WESTERN BEAN CUTWORM
BRYAN JENSEN, UW DEPARTMENT OF ENTOMOLOGY AND DIVISION OF EXTENSION

Western Bean Cutworm adults are well into flight in southern Wisconsin and it is a good time to be scouting for eggs. Foliar treatments are suggested with 5% of the plants have egg masses. On whorl stage corn the best timing is to spray is when egg masses are dark colored. Indicating hatch will start soon.

When given a choice, adult females prefer pre-tassel corn to lay eggs because pollen is an important food source for larvae prior to moving to the ear. Infestations are often aggregated within a field so thorough field scout is needed. Go to at least 5 different areas of a field and count egg masses on 20 consecutive plants. Often eggs are found on the upper leaf surface on the uppermost leaves. Use the sun to backlight those leaves and look for the shadow of the egg mass. Later during the adult flight, also look for larvae that may have already hatched. Often, they are found in leaf axils feeding on pollen.

HIGH VALUE STRAW AND WEEDY WHEAT.....WHAT DO I DO?
SHAWN P. CONLEY, SOYBEAN AND WHEAT EXTENSION SPECIALIST, DEPARTMENT OF AGRONOMY

Wet fields, thin stands and spotty winter-kill made spring weed control difficult to impossible in many winter wheat fields, and prolonged wet conditions have encouraged prolific weed growth from competitive broadleaf weeds like giant ragweed and lambsquarters. As we approach harvest in southern WI (week of July 21st) growers simply have limited herbicide options for preharvest weed management. The most popular ones are:

1. 2,4-D products. There is a 14 day pre-harvest interval with this product. Pre-harvest treatment can be applied when grain is in the dough stage.
One preharvest application per crop cycle allowed and a maximum of 0.5 lb 2,4-D acid equivalent per acre per application. Please read label for specific product used as there are differences among labels.

2. Glyphosate products. There is also a 7 day pre-harvest interval with this product, and it can NOT be applied until the grain is at the hard-dough stage (30% moisture or less). Grain treated with glyphosate at this growth stage should not be used for seed as germination can be significantly lowered. Maximum of 0.77 lb glyphosate acid equivalent per acre per application (equivalent of 22 fl oz of Roundup PowerMax per acre).

Some benefits to applying preharvest 2,4-d or glyphosate may include desiccation of green weedy plants to enable an easier combine harvest and quicken the ability to bale straw following the grain harvest. However, drawbacks include a narrow window of application timing ahead of harvest, wheel tracks (if ground applied) will reduce grain yields, and moreover many of the weeds like giant ragweed, waterhemp and lambsquarters will be large and difficult to control. Drift is also a concern when spraying crops this late in the season, particularly with synthetic auxin herbicides such as 2,4-D. Thus, consider a preharvest 2,4-d or glyphosate application as a last resource because partial control of large weeds will greatly increase selection pressure for herbicide resistance. We already have several issues of herbicide resistance in Wisconsin (http://www.wiscweeds.info/post/herbicide-resistance-in-wisconsin-an-overview/).

WISCONSIN SOYBEAN WHITE MOLD UPDATE - JULY 18, 2019

DAMON SMITH, SHAWN CONLEY, & ROGER SCHMIDT

Figure 1 (next page) illustrates the calculated risk of white mold for select Wisconsin locations for non-irrigated soybeans, as determined by Sporecaster for July 18, 2019. This means that if soybeans are flowering and the area between rows is filled in more than 50%, risk ranges from low to medium for the presence of apothecia and subsequent white mold development. Figure 2 illustrates calculated risk for the same locations for irrigated soybeans planted to 30-in row spacing. As you can imagine, risk is higher for irrigated soybeans planted to 15-in rows.

Extremely warm temperatures over the last week have pushed the risk down dramatically in non-irrigated fields. The UW Field Crops Pathology Team continues to scout white mold locations for apothecia. We have been unable to find apothecia at all locations we have visited over the last week.

