most likely to be aborted.

R1 soybean growth stage

Next, the timing window for glyphosate applications in our early planted soybean is quickly closing. Glyphosate labels indicate that applications can be made through R2 or full flower. The R3 growth stage begins when one of the four top nodes with a fully developed leaf has a 3/16 inch long pod. Applications made after the R3 stage begins are off-label applications. On average it takes ~ 4 days to move from R1 (beginning flower) to R2 (full flower) and ~10 days from R2 to the start of R3 (beginning pod).

Last but not least, *wheel track damage made from ground applications* may start to reduce yield. Sprayer wheel traffic from first flower (R1) through harvest can damage soybean plants and reduce yield (Hanna et al. 2008). Our research suggests that an adequate soybean stand (more than 100,000 plants per acre) planted in late April though mid-May can compensate for wheel tracks made when a field is sprayed at R1. Yield loss can occur, however, when wheel tracks are made at R1 or later in thin soybean stands (less than 100,000 plants per acre) or late planted soybeans. Regardless of stand, plants could not compensate for wheel tracks made at R3 (early pod development) or R5 (early seed development). The average yield loss per acre is based on sprayer boom width (distance between wheel track passes). In our trials yield losses averaged 2.5, 1.9, and 1.3% when sprayer boom widths measured 60, 90, and 120 foot, respectively. Multiple trips along the same wheel tracks did not increase yield loss over the first trip.

Spraying soybean at the R1 crop growth stage

Wheel track damage to drilled soybean at R1

Hanna, S., Conley, S. P., Shaner, G., and Santini, J. 2008. Fungicide application timing and row spacing effect on soybean canopy penetration and grain yield. Agronomy Journal: 100:1488-1492.

Plant Disease Diagnostic Clinic (PDDC) Update

Brian Hudelson, Ann Joy, Joyce Wu, Tom Hinsenkamp, and Catherine Wendt,
Plant Disease Diagnostics Clinic

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from June 21, 2014 through June 27, 2014.

Plant/Sample Type, Disease/Disorder, Pathogen, County

FIELD CROPS,

Corn, Seedling Blight, *Pythium* sp., *Fusarium* spp., Barron

Soybean, Herbicide Damage, None, Adams

FRUIT CROPS,

Apple, Black Rot, *Diplodia* sp., Walworth

Apple, Phomopsis Canker, *Phomopsis* sp., Marathon

Apple, Valsa Canker, *Valsa* sp./*Cytospora* sp., Marathon

Apple, Winter Injury, None, Portage, Walworth

Grape, Anthracnose, *Sphaceloma ampelinum*, Columbia

Peach, Peach Leaf Curl, *Taphrina deformans*, Dane

Peach, Winter Injury, None, Dane

VEGETABLES,

Pepper, Bacterial Spot, *Xanthomonas campestris* pv. *vesicatoria*, Dane

Rhubarb, Ramularia Leaf Spot, *Ramularia* sp., Dane

Rhubarb, Slug Injury, None, Dane

Tomato, Herbicide Damage, None, Clark

SOIL,

Soybean Soil, Soybean Cyst Nematode, *Heterodera glycines*, Rock

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.

Managing White Mold in Soybean

Damon Smith, Extension Field Crops Pathologist, University of Wisconsin

Kiersten Wise, Extension Specialist for Field Crop Diseases, Purdue University

Martin Chilvers, Extension Field Crops Pathologist, Michigan State University

Carl Bradley, Extension Plant Pathologist, University of Illinois

Daren Mueller, Extension Plant Pathologist, Iowa State University

Farmers in the Great Lakes area of the U.S. may be concerned about white mold (also called Sclerotinia stem rot) in soybean this year. The disease, caused by the fungus *Sclerotinia sclerotiorum*, is not common every year in in the Great Lakes region, but farmers that have battled the disease in the past will want to assess the risk of white mold development as soybeans approach flowering (growth stage R1 – plants have at least one open flower at any node).

White mold development is favored by cool, cloudy, wet, humid weather at flowering. The disease is more problematic in soybeans in high-yield environments where high plant populations, narrow row spacing, and an early-closing canopy are commonly used. No single management strategy is 100% effective at eliminating white mold, and in-season options for at-risk fields are limited. For more information on white mold, the disease cycle, and additional management options click here and scroll down to "White Mold."

Wilting and plant death as a result of Sclerotinia stem rot. Photo Credit: Craig Grau.

