What’s New

UW-River Falls Field Scout Training Class, March 13-14 .................................................. 2
Welcome UW Soil & Forage Analysis Lab director ................................................................. 4
Meet Rodrigo Werle, New UW-Madison Extension Cropping Systems Weed Scientist ....... 5
NPM Program Announces Two New Employees .................................................................. 6
2017 Wisconsin Soybean Contest Winners Announced ....................................................... 7
UW-River Falls Field Scout Training Class March 13-14 ....................................................... 7
CCA Board Election ............................................................................................................. 7
What agriculture video channel has almost 1 million views? ........................................... 9
Wisconsin Agricultural Land Prices 2017 ............................................................................ 12
Jeff Laufenberg: 2018 Wisconsin CCA of the Year ............................................................. 12
New CCAs for 2018 ............................................................................................................. 13
2018 Wisconsin Soybean Yield Contest ............................................................................. 14
Wisconsin Herbicide Mode of Action Chart ...................................................................... 17
Has April rain and snow caused loss of March N applications to winter wheat? .......... 18
Healthy Grown Series of Videos ......................................................................................... 18
2018 Agronomy/Soils Field Day on August 22nd ................................................................. 22
Use FieldWatch to Locate Managed Honey Bee Colonies ............................................... 23
Despite the Weather 2018 Weed Emergence Only One Week Behind ............................... 26
New smartphone app: Sporecaster, The Soybean White Mold Forecaster ................. 29
Strategies for Late Termination of Cereal Rye CoverCrop ............................................... 29
PLANT DISEASE

Plant Disease Diagnostic Clinic (PDDC) Updates……8, 11, 14, 15, 19, 20, 24, 30, 36, 37, 42, 47, 53, 60, 67, 74, 80, 86, 92, 98, 110, 115, 119, 127

Wisconsin Field Crops Pathology Fungicide Tests Summary.................................1

Wisconsin Winter Wheat Disease Update – April 17, 2018.....................................16

New smartphone app: Sporecaster, The Soybean White Mold Forecaster...............29

Soybean Checkoff Funded Collaborative International Research and Outreach........31

Wisconsin Winter Wheat Disease Update – May 21, 2018.................................32

Fusarium Head Blight Risk for Wheat in WI for May 24, 2018.............................33

Wisconsin Winter Wheat Disease Update – May 30, 2018.................................34

New Videos: Early Season Soybean Management.............................................55

To Spray or Not to Spray Fungicide on Corn for Grain or Silage?......................69

Wisconsin White Mold Risk Maps- July 8/15.....................................................71

Wisconsin White Mold Risk Maps – July 29, 2018............................................76

Late Season Corn Foliar Disease Update and Hail-Damaged Corn..........................89

Tar Spot on Corn in Wisconsin.................................................................100

UW/UWEX Plant Disease Diagnostic Clinic..................................................102
What to Expect from Stalk Rot and Mycotoxins in Severely Diseased and Damaged Corn...104
Two New Videos Posted on Corn Diseases In Wisconsin.................................104
Bacterial Leaf Streak of Corn Confirmed for the First Time in Wisconsin..........107
Sporebuster, a New White Mold Fungicide Value Calculator........................118
Herbicide Resistance in Wisconsin: An Overview (December 2018).............121
UW/UWEX Plant Disease Diagnostic Clinic....................................................122
Poor Soybean Seed Quality and Preparing for the 2019 Field Season.............123
The Effect of Tar Spot on Corn Hybrids in Wisconsin in 2018...............124

**INSECTS AND MITES**

Wisconsin Pest Bulletin. ........ 24, 36, 47, 52, 59, 66, 73, 79, 86, 91, 102, 122
EPA Open Comment Period for Neonicotinoid Insecticides............................4
Black Cutworm.........................................................................................27
True Armyworm....................................................................................27
Seedcorn Maggot.................................................................................28
Alfalfa Weevil.......................................................................................28
Are You Concerned about Slugs in Corn and Soybean?.............................33
Early Season Below Ground Corn Insects..............................................42
First Generation European Corn Borer.................................................50
Japanese Beetles..................................................................................56
Pea Aphids: Where did they come from?.............................................64
It’s Time to Check for Corn Rootworm Damage...................................69
Gear Up: Western Bean Cutworm..........................................................70
True Armyworms..................................................................................71
Two-spotted Spider Mites.....................................................................72
True Armyworms Continued.................................................................72
Corn Rootworm Beetle Scouting.................................................................78
Soybean Insect Update.................................................................78
Integrated Pest Management of Soybean Aphids...............................83
Bt Trait Performance Concerns.........................................................84
Cancellation of Chlorpyrifos.............................................................90
2018 Pest Management Update Meeting Series Announced...............94

**Fertility and Soil**

Fertility Guidelines for Hemp in Wisconsin........................................23
UW Research to be Highlighted at Agronomy/Soils Field Day on August 22nd........38
Evaluating the Need for Rescue N Applications.....................................54
Maintaining Soil Fertility is Important For Soil Health..........................63
Getting Alfalfa Field Ready for Winter..............................................88
How to use Plant Tissue Analysis for In Season Nutrient Management.............88

**Crops**

Wisconsin Fruit News..... 8, 19, 24, 37, 43, 47, 52, 67, 73, 80, 91, 102, 109
Economic Forecast for Corn Production Next Season...........................1
Corn Cost of Production Estimates for 2018........................................3
Wisconsin Industrial Hemp Production FAQ Guide................................6
Soybean Yield Gap Data Collection......................................................6
Analysis of Farmer Field Data for Soybean...........................................9
Soybean Management Strategies to Facilitate Timely Winter Wheat Establishment in 2018..13
The WSMB Free Soybean Cyst Nematode Testing Program......................14
Cover Crops Do’s & Don’ts.................................................................14
The Soybean Seeding Rate Conundrum...............................................16
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Visual Guide to Winter Wheat Development and Growth Staging</td>
<td>17</td>
</tr>
<tr>
<td>Soybean Management Strategies to Facilitate Timely Winter Wheat Establishment</td>
<td>18</td>
</tr>
<tr>
<td>Soybean Planting Date and Maturity Group Considerations</td>
<td>18</td>
</tr>
<tr>
<td>Are You PRE-Emergence Ready For Soybean Planting?</td>
<td>21</td>
</tr>
<tr>
<td>A Visual Guide to Soybean Growth Stages</td>
<td>22</td>
</tr>
<tr>
<td>Soybean Replant Decisions: Just the Facts Jack!</td>
<td>22</td>
</tr>
<tr>
<td>Soybean Emergence and Germination Issues</td>
<td>26</td>
</tr>
<tr>
<td>Wisconsin Winter Wheat Disease Update – May 21, 2018</td>
<td>32</td>
</tr>
<tr>
<td>Adjust Your Seeding Rate But Not Your Maturity Group For Late May Planted Soybean</td>
<td>32</td>
</tr>
<tr>
<td>Wisconsin Winter Wheat Disease Update – May 30, 2018</td>
<td>34</td>
</tr>
<tr>
<td>Winter Rye Interseeding- Spring Update Video</td>
<td>35</td>
</tr>
<tr>
<td>Variable Germination and Emergence in Soybean: Which Seeds Are Still Viable?</td>
<td>35</td>
</tr>
<tr>
<td>Additional Factors to Consider when Selecting Xtend Soybean Varieties</td>
<td>38</td>
</tr>
<tr>
<td>UW Research to be Highlighted at Agronomy/Soils Field Day on August 22nd</td>
<td>38</td>
</tr>
<tr>
<td>Waterhemp Management in Soybeans</td>
<td>39</td>
</tr>
<tr>
<td>The Soybean Flowering- Summer Solstice Fallacy</td>
<td>40</td>
</tr>
<tr>
<td>Wisconsin Winter Wheat Disease Update – June 6, 2018</td>
<td>41</td>
</tr>
<tr>
<td>Potato Leafhoppers</td>
<td>41</td>
</tr>
<tr>
<td>Early Season Below Ground Corn Insects</td>
<td>42</td>
</tr>
<tr>
<td>Are Your Beans “Feelin the Burn”?</td>
<td>44</td>
</tr>
<tr>
<td>Understanding Nutrient Requirements and Utilization for High Yielding Soybeans</td>
<td>45</td>
</tr>
<tr>
<td>Palmer amaranth is prohibited noxious weed seed in Wisconsin, but what’s it look like?</td>
<td>45</td>
</tr>
<tr>
<td>Soybean Response to Nitrogen Application Across the U.S</td>
<td>46</td>
</tr>
<tr>
<td>Soybean Injury from Dicamba</td>
<td>46</td>
</tr>
<tr>
<td>Assessing Flood Damage to Soybean</td>
<td>49</td>
</tr>
</tbody>
</table>
Armyworms..............................................................................................................51
New Videos: Early Season Soybean Management......................................................55
Reporting Soybean Crop Injuries..............................................................................57
Application Window For Most Soybean Herbicides Coming Close To An End...........58
Wisconsin Winter Wheat Disease Update – June 26, 2018........................................59
Fusarium Head Blight: What To Do As You Prepare For Wheat Harvest......................65
Reporting Dicamba-Injured Acreage in Wisconsin....................................................68
Soybean Meal Value Variation: A Case Study in U.S. Swine.................................69
Hybrid Winter Rye Forage Trial Results – 2018...........................................................72
Soybean Flowering Fallacy.......................................................................................75
2018 Wisconsin Winter Wheat Performance Trials....................................................75
Cover Crops: Selection and Management Guidelines................................................77
2018 Large-Scale Dicamba Drift Study YouTube Video.............................................79
Bt Trait Performance Concerns................................................................................84
Intensive Winter Wheat Management.......................................................................85
Response of Oat Varieties to Plant Growth Regulator & Foliar Fungicide Combination..85
Harvest timing of winter wheat................................................................................85
Starter Fertilizer for Winter Wheat – Two Year Results.............................................86
Survey seeks Wisconsin soybean farmers’ views on dicamba..................................87
Assessing Flood Damage to Soybean.......................................................................93
Wisconsin Late-Season Soybean Disease Update......................................................95
Drought Stricken Soybeans: Leave Them or Take Them for Forage?........................97
Top 8 Recommendations for Winter Wheat Establishment in 2018............................99
Managing Volunteer Wheat in Late Summer Seeded Alfalfa.......................................101
Warrant Now Registered For Use in Alfalfa in Wisconsin.........................................101
Economic Forecast for Corn Production Next Season

Dr. Joe Lauer, UW-Madison Agronomy and UWEX state corn specialist

As the holiday season starts to wind down, plans more and more firm for the 2018 production season. There is still quite a bit of time before planters start rolling in the field, but some key decisions need to be made now at the kitchen table. Projecting prices and potential yields are where many farmers begin. The next step is to calculate production costs and see if gross revenues (price x yield) are greater than costs.

Projected prices for 2018 crop insurance policies will not be set until February for corn and soybean grown in the Midwest. Likewise corn and soybean acreage intentions will not be compiled until the end of March. However, current levels of futures contracts provide estimates of 2018 projected prices.

Projected prices are used to set minimum guarantees for Revenue Protection (RP). Also, the projected price sets the payment on yield shortfalls associated with Yield Protection (YP). Once set, projected prices determine the overall level of revenue and yield protection offered by crop insurance.

Projected prices are set using futures contracts and vary from year-to-year based on market conditions. For corn grown in Midwest states, the projected price is the average of settlement prices of the December Chicago Mercantile Exchange (CME) contract during the month according to the manufacturers current label. Follow all label instructions when using any pesticide. Remember the label is the law!