I’m Ready To Spray, What Should I use?

If the canopy has met threshold, soybeans are flowering, and your Sporecaster risk is high, then a fungicide might be warranted. If you have decided to spray soybeans for white mold, what are the best products to use? Over the last several years we have run numerous fungicide efficacy trials in Wisconsin and in conjunction with researchers in other states. In Wisconsin, we have observed that Endura applied at 8 oz at the R1 growth stage performs well. We have also observed that the fungicide Aproach applied at 9 fl oz at R1 and again at R3 also performs comparably to the Endura treatment. Other fungicide options also include Omega and Proline. You can view results of past fungicide evalu-
If you would like to run tailored estimations of return on investment for various fungicide programs, you can use another smartphone application called Sporebuster.

**WISCONSIN CORN TAR SPOT AND GENERAL DISEASE UPDATE - JULY 18, 2019**

DAMON SMITH, EXTENSION FIELD CROPS PATHOLOGIST, DEPARTMENT OF PLANT PATHOLOGY, UNIVERSITY OF WISCONSIN-MADISON

Figure 1 shows the calculated risk from Tarspotter for July 19, 2019, for various locations in Wisconsin. As you can see, the present risk has dropped substantially over the past week, leaving much of the state at low risk. The drop is due to the high temperatures and drier conditions. Tar spot is favored by persistent temperatures between 60 and 70 F and high relative humidity averaging above 75% for a 30-day period. We have also scouted fields in southern and southwestern WI and have not found tar spot in our travels.

Gray Leaf Spot, Common Rust, and Northern Corn Leaf Blight, Oh My!

While scouting we have observed other foliar diseases of corn, including gray leaf spot (GLS; Fig. 2), common rust (Fig. 3), and northern corn leaf blight (NCLB; Fig. 4). Out of these three, GLS has been the most consistent to find in fields we have visited. In Grant Co., GLS has made its way to the mid-canopy of some corn planted no-till in a field that had corn last season. It will be important to keep an eye on GLS and NCLB over the next couple of weeks. These two disease can become yield limiting if they reach the ear leaf of corn at high severity levels before the R3 corn growth stage. Scouting to determine the number of plants showing symptoms and the severity will be important in determining if a fungicide application at the tasseling growth stage is needed. Right now I’m most concerned about GLS and NCLB in field corn in Wisconsin, while keeping an eye out for tar spot.
What Should I Spray, and When Should I Spray for Corn Foliar Diseases In Wisconsin?

Fungicide should be used to preserve yield and reduce disease level. There is no silver bullet fungicide out there for all corn diseases. However, there are many products which work well on a range of diseases. The 2019 Corn Fungicide Efficacy table lists products that have been rigorously evaluated in university research trials across the country. You can see there are several products listed that perform well on both NCLB and GLS along with efficacy against tar spot. So obviously, if a disease is present and you are trying to control the disease, you might expect more return on your investment, compared to simply spraying fungicide and hoping that there might be a yield increase.

Paul et al. (2011) conducted research to investigate the return on investment (ROI) of using fungicide at low and elevated levels of disease. Data from 14 states between 2002 and 2009 were used in the analysis. They looked at 4 formulations of fungicide products across all of these trials. I won’t go into detail about all products, but will focus on one here, pyraclostrobin. This is the active ingredient in Headline® Fungicide. In all, 172 trials were evaluated in the analysis and Paul et al. found that on average there was a 4.08 bu/acre increase in corn grain yield when pyraclostrobin was used. So there does appear to be some increase in yield with the use of fungicide over not treating across a range of environments. But in our current market, will this average gain cover the fungicide application? Today’s corn future price for September has a bushel of corn at $3.76.