There are fungicides available for in-season management of white mold, however not all commonly used fungicides are labeled for use against white mold in soybean. For information on which fungicides are labeled for disease control and recommendations on fungicide efficacy, please click here. Fungicide recommendations are developed by the NCERA-137 national soybean disease committee, and recommendations are based on replicated research data collected from University trials.

In Wisconsin in 2013 numerous products were evaluated for white mold control in soybean. Results of this trial can be viewed by clicking here and scrolling down to pages 6 and 7. Consistent with results of the NCERA-137 research, our Wisconsin research identified several products having a rating of 'good' for white mold management, including Aproach, Endura, and Proline. If using fungicides for white mold management, keep in mind that efficacy may be based on the

ability of the fungicide to penetrate into the canopy, and the timing of the fungicide application. **Fungicides will be most effective at reducing the impact of white mold when applied at, or close to, growth stage R1.** Wisconsin research data indicates that fungicides applied up to growth stage R3 (early pod – pods are 3/16-inch long at one of the four uppermost nodes) may be effective, but later applications will likely not be effective at reducing disease. Once symptoms of white mold are evident, fungicides will have no effect on reducing the disease. Fungicide applications for white mold management may be most useful on fields where varieties rated as susceptible to white mold are planted in a field with a history of the disease.

If a soybean field is diagnosed with high levels of white mold, this field should be harvested last. This will help reduce the movement of the survival structures of the white mold fungus by harvesting equipment, to fields that are not infested. Also, be sure to clean all harvesting equipment thoroughly at the end of the season to avoid inadvertent infestation of fields. Rotations of 2-3 years between soybean crops can help reduce the level of the fungus causing white mold in fields. Using corn or small grains crops such as wheat, barley, or oats in rotation with soybean is recommended.

There are several resources available to help farmers and agribusiness personnel manage white mold. Extension plant pathologists across the North Central Region have developed a publication in collaboration with the North Central Soybean Research Program to describe the disease and optimal management strategies. This publication, titled, "Management of White Mold in Soybean" is available by clicking here.

This group also developed a podcast series to facilitate learning about white mold on-the-go. This series can be accessed by clicking here.

There is also a University of Wisconsin Cooperative Extension video that shows symptoms of white mold and discusses management options for the disease. The video can be found on YouTube by clicking here.

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Management of Soybean Diseases

Foliar Fungicide Efficacy for Control of Foliar Soybean Diseases—April 2014

The North Central Regional Committee on Soybean Diseases and the Regional Committee for Soybean Rust Pathology (NCERA-212 and NCERA-208) have developed the following information on foliar fungicide efficacy for control of major foliar soybean diseases in the United States. 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 ratings are based upon level of disease control achieved by product, and are not necessarily reflective of yield increases obtained from product application. Efficacy depends upon proper application timing, rate, and application method 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, unless otherwise noted. **Table includes systemic fungicides available that have been tested over multiple years and locations. The table is not intended to be a list of all labeled products**[1]. Efficacy categories: NR=Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent; NL = Not Labeled for use against this disease; U = Unknown efficacy or insufficient data to rank product efficacy.

Fungicide(c)				Aerial web blight	Anthracnose	Brown spot	Cercospora leaf blight[2]	Frogeye leaf spot[2]	*Phomopsis*/ *Diaporthe* (Pod and stem blight)	Soybean rust	White mold[3]	Harvest restriction[4]
Class	Active ingredient (%)	Product/Trade name	Rate/ A (fl oz)									
QoI Strobilurins Group 11	Azoxystrobin 22.9%	Quadris 2.08 SC	6.0 - 15.5	VG	VG	G	F	VG	U	G-VG	P	14 days
	Fluoxastrobin 40.3%	Aftershock 480 SC Evito 480 SC	2.0 – 5.7	VG	G	G	F	VG	U	U	NL	R5 (beginning seed) 30 days
	Picoxystrobin	Aproach 2.08 SC	6.0 - 12.0	VG	G	G	F	VG	U	G	G	14 days
	Pyraclostrobin 23.8%	Headline 2.09 EC/SC	6.0 - 12.0	VG	VG	G	F	VG	U	VG	NL	21 days
DMI Triazoles Group 3	Cyproconazole 8.8%	Alto 100 SL	2.75 – 5.5	U	U	VG	U	F	U	VG	NL	30 days
	Flutriafol 11.8%	Topguard 1.04 SC	7.0 – 14.0	U	VG	VG	F	VG	U	VG-E	G	21 days
	Propiconazole 41.8%	Tilt 3.6 EC Multiple Generics[5]	2.0 - 4.0	P	VG	G	NL	F	NL	VG	NL	R5 (beginning seed)
	Prothioconazole 41.0%	Proline 480 SC[7]	2.5 – 4.3	NL	NL	NL	NL	VG	NL	VG	G	21 days
	Tetraconazole 20.6%	Domark 230 ME	4.0 – 6.0	NL	VG	VG	F	VG	U	VG-E	G	R5 (beginning seed)
MBC Thiophanates Group 1	Thiophanate-methyl	Topsin-M Multiple Generics	10.0 – 20.0	U	U	U	F	VG	U	G	G	21 days