Past reports >> https://fyi.uwex.edu/fieldcroppathology/research-summaries/
This training session will provide classroom and laboratory instruction for several pest and nutrient management topics (pest identification, life cycle, damage symptoms, economic thresholds and scouting techniques for insects, weeds, plant pathogens, herbicide injury and nutrient deficiency symptoms for corn, alfalfa, soybean and wheat, soil sampling, plant tissue testing, etc).

The complete schedule is listed at the end of the post. 13 Pest Management and 3 Nutrient Management CEU's have been approved.

Non-student registration fee is $100/person and covers the cost of the training program and the Field Crop Scout Training Manual. To register online please go to https://patstore.wisc.edu/ipm/register.aspx

To register by check, send name, phone number, address and email address with a check payable to “UW-Extension” to: Bryan Jensen, Dept. of Entomology, 1630 Linden Drive Madison, WI 53706.

**Tuesday, March 13, 2018**

Rm. 211 Agricultural Sciences Building

7:45 a.m., Registration -outside Rm. 211, Agricultural Sciences Building

8:00, Introduction, Bryan Jensen, Integrated Pest Management Program, UW-Madison

8:15, Grass and Sedge Weed Identification, Dan Heider, UW-Madison, Integrated Pest Management Program

9:30, Break

9:40, Annual Broadleaf Weed Identification, Dan Heider

11:00, Biennial and Perennial Weed Identification, Dan Heider

12:00, Lunch (on your own)

12:45, Weed Identification Lab, Rm. 221, Dan Heider

2:15, Herbicide Mode of Action and Injury Symptoms, Dan Heider

3:30, Break

3:45-5:00, Soil and Plant Tissue Sampling

- Nutrient Deficiency Symptoms

- Introduction to Nutrient Management

Scott Sturgul, UW Madison, Nutrient and Pest Management Program

6:30, (Continued), Scott Sturgul

---

Highest recorded corn yields (bu/A) in Wisconsin counties. Data includes participants in the NCGA yield contest (1983-2016) and Wisconsin PEPS program (1987-2011).


**UW-River Falls Field Scout Training Class, March 13-14**

Bryan Jensen, UW Extension, IPM Program

The University of Wisconsin-River Falls, UW-Extension and the Integrated Pest Management Program are co-sponsoring the IPM Field Scout Training Class which will be held March 13-14, 2018 at the UW-River Falls campus.
8:30, Quiz
9:00 p.m., Adjourn

**Wednesday, March 14, 2018**

Rm. 211, Agricultural Sciences Building

8:00, Diseases of Corn, Alfalfa, Wheat and Soybeans, Dr. Brian Hudelson, Dept. of Plant Pathology,

10:00, Break

10:15, Field Crop Disease Lab, Rm. 221, Dr. Brian Hudelson

11:45, Lunch (on your own)

12:45, Insect Pests of Corn, Alfalfa and Soybeans, Bryan Jensen, UW-Madison

2:45, Break

3:00, Field Crop Insect Lab, Rm. 221, Bryan Jensen

4:30, Identification Test (optional for non-students)

### Corn Cost of Production Estimates for 2018

Dr. Joe Lauer, UW-Madison Agronomy and UWEX state corn specialist

It is difficult to predict the economics of corn production next year. In the last blog we discussed how someone might go about forecasting the 2018 price. A grower has little control over price, but can begin to lock in prices using futures contracts. Of course a lot can happen yet between now and harvest.

A grower has more control over cost of production on their farm. In a year with low corn price predictions, every input from management must be reviewed to lower cost of production. In some years, growing corn may not be the best option.

USDA has been producing cost of production estimates since 1975. These estimates are based on the actual costs incurred by producers. USDA performs the estimates from a survey base conducted every five years. The annual Agricultural Resource Management Survey (ARMS) has been used to modify the survey base since 1996. Cost of production estimates exclude costs for marketing and storage.

ARMS data collection starts during the fall when production practice and cost data are collected, and finishes in the spring when a follow-up interview collects data about whole-farm costs like overhead, interest, and taxes (Figure 1). Each farm sampled in the ARMS represents a known number of farms with similar attributes so that weighting the data for each farm by the number of farms it represents provides a basis for calculating estimates. Actual cost of production data from 2017 is still being collected at this time.

USDA divides the country into 9 farm resource regions. Wisconsin belongs to the Northern Crescent region while the Heartland region is dominated by the “I” states (see map). Cost of corn production in 2016 was $665 per acre in the Heartland region and $587 per acre in the Northern Crescent (Figure 2). Cost of production in 2018 is predicted to be $645 per acre. The breakeven price for corn at a yield level of 200 bu/A is $3.23 per bushel, at 180 bu/A is $3.58 per bushel, and at 160 bu/A is $4.03.

Today, December corn on the CBOT closed at $3.85 per bushel making the 2018 growing season a challenging one economically.
EPA Open Comment Period for Neonicotinoid Insecticides

Bryan Jensen, UW Extension and IPM Program

Most are aware that EPA is going through a registration review for the neonicotinoid (IRAC 4A) insecticides. The majority of the neonicotinoid use in Wisconsin’s field crop’s is for several formulations of seed treatments in corn, soybean and wheat. Although some labels are available as foliar applications in soybean.

The ecological risk assessment open comment period ends February 20, 2018. Comments can be made online at the EPA website. If you move around within the website you will notice that comments can be made for each of five insecticides (imidacloprid, clothianidin, thiamethoxam, dinotefuran, and acetamiprid). However, at this time, EPA is requesting comments on thiamethoxam use in several crops, however Wisconsin’s focus would be for uses on corn, soybean and wheat.

Comments are also requested for a broad range of imidacloprid use. Comments are not requested for clothianidin use in any of Wisconsin’s field crops.

Welcome UW Soil & Forage Analysis Lab director

Carrie Laboski, Professor & Extension Soil Scientist

The UW Soil & Forage Analysis Lab welcomes its new lab director and extension soils specialist, Andrew Stammer. Andrew is a certified crop advisor and has a strong background in soil and plant analysis. He looks forward to serving Wisconsin agriculture by providing farms, agribusinesses, and homeowners with high quality soil, forage, manure, and plant analyses as well as working with clients on soil fertility and nutrient management issues.

You can reach Andrew at 715-387-2523 or astammer@wisc.edu.
Meet Rodrigo Werle, New UW-Madison Extension Cropping Systems Weed Scientist

Rodrigo Werle recently joined UW-Madison as an Assistant Professor and Extension Cropping Systems Weed Scientist. He will establish a research program that focuses on agroecologically-based approaches to address sustainable weed management in corn, soybeans, and small grains. It will also focus on weed management strategies that can help protect water quality, enhance agroecosystems services and increase food security.

Training growers, crop scouts, and agronomists on proper weed identification, herbicide selection, and application in collaboration with the UW-Extension Pesticide Applicator Training Programs will be one of his efforts. The development of multimedia tools (e.g. YouTube videos and mobile apps) that can make information readily accessible to growers and agronomists will also be part of his outreach program.

Rodrigo was born in a small farming community of Dutch immigrants in the state of Sao Paulo, in southeastern Brazil. His early passion for agriculture led him to earn a Bachelor’s Degree in Agronomy from Sao Paulo State University, Brazil. He earned his MS and PhD in Agronomy from the University of Nebraska-Lincoln.

As a PhD student, he evaluated the distribution and mechanism of acetolactate synthase (ALS) herbicide resistance in grasses, and developed a simulation model to assess management options to mitigate the risk of ALS resistance evolution in shattercane in potential ALS-tolerant sorghum (Inzen technology, DuPont) production areas of the Great Plains.

The results of his PhD work assisted DuPont with the development of the Best Management Practices for the Inzen technology, which is expected to become commercially available in 2018. He received Outstanding Graduate Student Awards from the North Central Weed Science Society (2013) and Weed Science Society of America (2016). From April 2016 through December 2017, Rodrigo represented UNL as an Assistant Professor and Cropping Systems Specialist at the West Central Research and Extension Center. The objective of his program was to conduct research and extension programming to increase profitability, productivity and sustainability of irrigated and dryland cropping systems with limited water in Nebraska and beyond.

Rodrigo is excited to join the team and provide Wisconsin stakeholders research-based information for weed management.
Wisconsin growers will be able to grow and process industrial hemp under 2017 Wisconsin Act 100, a law recently passed by the Legislature and signed by the Governor. The law directs the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) to write an emergency administrative rule that will spell out the details of the program, including requirements for growers.

This document will be updated as new information becomes available. The Wisconsin DATCP will complete an emergency rule by March 2, 2018. This rule will remain in effect until July 2020 or until a permanent administrative rule is approved. Please consult the official DATCP and State of Wisconsin websites for official information.

To view the full article, follow the link below.


---

**Soybean Yield Gap Data Collection**

Shawn Conley, State Soybean and Small Grains Specialist

We are embarking on a Region-Wide Project aimed at generating baseline producer data on current soybean management practices in Wisconsin’s production systems. This project is funded by the Wisconsin Soybean Marketing Board and the North Central Soybean Research Program (NCSRP). The project goal is to identify the key factors that preclude the State’s Soybean Producers from obtaining yields that should be potentially possible on their respective individual farms.

The term used for the difference between what yield is possible on your farm each year and what you yield you actually achieve is called a “Yield Gap”. We are therefore asking Crop Producers in Wisconsin to provide us with yield and other agronomic data specific to their soybean production fields. With that data, we will conduct an in-depth analysis of what on-farm factors might be causing a Yield Gap on your farms. To date we have collected data from across the North Central soybean production region from a total of 6251 soybean fields, representing 501,837 acres!!! Talk about BIG DATA!!!

Please go to www.coolbean.info or click to view initial results from data collected the last two years growing seasons: **Key Management Practices That Explain Soybean Yield Gaps Across the North Central US.**
Click here to review a detailed set of Guidelines for Data Collection

Click here to download a fillable PDF Data Collection Form

Please email all forms back to Dr. Shawn P. Conley: spconley@wisc.edu

2017 Wisconsin Soybean Contest Winners Announced

Shawn Conley, State Soybean and Small Grains Specialist

The 1st place winner in Division 4, RnK DeVoe Farms of Monroe, grew DuPont Pioneer P31T77R and harvested 93.15 bu/a. In second place, Bahr Farms Inc. of Darlington grew Asgrow AG2535 and harvested 90.19 bu/a. In Division 3, Steve Wilkens of Random Lake won 1st place with NK S21-M7 Brand at 89.39 bu/a, and in 2nd place, Jim Salentine of Luxembourg harvested 75.19 bu/a with Steyer 1401L. In Division 2, Bork Farms of Grand Marsh achieved 91.49 bu/a from LG Seeds C2020R2 for first place. In 2nd place, Peavey Farms of Woodville harvested 76.47 bu/a from Croplan R2C1400 soybeans. In Division 1 at 67.02 bu/a was David Lundgren from Amery who planted Croplan R2C1572. 2nd place winner in Division 1 was Dawn Lundgren from Amery. She harvested 64.22 bu/a from DuPont Pioneer P16A35X.

Bork Farms of Grand Marsh was also the winner of the Soybean Quality contest with 2,970 pounds of protein plus oil per acre.

The contest is sponsored by the WI Soybean Program and organized to encourage the development of new and innovative management practices and to show the importance of using sound cultural practices in WI soybean production.