Let’s Take a Closer Look at Corn Fungicide Return on Investment (ROI):

While most of the early work on fungicide use in corn has focused on Headline® Fungicide, much of the industry has transitioned to using multi-mode-of-action products. These would be products mostly containing strobilurin (QoI) and triazole (DMI) fungicides in the same jug. Products such as Headline AMP® or Quilt Xcel® would fall into this category. These combination products have also been fairly consistent in response in my fungicide trials. You can find summaries of these trial results here. If we consider using Quilt Xcel® at 10.5 fl oz or Headline AMP® at 10.0 fl oz, the list pricing of the product alone ranges from $15/acre (Quilt Xcel®) to $22/acre (Headline AMP®). If the fungicide will be flown on with an aircraft, that cost will likely add nearly $15/acre to the application.
Thus, fungicide plus application would range from $30/acre to $37/acre. If we can sell corn at $3.76 per bushel then we would need to preserve 8 bu/acre to nearly 10 bu/a in yield over not treating to break even! In a recent analysis of corn yield data where DMI+QOI products were applied at the tasseling period across the entire corn belt, the average yield preservation over not treating was 7.20 bu/a. This average projection is short of the 8 bu/a minimum we would need in the scenario above. However, the probability of preserving yield in the 8-10 bu/a range in this range is estimated to be 25% – 50%. This means that if we apply Quit Xcel® at 10.5 fl oz or Headline AMP® at 10.0 fl oz aerially, we will only break even 25% – 50% of the time with corn priced at $3.76 per bushel. If we can sell our corn for a better price or make the applications cheaper, then the odds will improve, but probably not climb above 70% even under the best case scenario. We do know that in Wisconsin, the odds of breaking even do improve if NCLB or GLS are active and increasing during the tasseling period. Get out there and scout!

So What About Fungicide Application Timing?

We can investigate this question over the U.S. corn belt using the same dataset. Applications focused on an early (V6) timing, a VT-R2 timing, or a combination of V6 plus a VT-R2 application. Let's again focus on the QoI+DMI products. Based on observations across the corn belt the V6 timing averaged almost 3 bu/a of preserved yield over not treating. The VT application resulted in nearly 8 bu/a in preserved yield, while the two-pass program only offered a little over 8 bu/a. Clearly the higher average yield preservation occurs using a single application of fungicide at the VT-R2 timing. Wisconsin data has been consistent with this observation. Thus it is recommended that a single application of fungicide be used around the VT-R2 growth stages, when NCLB or GLS are active and increasing on the ear leaves.

What About Silage Corn and Ear Rot?

When it comes to ear rot control and reducing the accumulation of mycotoxins in grain or silage corn, fungicide application should be made when white silks are out. Spores of fungicide that generally cause mycotoxin issues in the grain portion of corn will infect the plant through silks. Thus, apply fungicides during silking or with 5 days after silking starts, can be beneficial. Note though that if the goal is to target mycotoxin production and reduce deoxynivalenol (DON) accumulation in the grain portion of the plant, Products containing a DMI should be used. Like winter wheat, the application of some QoI-containing fungicides can increase DON accumulation in the grain portion of corn plants. Some work has been done using Proline® to control Fusarium ear rot. This DMI only product has shown promise in reducing ear rot and DON accumulation in the grain portion of the corn plant and has a label for suppressing Fusarium ear rot in Wisconsin. Performance of some additional products in Wisconsin in
a 2018 silage corn trial can be viewed by [clicking here](#) and scrolling down to pages 4 and 5.

Finally, be aware that in some cases, application of fungicide in combination with nonionic surfactant (NIS) at growth stages between V8 and VT in hybrid field corn can result in a phenomenon known as arrested ear development. The damage is thought to be caused by the combination of NIS and fungicide and not by the fungicide alone. To learn more about this issue, you can [click here](#) and download a fact sheet from Purdue Extension that covers the topic nicely. Considering that the best response out of a fungicide application seems to be between VT-R2, and the issues with fungicide plus NIS application between V8 and VT, I would suggest holding off for any fungicide applications until at least VT.