Fungicide(s)				Aerial web blight	Anthracnose	Brown spot	Cercospora leaf blight	Frogeye leaf spot	*Phomopsis/ Diaporthe* (Pod and Stem blight)	Soybean rust	White mold	Harvest restriction
Class	Active Ingredient (%)	Product/Trade name	Rate/A (fl oz)									
SDHI Carboximides Group 7	Boscalid 70%	Endura 0.7 DF	3.5 – 11.0	U	NL	VG	U	P	NL	NL	G	21 days
Mixed mode of action	Azoxystrobin 18.2% Difenoconazole 11.4%	Quadris Top 2.72 SC	8.0 – 14.0	U	U	U	U	VG	U	VG	NL	14 days
	Azoxystrobin 7.0% Propiconazole 11.7%	Avaris 1.88 SC Quilt 1.88 SC HM-0812 1.88 SC	14.0 – 20.5	U	U	G	U	G	U	VG	NL	21 days
	Azoxystrobin 13.5% Propiconazole 11.7%	Quilt Xcel 2.2 SE	10.5 - 21.0	E	VG	G	F	VG	U	VG	NL	R6
	Fluoxastrobin 18.0% Tebuconazole 26.0%	Evito T 3.88 F	4.0 - 8.0	U	F	VG	P-F	F	U	U	NL	30 days
	Pyraclostrobin 28.63% Fluxapyroxad 14.33%	Priaxor 4.17 SC	4.0 – 8.0	E	VG	E	F	VG	U	VG	P-F	21 days
	Trifloxystrobin 11.4% Propiconazole 11.4%	Stratego 250 EC	10.0	G-VG	VG	G	F	VG	U	VG	NL	21 days
	Trifloxystrobin 22.3% Prothioconazole 10.3%	Stratego YLD 4.18 SC[8]	4.0 – 4.85	VG	VG	VG	F	VG	U	VG	NL	21 days

[1]Multiple fungicides are labeled for soybean rust only, powdery mildew, and Alternaria leaf spot, including tebuconazole (multiple products) and Laredo (myclobutanil). Contact fungicides such as chlorothalonil may also be labeled for use.

[2] Cercospora leaf blight efficacy relies on accurate application timing, and standard R3 application timings may not provide adequate disease control. Fungicide efficacy may improve with earlier or later applications. Fungicides with a solo or mixed QoI or MBC mode of action may not be effective in areas where QoI or MBC resistance has been detected in the fungal population that causes Cercospora leaf blight.

[3] Fungicides with a solo or mixed QoI mode of action may not be effective in areas where QoI-resistance has been detected in the fungal population that causes frogeye leaf spot.

[4]White mold efficacy is based on an R1 application timing, and lower efficacy is obtained at an R3 application timing, or if disease symptoms are already present at the time of application.

[5]Harvest restrictions are listed for soybean harvested for grain. Restrictions may vary for other types of soybean (edamame, etc.) and soybean for other uses such as forage or fodder.

[6]Multiple generic products containing this mode of action may also be labeled in some states.

[7]Proline has a supplemental label (2ee) for soybean, only for use on white mold in IL, IN, IA, MI, MN, NE, ND, OH, SD, WI. A separate 2ee for NY exists for white mold.

[8]Stratego YLD has a supplemental label (2ee) for white mold on soybean only in IL, IN, IA, MI, MN, NE, ND, OH, SD, WI.