For more information please contact Shawn Conley, WI State Soybean Specialist at 608-262-7975 or spconley@wisc.edu

CCA Board Election

Bryan Jensen, UW Extension and IPM Program

The Wisconsin CCA Board is now accepting nominations for four positions on the WI CCA Board. The nominee must be a CCA in good standing and submit a short biography (up to ½ page) by Friday, March 16, 2018. Please consider nominating yourself or another qualified CCA. The board meets 3-4 times/year and each term lasts three years. There is a two term limit.

Anticipated election timeline:

Nomination deadline: March 16, 2018
Electronic Ballot emailed: Approximately March 23, 2018
Voting Deadline: April 13, 2018
Notification of results: mid-late April, 2018

**Biographies should be submitted by the March 16, 2018 deadline to Bryan Jensen, bmjense1@wisc.edu

UW-River Falls Field Scout Training Class March 13-14

Bryan Jensen, UW Extension

Just a quick reminder that the University of Wisconsin-River Falls, UW-Extension and the Integrated Pest Management Program are co-sponsoring the IPM Field Scout Training Class which will be held March 13-14, 2018 on the UW-River Falls campus. Non-student registration fee is $100/person and covers the cost of the training program and the Field Crop Scout Training Manual.

This training session will provide basic and applied classroom and laboratory instruction. Primary focus will be on weeds, disease and insect identification, nutrient deficiency symptoms, soil and plant tissue sampling for field crops. Click here for the complete schedule. Thirteen Pest Management and 3 Nutrient Management CEU’s have been approved.

For questions on content or registration, please contact Bryan Jensen (608-263-4073, bmjense1@wisc.edu). For online registration, please go to https://patstore.wisc.edu/ipm/register.aspx.

To register by check, send name, phone number, address and email address with a check payable to UW-Extension to:

Bryan Jensen
Dept. of Entomology
1630 Linden Drive
Madison, WI 53706
Please email or call Bryan (608-263-4073) if you have questions.

Wisconsin Fruit News- February 2, 2018

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/0338ow

The Guedot Lab has summarized some of our research findings from the summer of 2017, as well as looking ahead toward 2018. In this issue of the newsletter you can read about:

- Japanese beetles in vineyards
- Wasps in vineyards
- Spotted wing drosophila in different varieties of tart cherries
- Brown marmorated stink bug seasonal phenology

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update February 2

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 January 27, 2018 through February 2, 2018.

The 2/2/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update February 9

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 February 3, 2018 through February 9, 2018.

The 2/9/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

Analysis of Farmer Field Data for Soybean

Shawn Conley, State Soybean and Small Grains Specialist

Average crop yields will need to increase substantially during the next 33 years to meet expected food demand increase while avoiding massive expansion of cropland area (Alexandratos and Bruinsma, 2012; Grassini et al., 2013). This challenge can be achieved by increasing the rate at which best management practices are identified and adopted for a particular soil-climate context. Replicated field experiments are used in agricultural research to test new technologies and management practices. Farmer survey data can be utilized as a cost-effective source of information to identify yield constraints and fine-tune management practices so that these yield limitations can be ameliorated or eliminated (e.g., Lobell et al., 2005; Tittonell et al., 2008). An advantage of using farmer data is that it allows examination of opportunities for yield increase within the range of current management practices that are both cost-effective and logistically feasible in farmer fields. Another advantage of using farmer data is that, when they are properly contextualized relative to their biophysical environment, it is possible to explore and quantify management × environment interactions (Rattalino Edreira et al., 2017). Such assessment would allow identification of suites of management practices that perform best for a given environment and provide a focus to traditional, costly field experiments so that they can target those management practices with the most likely impact on crop productivity and input-use efficiency.

To view the full article, follow the link below.


What agriculture video channel has almost 1 million views?

While you are waiting to get out in the field this spring, you might want to watch an agriculture related video listed on the UW-Madison Integrated Pest and Crop Management YouTube channel.
The videos are all made by UW specialists with the goal of helping bring university research and ideas directly to your laptop or smartphone screen. This lets you keep up on the latest topics related to Farm and crop management at the time and place of your choosing.

These videos have already been viewed over 900,000 times; so you can help our channel reach 1 million views this year! Some of the most recently made and most popular videos are listed below. The channel can be viewed by this URL:

https://www.youtube.com/user/uwipm

Tools for Measuring Soil Compaction

Using the roller-crimper system with early planted emerged organic soybean

Cover Crops: 16 demonstration plots and their seed mixes

Long-Term Conventional and No-tillage Systems Compared

Strategies to maximize return on fertilizer in 2016

Integrated Approaches to White Mold Management

Herbicide Resistant Weeds in Wisconsin, 2018 update

Identifying Palmer Amaranth and Waterhemp in Wisconsin Using Vegetative Characteristics

Cover Crop Interseeding: No-till Drill Modification
UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update March 2

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 February 24, 2018 through March 2, 2018.

The 3/2/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update March 9

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 March 2, 2018 through March 9, 2018.

The 3/9/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

Low commodity prices did not dampen average agricultural land prices in 2017. The WI Department of Revenue transfer return data finds average agricultural land values were nearly steady in 2017.

The weighted average price of agricultural land sold in Wisconsin in 2017 was $4,025 per acre. This is a 3.5% increase from 2015 and nearly identical to the average from 2016. There were 11% more acres sold in 2017 and 13% more reported transactions. Declining farm incomes helped to dampen demand. With low commodity prices expected and increased borrowing costs again in 2018, producer competition for land will likely soften again.

The complete 10 page report is on the UW Cooperative Extension Farm and Risk Management (FARM) Team Website: https://fyi.uwex.edu/farmteam/files/2018/04/Wisconsin-Ag-Land-Prices-2012-2017-final.pdf

Jeff Laufenberg: 2018 Wisconsin CCA of the Year

Bryan Jensen, UW Extension and IPM Program

Please join the WI CCA Board and congratulate Jeff Laufenberg as the 2018 Wisconsin Certified Crop Advisor of the Year! Jeff grew up on an 800-acre dairy farm and is a graduate of UW Platteville. Jeff has been working in agriculture for 33 years and is currently the Technical Development Lead for Syngenta. His role with Syngenta allows him to advise several farms on crop production, pest management and soil fertility issues and he manages a territory from the Dakotas to Michigan.

Brian Madigan, Country Visions Cooperative, must be recognized for his effort to coordinate and submit Jeff's nomination. Several aspects of his nomination stand...
out to me as being important contributing factors to Jeff’s successful career. First, Brian writes that Jeff has become the “go to guy” when troubleshooting problem weed, diseases and insect problems. His broad ranging skills help people understand problematic issues like herbicide mode of action, soil fertility and economics. Assisting growers to make the best informed decisions as possible. He hosts field days and guest lectures at other covering broad reaching topics. Jeff has conducted and participated in several replicated research trials and is the foundation of Brian’s description of Jeff as being “data-driven”.

Jeff has also put his broad range of knowledge and experience to good use by mentoring several young agronomists, farmers and interns. Inspiring them to answer challenging questions by understanding issues that can expand their trade to the next level.

Please join us in congratulating Jeff. Job well done!

---

**New CCAs for 2018**

Bryan Jensen, UW Extension and Dept. of Entomology

We have a new group of CCAs for the coming year! Please join the Wisconsin CCA Board in welcoming those who have recently received full certification. We all take great pride in their accomplishments. Please review the list and extend them a warm welcome and congratulations on a job well done!

- Justin Eckelberg
- Silke M. Ford
- Austin R Underdahl
- Bryan P. Kemink
- Lee A. Boles
- Terese M. Sazama
- Timothy D. Wucherer
- Katelyn Margaret Werner
- Stefan M. Stults
- Hallie A Metcalf
- Mark A. Kendall
- Nate Leystra
- Rachel Legee
- Jesse L. Ziegler
- Dane W. Christenson
- Timothy F Radatz
- Matthew Jacob O’Leary
- Jorey Dobbs
- Andrew J. Heath
- Steven Feucht
- Allan Michael Herritz
- Jordyn S. Sattler
- Kevin Gallenberg
- Luke N. Peterson
- Gustav J. Parkhurst
- Michael T. Sikorski
- Benjamin Karl Erdman
- Dylan Nelson
- Robert S. Laubenstein
- Douglas R. Wiedenbeck
- Jeffrey A Lueck

---

**Soybean Management Strategies to Facilitate Timely Winter Wheat Establishment in 2018**

Shawn Conley, State Soybean and Small Grains Specialist

Winter wheat acres across WI have declined over the past few years due to late grain harvests, disease concerns (FHB or scab) and poor wheat prices, however anyone that lives and works in WI knows that a base number of cereal acres are needed to support the dairy industry (straw and land to summer haul manure). As farmers get ready to kick off the 2018 growing season here are a few suggestions to help get your 2018/19 winter wheat crop established on time.

*To read the full article, click here.*
**2018 Wisconsin Soybean Yield Contest**

Shawn Conley, State Soybean and Small Grains Specialist

The Wisconsin Soybean Association (WSA) Soybean Yield Contest is organized to encourage the development of new and innovative management practices that highlight the importance of using sound cultural practices in Wisconsin soybean production systems.

Contest contact: Dr. Shawn Conley 608.262.7975 Contest web page: www.coolbean.info

Contest Committee Members:
Dr. Shawn P. Conley, Patrick Mullooly

For more information, click here.

**The WSMB Free Soybean Cyst Nematode Testing Program**

Shawn Conley, State Soybean and Small Grains Specialist

The WI Soybean Marketing Board (WSMB) sponsors free nematode testing to help producers stay ahead of the most important nematode pest of soybean, the soybean cyst nematode (SCN). 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 the spring of 2012, the WSMB expanded the 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.

For more information on SCN testing and management practices or to request a free soil sample test kits please contact: Jillene Fisch at (freescntest@mailplus.wisc.edu) or at 608-262-1390.

Click to view more information on our WI SCN testing program or visit The SCN Coalition. Remember the first step in fixing a nematode problem is to know if you have one! The WSMB sponsored nematode testing program provides you that opportunity. So Wisconsin farmers….Whats your number!

**Cover Crops Do’s & Don’ts**

Shawn Conley, State Soybean and Small Grains Specialist

This article uncovers cover crop facts and myths about weed, insect, and disease management. We are roughly a month away from the start of soybean planting and for those of you that have cover crops established we recommend that you terminate those cover crops 2 weeks before planting. Please click for more information on: Cover Crops Do’s & Don’ts: Uncovering cover crop facts and myths about weed, insect, and disease management.

**UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update March 16**

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 March 10, 2018 through March 16, 2018.

The 3/16/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update March 23

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 March 17, 2018 through March 23, 2018.

The 3/23/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update March 30

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 March 24, 2018 through March 30, 2018.

The 3/30/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

The Soybean Seeding Rate Conundrum

Shawn Conley, State Soybean and Small Grains Specialist

In a bean-pod…

• Use a soybean seed treatment
• Plant less than 140,000 seeds in white mold areas
• Target a final stand of 100,000+ plants in productive fields
• Target a final stand of 135,000+ plants in low productivity fields or areas within fields

Soybean seeding rate is one of the most heavily debated and frankly, in my humble opinion, the most overthought agronomic decision we make in soybean. As a general rule of thumb I recommend farmers purchase a bag of seed per acre (140,000 seed count) and plant that entire bag per acre (140,000 seeds) (Figure 1). Remember your target is to get a minimum stand of 100,000 plants per acre as this population will achieve 100% yield potential in most field environments. This above recommendation holds true in many high yielding field situations.