### Summary

As we approach the critical time to make decisions about in-season disease management on corn, it is important to consider all factors at play while trying to determine if a fungicide is right for your corn operation in 2019. Here is what you should consider:

1. **Corn hybrid disease resistance score for NCLB and GLS** – Resistant hybrids may not have high levels of disease which impact yield.

2. **Get out of the truck and SCOUT, SCOUT, SCOUT** – Consider how much disease and the level of severity of disease present in the lower canopy prior to tassel.

3. **Consider weather conditions prior to, and during, the VT-R2 growth stages** – If weather is conducive for NCLB or GLS, disease may continue to increase in corn and a fungicide application might be necessary. If it turns out to be hot and dry, disease development will stop and a fungicide application would not be needed.

4. **Consider your costs to apply a fungicide and the price you can sell your corn grain** – Will you preserve enough yield out of the fungicide application to cover its cost?

5. **Hold off with making your fungicide application in Wisconsin until corn has reached the VT-R2 growth stages** – The best foliar disease control and highest likelihood of a positive ROI will occur when fungicide is applied during this timing when high levels of disease are likely.

6. **Be aware that every time you use a fungicide you are likely selecting for corn pathogen populations that will become resistant to a future fungicide application** – Make sure your fungicide application is worth this long-term risk. See fact sheet A3878 below for more information.
Welcome to the latest issue of Wisconsin Fruit News. This week you will find articles on:

Japanese beetles are back!
Grape Variety Developmental Stages: July 19, 2019
Grape Scouting Report: Japanese Beetles are out and about!
UW-Madison/Extension Insect Diagnostic Lab Update
UW-Madison/Extension Plant Disease Diagnostic Clinic Update
Fungicide Resistance in Grapevine Powdery Mildew—Free Testing Service
Door County Report, July 15, 2019

The UW Departments of Agronomy and Soil Science invite you to the Arlington Agricultural Research Station on August 28th to learn the latest in agronomic research being conducted in the College of Agricultural and Life Sciences. Field tours will emphasize soil, crop, and pest management practices that promote soil health, improve farm profitability, and enhance environmental quality. There will be more presentations to see than time to see them! A lunch time presentation will focus on navigating today’s dairy industry.

A special after lunch only session will highlight UW’s inaugural research on industrial hemp. Grain and fiber plots will showcase research on organic weed management, conventional fertility, and variety trials. An update will also be provided on cannabidiol research.

Between tours you can visit with specialists from the UW Soil & Forage Analysis Lab, Nutrient & Pest Management Program, SnapPlus, and Pesticide Applicator Training. Posters highlighting additional research will also be displayed. Certified Crop Advisor continuing education credits are being requested.

The field day starts at 8:00, concludes at 2:45, and will be held rain or shine. The Public Events Building at the Arlington Ag Research Station is located at N695 Hopkins Rd, Arlington. Watch for signs on Hwy 51 about 5 miles south of Arlington. GPS coordinates: 43.300467, -89.345534

Please complete a RSVP at https://go.wisc.edu/n4yrl5
Sigma Alpha Agricultural Sorority will provide lunch ($5 donation).

For more details, see the attached flyer.
VEGETABLE CROP UPDATE NEWSLETTER
#4

AMANDA GEVENS, ASSOCIATE PROFESSOR & EXTENSION SPECIALIST, POTATO & VEGETABLE PATHOLOGY, PLANT PATHOLOGY DEPARTMENT

Update 14 – July 14, 2019

• Hancock Ag Research Station Field Day is this week!
• Vegetable production updates
• Cucurbit downy mildew updates
• Potato disease DSVs and PDays

WISCONSIN PEST BULLETIN #13

KRISTA HAMILTON, ENTOMOLOGIST, WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

Volume 64 Issue No. 13 of the Wisconsin Pest Bulletin is now available at:

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

INSIDE THIS ISSUE

LOOKING AHEAD: European chafer confirmed by UW in Langlade County

FORAGES & GRAINS: Potato leafhopper pressure remains high in alfalfa fields

CORN: Western bean cutworm moth flight 25% complete across southern Wisconsin

SOYBEAN: Soybean aphid counts very low for late July

FRUITS: Spotted wing drosophila infestations intensifying in berry crops

VEGETABLES: Purple carrot seed moth reported in five more counties

NURSERY & FOREST: Redheaded flea beetles noted in nurseries and field crops this week

DEGREE DAYS: Growing degree day accumulations as of July 24, 2019
**AGRONOMY/SOILS FIELD DAY**

**Wednesday, August 28, 2019**

**PROGRAM**

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<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>8:00</td>
<td>Registration ($0), coffee</td>
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<tr>
<td>8:30</td>
<td><strong>FIELD TOURS</strong></td>
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<tr>
<td>10:30</td>
<td><strong>FIELD TOURS</strong></td>
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<td>12:00</td>
<td>Lunch</td>
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<tr>
<td>1:00</td>
<td><strong>Industrial Hemp Research Plot Tour</strong></td>
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<td>2:45</td>
<td>Have a safe trip home!</td>
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**FIELD TOURS**

<table>
<thead>
<tr>
<th>Time</th>
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<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:30</td>
<td><strong>Soil Fertility &amp; Management</strong></td>
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<td>10:30</td>
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<tr>
<td>8:30</td>
<td>Can we conserve N from early fall manure applications?</td>
<td>Carrie Laboski</td>
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<tr>
<td>10:30</td>
<td>Comparing tillage practices for corn: Is there a difference in early crop development?</td>
<td>Francisco Arriaga</td>
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<td>8:30</td>
<td>Fertilization on a budget</td>
<td>Andrew Stammer</td>
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<td>10:30</td>
<td>Cover crops and nitrogen</td>
<td>Matt Ruark</td>
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<td><strong>Grain Production Systems</strong></td>
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<td>8:30</td>
<td>Corn plant population: The second most important management decision for moving off the yield curve</td>
<td>Joe Lauer</td>
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<td>10:30</td>
<td>Crop rotation, cover crops, planting green and the microbiome: A gaggle of Coolbean information!</td>
<td>Shawn Conley</td>
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<tr>
<td>8:30</td>
<td>A small grains variety selector tool</td>
<td>Madhav Bhatta</td>
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<tr>
<td>10:30</td>
<td>Kernza perennial grain: A new opportunity for Wisconsin farmers</td>
<td>Valentin Picasso</td>
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<td>8:30</td>
<td><strong>Pest Management</strong></td>
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<tr>
<td>8:30</td>
<td>Herbicide resistance in Wisconsin agronomic crops</td>
<td>Rodrigo Werle, Mark Renz, Dave Stoltenberg</td>
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<tr>
<td>10:30</td>
<td>To Bt or not to Bt: Is that your question?</td>
<td>Bryan Jensen</td>
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<tr>
<td>8:30</td>
<td>Soybean cyst nematode coalition: What's your number?</td>
<td>Ann MacGuidwin</td>
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<tr>
<td>10:30</td>
<td>Disease management updates in Wisconsin agronomic crops</td>
<td>Damon Smith</td>
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<tr>
<td>1:00</td>
<td><strong>Industrial Hemp Research Plot Tour</strong></td>
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**To help us organize a successful event, if you are considering attending please complete a RSVP!**

https://go.wisc.edu/n4yr15

Certified Crop Advisors: 6.5 CEU credits requested

The Arlington ARS is located on Hwy. 51, about 5 miles south of Arlington and 15 miles north of Madison.

N695 Hopkins Rd, Arlington, WI 53911

GPS coordinates: 43.300467, -89.345534

Watch for Field Day signs!

The College of Agricultural and Life Sciences will make a reasonable effort to provide accommodations for participants with disabilities when notified in advance. To request a disability accommodation, please contact ars_accommodation@cals.wisc.edu or call 608-846-3761 ext.101 at least 10 days in advance of event. Efforts will be made to meet same day requests to the extent possible.