Many products have specific use restrictions about the amount of active ingredient that can be applied within a period of time or the amount of sequential applications that can occur. Please read and follow all specific use restrictions prior to fungicide use. This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Reference to products in this publication is not intended to be an endorsement to the exclusion of others that may be similar. Persons using such products assume responsibility for their use in accordance with current directions of the manufacturer. Members or participants in the NCERA-212 or NCERA-208 group assume no liability resulting from the use of these products.

Management of Corn Diseases
Fungicide Efficacy for Control of Corn Diseases—April 2014

The Corn Disease Working Group (CDWG) has developed the following information on fungicide efficacy for control of major corn diseases in the United States. 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 ratings are based upon level of disease control achieved by product, and are not necessarily reflective of yield increases obtained from product application. Efficacy depends upon proper application timing, rate, and application method 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 systemic fungicides available that have been tested over multiple years and locations. The table is not intended to be a list of all labeled products**[1]. Efficacy categories: NR=Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent; NL = Not Labeled for use against this disease; U = Unknown efficacy or insufficient data to rank product

Fungicide(s)				Anthracnose leaf blight	Common rust	Eyespot	Gray leaf spot	Northern leaf blight	Southern rust	Harvest Restriction[2]
Class	Active Ingredient (%)	Product/Trade name	Rate/A (fl oz)							
QoI Strobilurins Group 11	Azoxystrobin 22.8%	Quadris 2.08 SC	6.0 - 16.6	VG	E	VG	E	G	G	7 days
	Pyraclostrobin 23.6%	Headline 2.09 EC/SC	6.0 - 12.0	VG	E	E	E	VG	E	7 days
	Picoxystrobin	Aproach 2.08 SC	3.0 – 12.0	VG	VG-E	VG	F-VG	VG	U	7 days
DMI Triazoles Group 3	Propiconazole 41.8%	Tilt 3.8 EC Multiple Generics	2.0 - 4.0	NL	VG	E	G	G	G	30 days
	Prothioconazole 41.0%	Proline 480 SC	5.7	U	VG	E	U	VG	G	14 days
	Tebuconazole 38.7%	Folicur 3.8 F Multiple Generics	4.0 - 8.0	NL	U	NL	U	VG	U	36 days
	Tetraconazole 20.6%	Domark 230 ME	4.0 – 8.0	U	U	U	E	U	G	R3 (milk)
Mixed mode of action	Azoxystrobin 7.0% Propiconazole 11.7%	Quilt 200 SC	7.0 - 14.0	U	VG-E	E	E	VG	VG	30 days
	Azoxystrobin 13.5% Propiconazole 11.7%	Quilt Xcel 2.2 SE	10.5 - 14.0	VG	VG-E	VG-E	E	VG	VG	30 days
	Pyraclostrobin 13.8% Metconazole 5.1%	Headline AMP 1.68 SC	10.0 - 14.4	U	E	E	E	VG	VG	20 days
	Pyraclostrobin 28.58% Fluxapyroxad 14.33%	Priaxor 4.17 SC	4.0 – 8.0	U	VG	U	VG	U	G	21 days
	Trifloxystrobin 11.4% Propiconazole 11.4%	Stratego 250 EC	10.0 - 12.0	U	VG	E	VG	G	G	30 days
	Trifloxystrobin 32.3% Prothioconazole 10.3%	Stratego YLD 4.18 SC	4.0 - 6.0	VG	E	VG	E	VG	VG	14 days

[1]Additional fungicides are labeled for disease on corn, including contact fungicides such as chlorothalonil. Certain fungicides may be available for diseases not listed in the table, including Gibberella and Fusarium ear rot. Applications of Proline 480 SC for use on ear rots requires a FIFRA Section 2(ee) and is only approved for use in Illinois, Indiana, Iowa, Louisiana, Maryland, Michigan, Mississippi, North Dakota, Ohio, Pennsylvania, and Virginia.

[2]Harvest restrictions are listed for field corn harvested for grain. Restrictions may vary for other types of corn (sweet, seed or popcorn, etc.), and corn for other uses such as forage or fodder.

Many products have specific use restrictions about the amount of active ingredient that can be applied within a period of time or the amount of sequential applications that can occur. Please read and follow all specific use restrictions prior to fungicide use. This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Reference to products in this publication is not intended to be an endorsement to the exclusion of others that may be similar. Persons using such products assume responsibility for their use in accordance with current directions of the manufacturer. Members or participants in the CDWG assume no liability resulting from the use of these products.