To read the full article, click here.

Wisconsin Winter Wheat Disease Update – April 17, 2018

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison

The Wisconsin Field Crops Pathology crew scouted the winter wheat uniform variety trials located in Sharon, Wisconsin late last week (April 12, 2018) prior to the lat-
est snow storm. This is our most southerly location (near the IL state line), and is often a good early indicator of disease issues for Wisconsin. Wheat was trying to green up a bit, but the latest snow fall will surely set the crop back. With more snow in the forecast for April 18, 2018 it will be some time before we can scout wheat again for disease. That is the bad news. The good news is that we did not find any diseases.

With numerous reports of active stripe rust from states in the Mid-south we were concerned that early stripe rust might be present. We scouted known varieties to be susceptible, with no foliar symptoms apparent. You will remember in 2017, we identified active stripe rust very early in Wisconsin. This was due to overwintering of Puccinia striiformis inoculum from active infections that started in the fall of 2016. We suspect that warmer winter conditions in the 2016-2017 field season allowed P. striiformis to overwinter. Sharma-Poudyal et al. (2014) reported models that predict overwintering of P. striiformis when the 30-day average low temperatures are 14F or above with snow cover, or 21F or above without snow cover.

Figure 2. Average 30-day low temperatures, 2016-2017 30-day average low temperatures, and 2017-2018 30-day average low temperatures and P. striiformis survival thresholds under snow cover and without snow cover for Clinton, Wisconsin.

Using these thresholds and data from US Climate Data (https://www.usclimatedata.com/) for Clinton, Wisconsin (very close to our research site) in the 2016-2017 field season, we found that the under-snow-cover threshold was not below the 14F mark (Fig. 2). These warm conditions in 2016-2017 likely resulted in overwintering of inoculum at this location during last season. Using the same temperature thresholds and looking at 30-day average low temperatures for the 2017-2018 field season, we find that low temperatures where much more seasonable and were well below even the under-snow-cover threshold in January 2018 (Fig. 2). Thus, the risk for overwintering of P. striiformis inoculum in far southern Wisconsin is low this season. Even if active P. striiform-

isfections were found in fall of 2017, the likelihood it survived the winter was unlikely; especially considering the low temperatures in January of 2018 with minimal snow cover at this site during that time.

We will continue to scout winter wheat fields once snow melts. I would encourage others to get out and scout once the weather improves. Be sure to pay close attention to any winter wheat varieties that are known to be susceptible to stripe rust.

Literature cited:

Wisconsin Herbicide Mode of Action Chart

Daniel H. Smith- Nutrient and Pest Management Program, University of Wisconsin-Madison

The Nutrient and Pest Management and the Wisconsin Cropping Weed Science programs have recently updated the Wisconsin herbicide mode of action chart. This publication provides herbicide mode of action, group number, site of action, chemical family, active ingredient, and example trade names for herbicides currently registered in Wisconsin. The second page of the chart details registered herbicide combination products in Wisconsin including the trade name, active ingredients, trade name examples included in the premix, and site of action group.

With the widespread occurrence of herbicide-resistant weeds, it’s important that farmers select effective herbicides from multiple sites of action. The intent of this publication is to help farmers understand the different sites of action and products registered in Wisconsin and assist with their herbicide selection.

More info on the Wisconsin Cropping Weed Science program can be found here: http://www.wiscweeds.info/

The Herbicide Mode of Action chart can be found here: http://ipcm.wisc.edu/download/pubsPM/Herbicide-Mode-of-Action.pdf

Shawn Conley, State Soybean and Small Grains Specialist

Understanding the growth stages of cereals crops and how to identify them is key to successful cropping and pest management decisions. Although there are several growth staging methods, this guide is based on the Feekes scale, which is a popular tool used in the field. It has eleven development stages with some stages having more detailed subdivisions. The Zadoks scale is the standard scale used in research and has ten development stages, each stage having ten subdivisions. Both scales are useful to know, so this guide cross-references the Zadoks equivalents to the Feekes.

This guide uses winter wheat as an example. However, the methods generally apply to other cereals as well and at the back of the guide are sections that showcase barley, oats, rye and triticale.

To read the full guide, click here.

Has April rain and snow caused loss of March N applications to winter wheat?

Carrie Laboski, Professor & Extension Soil Scientist

Recent Wisconsin research has indicated that applying N to winter wheat at green-up was generally more profitable than applications at Zadoks growth stage 30 (GS30, hollow stem – just prior to first node, approximately Feekes 5.5). See past article. Some grower’s took advantage of the March weather and applied N, anticipating wheat to break dormancy in early April. Instead, we had several precipitation events, some as rain and others as snow (10 to 30 inches), along with extended period of time with temperatures significantly below average. Growers are now wondering, what does this mean for N loss?

The short answer is that N losses were probably low. The longer answer requires us to think about a few things. First, the temperatures were cool, no downright cold for April. Thus, we might expect lower urease activity, ammonia volatilization losses, and denitrification losses. Second, in most cases rainfall preceded the snow. This means that urea likely had time to dissolve and move into the soil. However, there may be cases where the ground was frozen and rainfall caused the dissolved urea to run off the field before it could move into the soil. Unfortunately, research data on N loss in runoff from precipitation in March/April in our climate is lacking. Some work with late fall applications of urea in Maryland demonstrated that loss of N in runoff was about 5% or less for the 4 weeks after application of urea in a rainfall simulation study. Third, depending on soil moisture conditions, N may have moved deeper into the soil profile and may be accessible to the crop as it’s root system grows.

Unfortunately, we don’t have a simple and accurate way to assess winter wheat N needs mid-season. We are currently evaluating crop sensing technology, but that is still a few years away. Past research in Wisconsin has demonstrated that winter wheat N needs in early spring could be assessed by measuring soil nitrate concentration in the top two feet of soil at green-up and crop N uptake at GS30, but was determined to be logistically infeasible and likely not cost effective.

The maximum return to N (MRTN) suggested N rates at various N:wheat price ratios in Table 1 can be compared to help growers decide if additional N fertilizer would be profitable. For example, if corn was the previous crop, 75 lb N/a was applied in March, and as much as 20% of the N was lost, that would mean 60 lb N/a would still remain in the soil. A 60 lb N/a rate is within the range of N rates that produce profitability near the MRTN for all N prices that are realistic this year.

To visit the blog, click here.

Healthy Grown Series of Videos

A new video series describing the high-bar, certified, nationally recognized “Healthy Grown” sustainable potato production program has been developed and published by the Nutrient and Pest Management Program. “Healthy Grown” has been thriving in advancing innovative, ecologically sound production systems and currently, around 8000 acres of fresh market potatoes are grown under stringent environmental protocols. “Healthy Grown” works to advance growers’ use of bio-intensive IPM, reduce reliance on high-risk pesticides, and to enhance ecosystem conservation. The following series of videos describe the process and background of the development of “Healthy Grown”, informs details on the standard, and describes the implementation and documentation of improvements for the program.
The series of videos can be linked here:

For background and historical "Healthy Grown" info: https://www.youtube.com/watch?v=3nUZt_We7mU

For information on the standard and its requirements: https://www.youtube.com/watch?v=5CIPyNi3h3Sw

For details on the implementation and adoption of the high-bar principals: https://www.youtube.com/watch?v=qH4ysguhuJk

More details on the science and research background for the program can be found at: http://ipcm.wisc.edu/downloads/bioipm-workbooks/ and marketing and sales information can be found at: http://wisconsinpotatoes.com/healthy-grown/.

Contact Deana Knuteson (dknuteson@wisc.edu) for more details.

**Soybean Management Strategies to Facilitate Timely Winter Wheat Establishment in 2018**

Shawn Conley, State Soybean and Small Grains Specialist

Winter wheat acres across WI have declined over the past few years due to late grain harvests, disease concerns (FHB or scab) and poor wheat prices, however anyone that lives and works in WI knows that a base number of cereal acres are needed to support the dairy industry (straw and land to summer haul manure). As farmers get ready to kick off the 2018 growing season here are a few suggestions to help get your 2018/19 winter wheat crop established on time.

To read the rest of this article, click here.

**Soybean Planting Date and Maturity Group Considerations**

Shawn Conley, State Soybean and Small Grains Specialist

Early May planting in Wisconsin has been documented to increase yield due to increased light interception (Gaspar and Conley, 2015). Earlier planting dates are able to increase light interception in two ways, which are both demonstrated in Figure 1. First, the reproductive growth period between R1-R6 occurs during longer days with the May 1st (Green line) compared to June 1st (Orange line) planting date. Secondly, the time spent in the R1-R6 growth stages is increased with the earlier planting date. As Figure one shows, the May 1st planting date spent ~60 days from R1-R6 compared ~45 days for the June 1st planting date. Therefore, early planted soybeans experience both longer duration in reproductive growth (more days) and reproductive growth during the longest days of the summer.

To read the full article, click here.

**Wisconsin UWEX Vegetable Crop Update Issue 1, 2**

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates newsletter #1

In This Issue:

- Potato & vegetable disease forecasting primer
- Be on the lookout for hop downy mildew
- Horticultural updates and upcoming trials for 2018
- Potato Virus Y Detection Training Workshop Information

Vegetable Crop Updates newsletter #2

In This Issue:

- Note change in Rhinelander Field Day date and location
- National late blight updates
- WI Special Pesticide Registration updates for specialty crops
- Resources for crop management Horticultural updates

**Wisconsin Fruit News- April 20, 2018**

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/78gyte

Welcome back! We’re excited for this third season of the Wisconsin Fruit Newsletter.
Due to popular demand, items in the table of contents (on the left sidebar of the first page of the newsletter) are now are linked to the article, for easy referencing to the section of interest. We will continue to make minor adjustments like this, which will hopefully continue to improve your ease-of-access to the newsletter! Thanks for the feedback and for reading.

We hope you will continue to find useful information here and on our Wisconsin Fruit website (fruit.wisc.edu).

This week you can read about:

- NEWA weather stations update and applications
- Plant Disease Diagnostic Clinic update
- Insect pest forecast for 2018
- Summary of grape disease for the 2017 growing season
- Apple disease — what to expect after a cold winter and delayed spring

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update April 1

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 March 31, 2018 through April 1, 2018.

The 4/1/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update April 13

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 April 14, 2018 through April 20, 2018.

The 4/20/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


The 4/13/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


Follow us
Are You PRE-Emergence Ready For Soybean Planting?

by Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist) and Shawn Conley (UW-Madison Extension Soybean and Small Grain Specialist)

Spring has finally arrived in Wisconsin and so has the planting season. Before getting your soybeans in the ground, make sure you have plans for your PRE-emergence herbicide program. According to our recent SURVEY, several Wisconsin soybean fields get only treated with a one-pass POST-emergence herbicide program. Because of the spread of weed species resistant to glyphosate and/or other POST-emergence herbicides (e.g., ALS- and PPO-inhibitors), a one-pass POST-emergence program in soybeans is no longer a viable strategy.

Moreover, research conducted across the Midwest has demonstrated the importance of keeping your soybean crop weed-free from establishment through the V3 growth stage (3rd trifoliate). Weeds emerging after the V3 growth stage will likely not impact soybean yield; however, they should still be proactively managed to prevent them from reproducing and replenishing the seedbank (remember “no seed, no weed”).

Thus, PRE-emergence herbicides can help farmers maintain their fields weed-free during initial establishment of the crop (= achieve full yield potential) and also reduce the selection pressure on POST-emergence herbicides (due to fewer weeds to be controlled POST-emergence), helping on the fight against herbicide resistance.

Several PRE-emergence herbicides are available for soybeans. Most of them can be applied before or up to 3 days after planting. To maximize their residual activity in-season, PRE-emergence herbicides should be sprayed at or shortly after planting. PRE-emergence herbicides need moisture for incorporation and activation in the soil. If there are established weeds at the time of PRE-emergence application and no additional pre-plant field cultivation will take place, it’s important to have an effective burndown herbicide in the tank-mix. A PRE-emergence herbicide containing 2 or more effective
 modes of action (MOA) will likely provide control of a wider range of weed species when compared to the use of a single MOA. Using multiple MOA during each pass is also a proactive strategy for herbicide resistance management.

It’s important to note that under cool and wet conditions, PRE-emergence herbicides containing metribuzin (Group 5) and/or PPO-inhibitors (Group 14; e.g.: flumioxazin, saflufenacil, sulfentrazone) may cause some crop injury, particularly in lighter soils with low OM and/or higher pH. Our preliminary research in Nebraska has demonstrated that early-season crop injury caused by metribuzin (group 5) and sulfentrazone (group 14) did not lead to yield reduction (soybeans are indeed very resilient). Moreover, the benefit of an early-season weed-free field outweighs the concerns of early-season crop injury (assuming a herbicide is applied according to the label and no significant stand reduction is observed).

Metribuzin injury in soybeans (note healthy new growth):

To read this article on their blog, click here.

A Visual Guide to Soybean Growth Stages

Shawn Conley, State Soybean and Small Grains Specialist

Understanding and being able to correctly identify the growth stages of soybean is important for making sound agronomic management decisions. This guide describes the growth stages starting with germination, progressing through the vegetative stages (V) and concluding with the reproductive stages (R). Coolbeans!

To read the full guide, click here.

Soybean Replant Decisions: Just the Facts Jack!

Shawn Conley, State Soybean and Small Grains Specialist

The Twittersphere is erupting with pictures of soybean beginning to crack and emerge. As we finalize #plant18 and start to assess our soybean stands here are a few items to contemplate.

1. Get an accurate stand assessment. We are often drawn to the worst areas of fields and over-blow how bad the overall stand really is. You can go old school and use the tape or hula-hoop method or try a digital approach such as Bean Cam the WSMB funded soybean replant app!

A. Link to the app store for iPhone and iPad
B. Link to the app store for Android

C. An effective stand is obviously important to maximize soybean seed yield. However the downside yield risk for a sub-par stand is minimal until stands fall below 50,000 plants per acre. The synergy of early planting coupled with breeders adding 3x yield to soybean branches at low populations have effectively reduced the yield penalty for thins stands by 1/2 (Suhre et al. 2014). Therefore we recommend the following.

2018 Agronomy/Soils Field Day on August 22nd

Carrie Laboski, Professor & Extension Soil Scientist

Save the date: Agronomy/Soils Field Day at Arlington Ag Research Station will be held on August 22.

The Departments of Agronomy and Soil Science in conjunction with the Arlington Agricultural Research Station will host their annual field day on August 22, 2018. The field day will highlight UW-Madison research on emerging technologies and relevant crop production issues.

Watch for more information.
• Early planted soybean yield is maximized with stands that range from **100,000 (high yield environment)** to **135,000+ (low yield environment)** plants per acre.

• When soybean stands are less than 50,000 plants per acre, inter-plant new seed with a similar maturity into the existing stand. DO NOT TEAR UP THE STAND AND START OVER.

• When stands fall between optimal and 50,000k plants per acre Think Twice Before Replanting Soybeans! Our data shows a nominal ~2 bu yield increase in this situation. Even if you have a “free re-plant” guarantee the numbers don’t make economic sense. As a grower you are better off investing $$$ in an effective in-season residual herbicide to control weeds such as Palmer and waterhemp.

To read this article on the blog, click here.

---

**Geographic Restrictions for Corn and Soybean PRE-emergence Herbicides in Wisconsin**

Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist)

RE-emergence herbicides are the foundation for good weed control in corn and soybeans, particularly with the spread of herbicide-resistant weeds. The use of some PRE-emergence herbicides is limited to certain regions or counties in Wisconsin. Prior to selecting a herbicide for your weed management program, make sure the same is approved for use in your region by the Department of Agriculture, Trade and Consumer Protection (DATCP). Below are examples of herbicides that have geographic restrictions in Wisconsin.

To read the rest of this article, click here.

---

**Use FieldWatch to Locate Managed Honey Bee Colonies**

Bryan Jensen, UW Extension and IPM Program

Looking for help in identifying the location of managed bee hives (or other sensitive crops) in your application area? Try FieldWatch®. Honey bee colonies are not always painted a color that are easy to see. Others may be hidden from view behind buildings, trees or other vegetation. Knowing that hives are present prior to application allows the applicator to take precautions prior to application.

FieldWatch is a nonprofit company which allows applicators, specialty crop growers and beekeepers to communicate with each other regarding sites which might be sensitive to pesticide application. FieldWatch is free to the end user (applicator). Furthermore, the registry to upload honey bee colony sites through BeeCheck and sensitive specialty crop locations through DriftWatch is also free. However, signing up as a voluntary dues paying member is appreciated but not required. After all, FieldWatch is a non-profit company. You can go to their website if you want more information about dues.

To access the basic information, simply go to the FieldWatch Map and select your state. Using FieldWatch as a dues paying member provides the opportunity to zoom into your applications area and receive automatic updates for new apiaries and/or sensitive specialty crops

Both hobbyists and commercial beekeepers may upload their sites and select if that information is available publicly or for registered applicators. These uploads are check by a data steward from WDATCP who verify each registration. There are several different style of pins used to mark hive locations. A single hive is marked with a “B”. If more than one hive is present at that location the pin will have horizontal lines. Pins may also be yellow or red. If red, those hives are registered and have a state registration number. Yellow pins indicate hives which are not registered with DATCP’s Apiary Program.

---

**Fertility Guidelines for Hemp in Wisconsin**

Carrie Laboski, Professor & Extension Soil Fertility/Nutrient Management Specialist

No research has been conducted on the nutritional needs of hemp grown in Wisconsin in 75 years. In order to develop nutrient application guidelines for hemp, available peer reviewed literature as well as conference abstracts/proceedings/posters, research station reports, and extension bulletins from the United States, Canada, and Europe were reviewed and evaluated for their applicability to Wisconsin soils and climate.

[Read more...](#)
UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update April 27, May 4

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC.

The 4/27/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


The 5/4/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


Wisconsin UWEX Vegetable Crop Update Issue 3

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates newsletter #3

In This Issue:

- National late blight updates
- Dual Magnum updates for WI vegetables
- Soil moisture updates
- Food Safety Modernization Act updates

Wisconsin Fruit News- May 4-11, 2018

Janet van Zoeren and Christelle Guédot, UW-Extension

Read issue 3 here - https://go.wisc.edu/vtb7kl

Apple Thinning Supplemental Issue - https://go.wisc.edu/4zli0

In Issue 3 you can read about:

- Insect Diagnostic Lab update
- Plant Disease Diagnostic Clinic update
- Weed management in established strawberries: can anything be done in spring?
- Cranberry plant and pest degree-days: May 1, 2018
- Crop lead for cold climate hybrid grapevines
- Grape variety developmental stages: May 3, 2018
- Grape insect scouting report: flea beetles out in full force
- First steps in the precision apple thinning process
- Grower interview with Allen Teach of Sunrise
- Orchards: experience with precision thinning tools

Wisconsin Pest Bulletin 1&2

Krista Hamilton, Entomologist — Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 1 of the Wisconsin Pest Bulletin is now available at:


Volume 63 Issue No. 2 of the Wisconsin Pest Bulletin is now available at:


Inside This Issue

Looking Ahead: Black cutworm migration continues

Forages & Grains: First alfalfa weevil adults collected on May 7

Corn: Peak seedcorn maggot fly emergence expected next week near Green Bay

Soybean: Bean leaf beetles appearing in alfalfa

Fruits: Grape flea beetle feeding reported from Dane and Vernon counties

Vegetables: Common asparagus beetle egg laying underway
NURSERY & FOREST: Volutella blight on pachysandra and other reports from recent inspections

DEGREE DAYS: Growing degree day accumulations as of May 9, 2018
Despite the Weather 2018 Weed Emergence Only One Week Behind

Mark Renz Extension Weed Scientist, Agronomy Department, University of Wisconsin-Madison

Knowledge of weed emergence is important as it can help in the selection and optimization of early season weed control. While typically weed emergence is consistent from year to year, the past four years have been highly variable. Weather patterns drive these differences, and this spring’s weather has been far from typical. So how has the cold, then hot, then wet spring impacted weed emergence?

The short answer is about a one week delay. Of the 22 CCA listed weeds, only five species have yet to emerge. While these five species were all emerged at this time last year, many of these species typically don’t emerge until the middle of the May and I expect to see them germinating this week. For example crabgrass was not present in the field, but I have observed it emerging from soils in urban areas next to the sidewalk. This is a great example of how site specific emergence can be.

Below are some interesting species specific observations from Arlington Wisconsin. Note that the earlier emerging species like Canada thistle and kochia are close to

<table>
<thead>
<tr>
<th>Weed name</th>
<th>Emergence and range (1998-2008) Arlington Wi</th>
<th>2018 estimated emergence at Arlington Wi</th>
</tr>
</thead>
<tbody>
<tr>
<td>hemp dogbane</td>
<td>April 28th</td>
<td>May 10th</td>
</tr>
<tr>
<td>field horsetail</td>
<td>April 28th</td>
<td>May 10th</td>
</tr>
<tr>
<td>yellow nutsedge</td>
<td>May 12th</td>
<td>May 10th</td>
</tr>
<tr>
<td>purple loosestrife</td>
<td>May 1st</td>
<td>May 9th</td>
</tr>
<tr>
<td>Canada thistle</td>
<td>April 19th</td>
<td>May 8th</td>
</tr>
<tr>
<td>horseradish</td>
<td>May 20th</td>
<td>Not yet emerged</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weed name</th>
<th>Emergence and range (1998-2008) Arlington Wi</th>
<th>2018 estimated emergence at Arlington Wi</th>
</tr>
</thead>
<tbody>
<tr>
<td>common mallow</td>
<td>April 21st</td>
<td>May 14th</td>
</tr>
<tr>
<td>Eastern Black Nightshade</td>
<td>April 30th</td>
<td>May 11th</td>
</tr>
<tr>
<td>green foxtail</td>
<td>May 3rd</td>
<td>May 11th</td>
</tr>
<tr>
<td>giant foxtail</td>
<td>April 27th</td>
<td>May 12th</td>
</tr>
<tr>
<td>kochia</td>
<td>March 25th</td>
<td>May 12th</td>
</tr>
<tr>
<td>ladysthumb smartweed</td>
<td>April 22nd</td>
<td>May 10th</td>
</tr>
<tr>
<td>velvetleaf</td>
<td>April 29th</td>
<td>May 9th</td>
</tr>
<tr>
<td>wild radish</td>
<td>April 12th</td>
<td>May 8th</td>
</tr>
<tr>
<td>weedy cupgrass</td>
<td>April 8th</td>
<td>May 11th</td>
</tr>
</tbody>
</table>

Soybean Emergence and Germination Issues

Shawn Conley, State Soybean and Small Grains Specialist

A new YouTube video is up about common issues growers may have concerning soybean emergence and germination, discussed by Wisconsin State Soybean and Wheat Extension Specialist Dr. Shawn Conley. In a spring field, Shawn gives tips on seeding depth, soil compaction issues, loss of cotyledon at emergence, frost damage, and general stand assessment.

Click here to watch the video.
a month late while later emerging species like yellow nutsedge and giant foxtail are a week or less late. Will this persist throughout the season? Ask me in September……

**Black Cutworm**

Bryan Jensen, Department of Entomology and IPM Program

Unusual spring. Agree? Corn development is everywhere from early emergence to fields that haven’t been planted. Couple that with a migratory insect and we have an approaching black cutworm season that is hard to predict. DATCP’s Pest Bulletin indicates a continuing flight of moths into the state. Their pheromone network has also indicated that some locations had (or are having) intense flights. However, the location of those intense flights are spread out and do not show a clear pattern. Other states to our south have also indicated similar trends. That is to say, spotty captures with some traps reporting high numbers.

Where do we go from here? I am not sure my message would be that different from other years. Black cutworms are not a key insect pest on corn in Wisconsin. Rather, I would classify them as an occasional pest. However, a pest that is capable of causing a range of economic injury on seedling corn. Those years and locations are hard to predict.

For starters, if you don’t have an electronic subscription to the Wisconsin Pest Bulletin, get one. Typically, DATCP will provide an anticipated “cutting date” that is based on flight arrival as well as historical and projected temperatures. That estimate provides a valuable advance warning. Scouting fields prior to the anticipated cutting date will also give you clues on the potential for damage in that field. Early instar black cutworms are not capable of cutting corn seedlings. However, they will feed on emerged leaves. Once larvae are large enough they will be capable of cutting corn seedling up to (approximately) V3. Larger seedlings are also damaged when cutworm larvae burrow in to the plant below ground. The economic threshold is if 2-5% of the plants are being cut. That threshold of course is based on economics and this year we are probably looking at the higher end of the threshold.

Wisconsin does have a lot of corn planted. You can improve your chances of locating those infestations by focusing on fields with significant soybean residue, low growing broadleaf weed infestations and wet areas of fields.

**True Armyworm**

Bryan Jensen, Department of Entomology and IPM Program

The True Armyworm state of affairs is similar in many respects to the 2018 black cutworm situation. A migratory insect, a range of planting dates & crop development and especially a patchwork of high armyworm catches in Wisconsin and neighboring states to the south.

What is different is the types of cropping situations where armyworms are attracted. Other than being highly attracted to corn that is no-tilled into alfalfa, armyworms prefer to lay eggs in areas of corn fields with grass cover. These areas could be early season weeds or grass cover crops. Larvae may also crawl into corn (sometimes soybeans) from areas with grass cover. Somewhat different from black cutworms is that the migrating generation of armyworm moths may cause significant defoliation in isolated corn fields.

Depending on the timing of adult migration, damage to seedling corn may be found well into June. The second generation, also hard to predict, may be found from late June through early August in a typical year. If 50% of corn seedlings have injury, control maybe be warranted if larvae are still relatively small. Indicating significant feeding may yet to come. Once larvae reach an inch or longer they will soon pupate and spraying is not advised.

Wheat and other small grains are also at risk. Damage may also be concentrated in lodged areas. Check all fields closely by looking for both leaf defoliation and head-clipping. An economic threshold of 3 or more larvae/square foot has been established. However, crop stage and presence of head-clipping may influence your decision.
Armyworm larvae have a tan head w/ numerous vein-like lines in the compound eyes. Body color and intensity can be very diverse and but alternating light to darker color lines are usually noticeable. Typically, the “belly” is lighter colored than the rest of the body. Larvae are mostly nocturnal feeders. during the day larvae often rest deep within the corn whorl. Abundant frass in the whorl can be a give-away to their presence.

Seedcorn Maggot

Bryan Jensen, Department of Entomology and IPM Program

The adult flight of seedcorn maggot has recently peaked in southern Wisconsin while the central and northern areas are now peaking. Keep this time period marked in the back of your mind in case you run across corn and/or soybean field with poor plant stands at a later date. There are many, many reasons for reduced stands. Please remember that seedcorn maggots is one. If it is seedcorn maggot damage, you should notice a range of above ground symptoms that include small holes in either the first and/or second leaf as well as missing plants. In soybeans, you may also find “snakeheads” (plants with a hooked hypocotyl and no cotyledons) for a short period of time. In corn you still be able to find the seed coat for a number of weeks after planting indicating the seed was planted and that something was feeding on it. Feeding injury is usually uniform across fields and is may be more severe under the 2018 cool/wet planting conditions. Corn and soybeans which are planted into a green manure or in fields with heavy applications of livestock manure may have higher than expected levels of damage.

Alfalfa Weevil

Bryan Jensen, Department of Entomology and IPM Program

“Better late than never” may not apply to this situation. Accumulated degree days suggests that now is the time to start scouting for alfalfa weevil damage in the southern areas of Wisconsin. Although hard to predict, central and northern Wisconsin are 1-2 weeks away from scouting.

Adult weevils overwinter in plant debris along fence rows, grassy waterways, woodlands, etc. During the first warm spring days (yes we have had a few!) adults become active and females start to lay eggs. At 300 weevil degree days (Base 48°F) eggs start hatching and early signs of tip feeding should start to be noticeable and is the perfect time to initiate scouting.

Alfalfa weevils go through 4 larval instars. Maximum feeding should occur between 600 and 800 weevil degree days. Scouting at 300 degree days will give you a heads up on damage potential allowing more time to consider a control decision if needed. I no longer consider alfalfa weevil a key alfalfa pest for several reasons. However, each year there are heavy local populations that require treatment, fields that have heavy damage that are overlook and fields that are treated unnecessarily.

A treatment threshold of 40% tip feeding is suggested. This is not to advocate treating at 40% defoliation but rather when 40% of the stems have signs of weevil feeding. If you are over the suggested threshold consider a timely harvest especially if you are not putting additional stress on the stand. Timely cutting is still our best control option.

If an early harvest is not practical, consider treating fields with severe damage and rescouting remaining fields at a later time. For those fields with heavy first crop weevil feeding (which are not treated) plan to check second crop regrowth for feeding. Larvae and/or adults can survive harvest and cause significant damage to regrowth.
Strategies for Late Termination of Cereal Rye Cover Crop

Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist) and Dan Smith (UW NPM Southwest Wisconsin Regional Specialist)

Fall-planted cereal rye is increasingly used as a cover crop to protect the soil during winter and spring in corn and soybean cropping systems across the Midwest. Our recent survey indicated that 77% of Wisconsin farmers and Ag professionals are interested in cover crops.

Fall-planted cereal rye is growing rapidly in southern Wisconsin and it’s important to have a termination plan in mind prior to crop establishment. The following pictures demonstrate cereal rye growth in 10 days:

To view the pictures and rest of the article, click here.

New smartphone app: Sporecaster, The Soybean White Mold Forecaster


Sporecaster is a new smartphone application designed to help farmers predict the need for a fungicide application to control white mold in soybean. The app, which is free to use, was developed with support from the Wisconsin Soybean Association and Wisconsin Soybean Marketing Board. It was programmed by personnel in the UW-Madison Nutrient and Pest Management Program.

Here are the links to get the free app. Scroll down to watch tutorial videos and to see some screen shots.


The purpose of the app is to assist farmers in making early season management decisions for white mold in soybean. The best time to spray fungicides for white mold is during flowering (R1 and R3 growth stages) when apothecia (small, mushroom-like structures) are present on the soil surface. Apothecia release spores which infect senescing soybean flowers, leading to the development of white mold.

Sporecaster uses university research to turn a few simple taps on a smartphone screen into an instant forecast of the risk of apothecia being present in a soybean field, which helps growers predict the best timing for white mold treatment during the flowering period.

University research has indicated that the appearance of apothecia can be predicted using weather data and a threshold of percent soybean canopy row closure in a field. Based on these predictions and crop phenology, site-specific risk values are generated for three scenarios (non-irrigated soybeans, soybeans planted on 15 row-spacing and irrigated, or soybeans planted on 30 row-spacing and irrigated). Though not specifically tested we would expect row-spacings of 22 inches or less to have a similar probability response to fungicide as the 15 inch row-spacing.

The Sclerotinia apothecial models that underlie the Sporecaster prediction tool have undergone significant validation in both small test plots and in commercial production fields. In 2017, efficacy trials were conducted at agricultural research stations in Iowa, Michigan, and Wisconsin to identify fungicide application programs and thresholds for model implementation. Additionally, apothecial scouting and disease monitoring were conducted in a total of 60 commercial farmer fields in Michigan, Nebraska, and Wisconsin between 2016 and 2017 to evaluate model accuracy across the growing region. Across all irrigated and non-irrigated locations predictions during the soybean flowering period (R1 to early R4 growth stages) were found to explain end-of-season disease observations with an accuracy of 81.8% using the established probability thresholds now programmed in the app.

Video: Sporecaster, Soybean White Mold Forecaster app tutorial –
Video: Sporecaster, Interpreting White Mold Risk Forecasts –

Screen shots from iPhone version:

http://ipcm.wisc.edu/apps/sporecaster/

Wisconsin UWEX Vegetable Crop Update Issue 4

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates newsletter #4

In This Issue:

• national late blight updates
• hop downy mildew confirmed in WI
• potato powdery scab

Wisconsin UWEX Vegetable Crop Update Issue 5

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates newsletter #5

In This Issue:

• national late blight updates and preparing for late blight control 2018
• more hop downy mildew seen in WI hops (Dodge and Pepin Counties)
• potato crop progress updates.

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update May 11

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 May 5, 2018 through May 11, 2018.

The 5/11/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

Soybean Checkoff Funded Collaborative International Research and Outreach

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison

Many public universities collaborate on international research and outreach efforts, but you may not understand the impact that this work can have even for farmers in the Midwest. We have assembled three new videos in a series, in an effort to demonstrate our impact in conducting collaborative research and outreach work. This work is ongoing and is being conducted in Chile and here in the Midwest.

The focus is to produce soybean germplasm that is highly resistant to white mold, a major disease in the upper Midwest. This research is funded by the Wisconsin Soybean Marketing Board and the North Central Soybean Research Program. Travel support for graduate student, Megan McCaghey, was all made possible by the Walter R. Stevenson Fund for Graduate Student Travel.

This collaborative effort includes researchers here at the University of Wisconsin-Madison and Researchers at Iowa State University, including Dr. Daren Mueller. We would like to thank Brandon Kleinke, Iowa State University, for his work in shooting video footage and assembling this video series.

To watch the videos, click the photo below.
Based on previous research conducted by our laboratory in Wisconsin, we know that an application of fungicide that closely coincides with the start of the rust epidemic can be very effective in preserving yield on susceptible and moderate susceptible varieties. Many fungicides are effective in controlling stripe rust, including the industry leaders used for FHB control, Prosaro and Caramba. Therefore, if rust doesn't show up in your field before anthesis occurs, you can effectively use Prosaro and Caramba to control both FHB and a late stripe rust epidemic. The best case scenario would be to only have to spray fungicide once this season. However, there is still much time left, so diligent scouting is critical to make the best decision. Get out there and SCOUT, SCOUT, SCOUT!

Adjust Your Seeding Rate But Not Your Maturity Group For Late May Planted Soybean

Authors: S.P. Conley, J.M Gaska, S. Mourtiznis, D. Mueller, A. Varenhorst

With only 10 days left in May and roughly 50% of the Midwestern soybean crop planted (WI:33%, IA:58%, SD:24%) what if any production changes should growers consider modifying?

Do Not Switch Your Maturity Group….Yet

Increase your seeding rate to roughly 154,000 seeds per acre

Interpret the return above seed cost cautiously

All the details and further explanation is posted here >>> http://coolbean.info/2018/05/21/adjust-your-seeding-rate-but-not-your-maturity-group-for-late-may-planted-soybean/
Are You Concerned about Slugs in Corn and Soybean?

Bryan Jensen, Dept. of Entomology and Integrated Pest Management Program, University of Wisconsin-Madison

You don’t need to be clairvoyant to be concerned about slugs in corn and soybean. It has been raining, continues to rain and frankly I don’t want to look at the forecast. The majority of the Wisconsin corn/soybean growing area has had significant rainfall and cool temperatures. All which can contribute to higher than normal slug populations.

Slugs have a “rasp-like” mouthpart and damage seedling plants by scraping off leaf tissue. Soybeans are more susceptible than corn because the growing point is above ground in the seedling stage. Slug feeding scars are usually longitudinal (especially in corn) and initially leave the wax-like cuticle intact. This symptom is often call “window paneing”. Eventually the cuticle will weather and drop off. Slugs may be difficult to find because they are nocturnal. However, they may be active on cool, cloudy days. During daylight hours, they hide under soil clods and plant debris. Slug injury is often so diagnostic that finding slugs to confirm their damage (vs. other insects) may not be needed.

Slugs are vulnerable to desiccation and prefer habitats which help protect them. This includes high crop residue and/or weed growth. These are fields where I would concentrate my scouting efforts.

Unfortunately, many of the effective slug management practices are behind us which would have included practices like making sure the seed furrow was closed, residue management and planting date (the sooner the better but difficult to accomplish this year!) to name a few.

What can be done short of hoping for dry weather? Effective weed management is certainly at the top of the list and likely a goal regardless if you have slugs or not.

Slug baits can be effective but given tight profit margins they might not be an option for entire fields. Economic thresholds have not been developed for slugs. Before baits are considered, thoroughly read the label including all applicable footnotes! The metaldehyde-based bait labels excludes use on soybean in Wisconsin. This is not obvious because a you must read a footnote which indicates approved states. The Sodium Ferric EDTA containing product (Iron Fist) comes with precautions as well. Although labeled for corn and soybean production in Wisconsin it must be applied between the rows at the seedling and later stages of crop development. Furthermore, it’s availability is restricted in some Midwestern states.

Sometimes knowing what will not work can be beneficial. Slugs are mollusks and insecticides are non-toxic to them. Even if contact is make or the slug consumes treated foliage. Attempting to try insecticides as a last resort is likely to increase slug damage because those products kill non-target beneficial insects like ground beetles.

Anecdotal information suggests that high salt fertilizer applied at night may work. However, this control tactic is not based on sound science, is not always effective and these fertilizers maybe phytotoxic to plants.

A final suggestion would be to make detailed field histories while scouting this spring. Use this information to make preventive management decisions next year.

Fusarium Head Blight Risk for Wheat in WI for May 24, 2018

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison; Brian Mueller, Assistant Field Researcher, Department of Plant Pathology, University of Wisconsin-Madison

Visit the Fusarium Head Blight Prediction Center to stay up to date on the latest forecasts and see maps.

The heavy moisture we have received over the last week, combined with high temperatures in the low-to-mid 80s F this week have pushed winter wheat growth stages. We have seen rapid stem elongation with flag leaves emerging in some fields in the southern and south central regions of Wisconsin. We continue to find wheat with little foliar disease. However, we are entering a critical time to
make our first important fungicide decision related to protecting emerging flag leaves from foliar disease. Continue to scout. Weather has been conducive for some foliar diseases. However, wheat continues to remain “clean” then hold your fungicide application until anthesis.

Figure 1. Fusarium head blight on a wheat head

Given the heat this week, I suspect that heads will be emerging for some varieties in the southern region over the next week or so, with anthesis to closely follow. The decision to apply fungicide will be critical at this time. Considering the wet weather and warm temperatures the “pump is primed” for Fusarium head blight (FHB; scab). The Fusarium Head Blight Prediction Center currently has the FHB risk at medium to high in the south, south-central and eastern portions of the wheat belt (See Figure). This situation needs to be monitored closely over the next couple of weeks as fields enter the anthesis growth stage. The weather outlook appears to be very humid, wet, and warm, which will only increase the risk of FHB.

A fungicide may be needed especially on susceptible cultivars to control FHB and reduce DON (vomitoxin) contamination. The fungicides Prosaro or Caramba have both performed well on FHB in Wisconsin. Timing of application of these products is critical. I would urge you to wait until anthesis has begun in your field before applying. We have observed poor control where application of these effective fungicides were made before anthesis. In fact, we have observed improved control of FHB and lower levels of DON in finished grain where fungicide application was delayed 4-5 days after the beginning of anthesis, compared to applications at the start of anthesis. Data from a fungicide efficacy trial to support this observation can be found by clicking here and scrolling down to pages 16 and 17. Also, remember that application of fungicides should be made no later than 6-7 days after the start of anthesis. After this time, fungicide efficacy on FHB and DON control is much reduced.

Get out there and SCOUT, SCOUT, SCOUT and monitor the FHB Prediction Center!

http://www.wheatscab.psu.edu/

Wisconsin Winter Wheat Disease Update – May 30, 2018

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison; Brian Mueller, Assistant Field Researcher, Department of Plant Pathology, University of Wisconsin-Madison

The heavy moisture we have received over the last week, combined with high temperatures in the low-to-mid 80s F this week have pushed winter wheat growth stages. We have seen rapid stem elongation with flag leaves emerging in some fields in the southern and south central regions of Wisconsin. We continue to find wheat with little foliar disease. However, we are entering a critical time to make our first important fungicide decision related to protecting emerging flag leaves from foliar disease. Continue to scout. Weather has been conducive for some foliar diseases. However, wheat continues to remain “clean” then hold your fungicide application until anthesis.

Given the heat this week, I suspect that heads will be emerging for some varieties in the southern region over the next week or so, with anthesis to closely follow. The decision to apply fungicide will be critical at this time. Considering the wet weather and warm temperatures the “pump is primed” for Fusarium head blight (FHB; scab). The Fusarium Head Blight Prediction Center currently has the FHB risk at medium to high in the south, south-central and eastern portions of the wheat belt (See Figure). This situation needs to be monitored closely over the next couple of weeks as fields enter the anthesis growth stage. The weather outlook appears to be very humid, wet, and warm, which will only increase the risk of FHB.

A fungicide may be needed especially on susceptible cultivars to control FHB and reduce DON (vomitoxin) contamination. The fungicides Prosaro or Caramba have both performed well on FHB in Wisconsin. Timing of application of these products is critical. I would urge you to wait until anthesis has begun in your field before applying. We have observed poor control where application of these effective fungicides were made before anthesis. In fact, we have observed improved control of FHB and...
lower levels of DON in finished grain where fungicide application was delayed 4-5 days after the beginning of anthesis, compared to applications at the start of anthesis. Data from a fungicide efficacy trial to support this observation can be found by clicking here and scrolling down to pages 16 and 17. Also, remember that application of fungicides should be made no later than 6-7 days after the start of anthesis. After this time, fungicide efficacy on FHB and DON control is much reduced.

Get out there and SCOUT, SCOUT, SCOUT and monitor the FHB Prediction Center!

---

**Winter Rye Interseeding - Spring Update Video**

Daniel H. Smith - Nutrient and Pest Management Program
University of Wisconsin-Madison

Interseeding winter rye into silage corn provides many spring benefits. A short video from the Nutrient and Pest Management program details *winter rye spring growth* and *options for establishing soybeans following winter rye interseeding*.

As farmers and agronomists plan for summer cover crop interseeding, please follow the link to watch the video detailing the system.

---

**Variable Germination and Emergence in Soybean: Which Seeds Are Still Viable?**

Shawn Conley, State Soybean and Small Grains Specialist

Many of us, including myself, have planted under less than ideal soil conditions this spring. Often the ground was worked a little on the wet side leading to clods and variable seeding depths for our soybean crop. Reports of variable and delayed emergence in conventional (more common) and no-till soybean is raising replant and seed viability questions in several areas across the Midwest. If soybean was planted into dry soil and had not imbibed water (seed did not swell) then there is little to no concern for growers. Once a significant rainfall event occurs, the soybean will imbibe water, germinate, and should emerge normally. For yield estimates, we would assign the day it rained as the new planting date.

The more difficult question to answer is “How viable is the soybean seed once imbibition and/or germination has begun?” The critical seed moisture content for soybean germination is 20%. A soybean seed that has imbibed water, has a split seed coat, or has an emerged radicle will continue to germinate and grow as normal once the seed is re-hydrated if the seed (embryo) remains above 20% moisture (Senaratna and McKersie, 1983) (Image 1).

If the moisture content within a soybean seed falls to 10% due to dry conditions after germination has started, then a dramatic difference exists among the different seed germination stages. If the seed has imbibed water for 6 hours (seed is swollen, but the seed coat has not broken), then the seed is dehydrated to 10% moisture, germination is not affected. If the seed has imbibed water for 12 to 24 hours (seed coat broken, but prior to radicle emergence), then germination is reduced to 60 to 65%. If the radicle has emerged and seed moisture levels drop to 10%, then no survivors can be expected (Image 2).
To test seed viability, growers can conduct a simple germination test. First excavate 100 soybean seeds and wrap them in a damp paper towel. Place these seeds in a warm location, and after 24 to 36 hours, count the number of seeds that have germinated (Image 2). Remember that a typical soybean germination is 90% (Image 3).

Literature Cited:


To view this post on the blog, click here.

Wisconsin Pest Bulletin
5/18/2018

Krista Hamilton, Entomologist — Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 3 of the Wisconsin Pest Bulletin is now available at:

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

INSIDE THIS ISSUE

LOOKING AHEAD: More “significant” black cutworm captures recorded this week

FORAGES & GRAINS: Alfalfa weevil larvae appearing in alfalfa

CORN: First European corn borer moths could emerge next week

FRUITS: Codling moth biofix expected soon in southern WI orchards

VEGETABLES: First emergence of onion maggot flies predicted for May 19-20

NURSERY & FOREST: Macrophoma leaf spot on boxwood and other nursery reports

DEGREE DAYS: Growing degree day accumulations as of May 16, 2018

Wisconsin Pest Bulletin, Issue No. 4, May 24

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 4 of the Wisconsin Pest Bulletin is now available at:


INSIDE THIS ISSUE

LOOKING AHEAD: Black cutworm primary cutting window now open

FORAGES & GRAINS: Alfalfa weevil larvae counts remain low

CORN: First flight of European corn borer moths beginning

FRUITS: Codling moth biofix set this week in a few locations

VEGETABLES: Imported cabbageworm larvae appearing on cole crops

NURSERY & FOREST: Black spot on rose and other nursery reports

DEGREE DAYS: Growing degree day accumulations as of May 23, 2018

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update May 18

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 May 12, 2018

WCM-36
through May 18, 2018.

The 5/18/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


---

**UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update May 25**

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 May 19, 2018 through May 25, 2018.

The 5/25/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


---

**Wisconsin Fruit News – May 18**

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/3s74m8

This week in the Wisconsin Fruit Newsletter you can read about:

- Is it a brown marmorated stink bug? If you’re wondering, check out these new apps!
- Insect Diagnostic Lab update
- Plant Disease Diagnostic Clinic update
- Tarnished plant bug – a strawberry menace
- Pheromone loading in cranberry insect lures
- Cranberry plant and pest degree-days: May 15, 2018
- Grape variety developmental stages: May 17, 2018
- Killing them softly: Do soft fungicides work on apple diseases?
- Precision apple thinning part II: Running the carbohydrate model

---

**Wisconsin UWEX Vegetable Crop Update Issue 6**

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates newsletter #6

In This Issue:

- late blight national updates
- updated fungicide list for potato late blight 2018
- onion weed management
- potato crop status updates.

---

**Wisconsin UWEX Vegetable Crop Update Issue 7**

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates newsletter #7

In This Issue:

- late blight and cucurbit downy mildew information updates
- potato and processing vegetable crop updates
Learn management strategies, such as variety selection, managing stands, and marketing your crop, so you can put wheat back into your rotation and make money! Also learn how wheat can increase profitability of your other crops and improve soil health.

**July 9th—10am—2pm**

**Arlington Research Station—Public Events Building**

**Cost:** $15  *(includes lunch and refreshments)*

Register online:  [https://fyi.uwex.edu/danecountyag/events/wheat](https://fyi.uwex.edu/danecountyag/events/wheat)

**phone:**  608-224-3704

**email:**  nunz.barabara@countyofdane.com

**Topics & Presenters:**

- “Choosing Successful Winter Wheat Varieties, Staging Wheat and Fertility Management”
  
  *Shawn Conley, UW Soybean and Small Grain Specialist*

- “Winter Wheat Diseases and Fungicide Selection and Timing”
  
  *Damon Smith, UW Field Crops Plant Pathologist*

- “Using Winter Wheat and Cover Crops in Your rotation to Improve Your Soil” -
  
  *Jamie Patton, Outreach Specialist for the Nutrient and Pest Management Program*

- “Marketing Winter Wheat to Maximize Profits”
  
  *Brenda Oft, Commodity Broker and Farm Market Consultant for Midwest Market Management*

- “Introducing Winter Wheat Into a Rotation to Increase Rotational Profitability”
  
  *Heidi Johnson, Dane County UW-Extension Crops and Soils Agent and Jeff Gaska, Dodge County Farmer*
Don’t Get Lost in the Weeds: Additional Factors to Consider when Selecting Xtend Soybean Varieties

Shawn Conley, State Soybean and Small Grains Specialist; Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison

Selecting the most appropriate soybean varieties each year is critical for farming operations to remain profitable. Although your top factor is often high yield potential, there are other characteristics you should consider. These other characteristics include disease-, insect-, and herbicide-resistance traits; maturity date; and target market. If you focus on only one of these aspects during agriculture. A special after lunch only session will highlight agricultural technology: UAVs for crop scouting and autonomous machines. Between tours you can visit with specialists from the UW Soil & Forage Analysis Lab, Nutrient & Pest Management Program and SnapPlus. 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 on Hwy 51 about 5 miles south of Arlington. GPS coordinates: 43.300467, -89.345534

To help us organize a successful event, if you are considering attending please complete a RSVP at https://go.wisc.edu/uwtu24. The Badger Crops Club will provide lunch ($5 donation).

For more details, see the attached flyer at the end of this pdf. We look forward to seeing you on August 22nd.
According to our recent survey, waterhemp has become the most concerning weed in row crop production in Wisconsin. Adding to that challenge, glyphosate-resistant waterhemp populations have been confirmed in 25 Wisconsin counties (see map below). Furthermore, PPO-resistant waterhemp has been confirmed in 4 counties (Iowa, Monroe, Saint Croix, and Pierce). Resistance to ALS-inhibiting herbicides is widespread across the Midwest but has not been fully investigated in Wisconsin.

At our on-farm research site in Chippewa county, WI, waterhemp emergence has been occurring for approximately two weeks. At our site in Grant county, WI, we noticed the first waterhemp seedlings today (06/04/2018). These plants will start growing rapidly as we move into the warmer portion of the growing season. It is important to also scout for waterhemp seedlings in fields where PRE-emergence herbicides were sprayed at planting, as the soil residual activity of these herbicides fade away.

Glyphosate (Group 9), ALS-inhibiting herbicides (Group 2; e.g.: Pursuit, Classic, FirstRate), and PPO-inhibiting herbicides (Group 14; e.g., Cobra, Flextar, Cadet, Ultra Blazer) are the three primary herbicide sites-of-action (SOA) used for broadleaf weed control POST-emergence in Roundup Ready soybeans. Growers who suspect they have a glyphosate-resistant waterhemp problem should use a tank-mixture of glyphosate and a herbicide from Group 14 and/or Group 2 for effective POST-emergence control. To have success using Group 14 or Group 2 herbicides, waterhemp height should be less than 4 inches at application. Soybean fields with emerged waterhemp where glyphosate has struggled in the past should get top priority for spraying.

Group 14 herbicides are likely the best choice for POST-emergence control of glyphosate-resistant waterhemp in Roundup Ready soybeans. Growers must be aware that they may need to adjust their application practices to maximize the effectiveness of these herbicides. Group 14 herbicides are contact, cell membrane disrupters that require good spray coverage for best control. It is important to read the product label to know the required carrier volume and adjuvant selection to enhance the efficacy of the selected product.

Liberty (Group 10) in Liberty Link soybeans or Dicamba (Group 4) in Xtend soybeans are effective options for POST-emergence control of glyphosate-resistant wa-
terhemp, assuming one of these traits is adopted. With Liberty (contact herbicide), weeds must be treated when they are small (<4 inches) and spray coverage is important for control like for Group 14 herbicides. With dicamba, off-target movement via particle and/or vapor drift and tank-contamination are current concerns.

Because of waterhemp’s late and extended emergence window, the use of a soil residual herbicide from Group 15 (e.g., Dual II Magnum, Outlook, Warrant, Zidua) tank-mixed with the POST-emergence program is encouraged to control later flushes of waterhemp. See herbicide label for rates, application window, and restrictions.

Several effective herbicide options are available for waterhemp control in corn. Thus, we urge growers on a corn-soybean rotation to proactively manage waterhemp in corn years, including late escapes that may not impact corn yield but will replenish the soil seed-bank for subsequent years. This will increase the odds of successful control of waterhemp in subsequent soybean years. Remember, “no seed no weed”!

See our YouTube Video for “Tips on Waterhemp Management in Soybeans”.

To read this article on their blog, click here.

The Soybean Flowering-Summer Solstice Fallacy

Shawn Conley, State Soybean and Small Grains Specialist

Every agronomist has been ingrained with the knowledge that soybean is considered a “short-day” plant and will not flower until after June 21st a.k.a. the summer solstice. This belief has held true for decades; however, with agronomists now preaching the virtues of early soybean planting, coupled with the power of Twitter, we now see pictures and evidence of soybean flowers occurring as early as June 1. This empirical evidence has prompted many to question the foundational belief.

In soybean, floral induction occurs when soybean leaves can measure the night length (from dusk to dawn), and thus begins when unifoliolate leaflets appear at stem node 1 (V0) and a young trifoliolate leaf appears at node 2, with induction continuing thereafter in every subsequent leaf (Wilkerson et al. 1989; Fehr and Caviness, 1977). If soybean is planted early enough, flower initiation can then be triggered on the front of the summer solstice (Figure 1). This response is dependent upon the maturity genes present in the adapted cultivars and region of country, however given the germplasm available to farmers in the north central region it is plausible that any soybean planted in this region would flower “early” if planted early.

In 2018 we have experienced exceptionally warm temperatures after V1 that have significantly hastened the calendar date of R1, because the temperature sensitivity of floral evocation (development of floral meristems into flowers – the first such visible flower leading to an R1 stage call), though floral induction in itself is not very temperature sensitive. In NE in 2017, the website program SoyWater (SoySim) predicted that an Apr 24 planting date would lead to the R1 stage dates for MGs 1, 2, 3, & 4 to occur on Jun 12, 14, 17, & 19; however, this year (2018), SoyWater (SoySim) is predicting for the same planting date of Apr 24 and near similar MGs, R1 stage dates of June 05, 10, 13, & 16! Those R1 stage predictions were (as Dr. Specht recall) 3-5 days later a couple of weeks ago, so not only a warm spring, but also this exceptional heat wave in the last few days has hastened floral evocation. R1 is likely to be earlier in all NC USA areas that have experienced both early soybean planting and a much warmer than normal spring. Early soybean flowering has many management implications including shorter herbicide label timings for dicamba (up to R2) and glyphosate products (through R2) (FYI it usually only takes 3-5 days to go from R1 to R2) and earlier risk for white mold infection. In 2018 it is paramount that you scout and don’t just rely on the calendar for spray applications!

Literature cited:

Wisconsin Winter Wheat Disease Update – June 6, 2018

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison

The Wisconsin Field Crops Pathology Team has been busy scouting and rating diseases of winter wheat this past week across the major wheat growing region of the state. To be honest, it has been pretty boring for our group. We have seen virtually no disease in uniform variety trials or in production fields. This is good news for farmers, for sure.

We have not yet confirmed any stripe rust infections in the state of Wisconsin, this season. Reports from farmers and consultants are also consistent with our observations. This is a considerable change from last season, when we found our first stripe rust pustules at the end of March. This early epidemic in 2017 resulted in some considerable yield loss from stripe rust on winter wheat. Definitely not the case this season. We have also seen extremely low levels of Septoria leaf blotch in the lower portions of the canopy on some varieties. Cool dry weather is preventing this disease from really moving up the canopy. No other foliar diseases have been confirmed on winter wheat this season.

As for the Fusarium head blight (FHB; scab) situation, risk as calculated by the Fusarium Risk Tool, has dissipated over the past week. Two weeks ago, risk of FHB had been estimated to be high on susceptible cultivars. However, cool dry weather has driven the risk to low levels across much of the major wheat production area of Wisconsin. Risk is high still along the Lake Michigan shore and up into Door County. Also elevated and high risk are estimated in Northwest Wisconsin on susceptible cultivars. The situation should be monitored closely in these areas on any crop heading into anthesis. Most of the wheat we have looked at across the southern, south-central, and north-eastern wheat production area of the state is through anthesis or will be by the end of the week. The FHB risk is forecast to be low through this period, in these areas. We will begin scouting for FHB damage in the next week or so, but we anticipate FHB to be mostly low in many areas, with some isolated pockets of higher levels.

It is important to continue scouting over the next couple of weeks. We are transitioning away from making fungicide spray decisions, but it is important to determine the level of FHB present in a particular field, so that proper harvest preparations can be made. We will continue to update you on what we find over the next couple of weeks. However, this is the lowest level of disease on winter wheat I have seen since I have been in Wisconsin. Scout, Scout, Scout!

Potato Leafhoppers

Bryan Jensen, Dept. of Entomology and Integrated Pest Management Program, University of Wisconsin-Madison

Although the Arlington Agricultural Research Station is a small sample size, it appears we have received a migration potato leafhopper lately. No surprise based on the preceding warm weather. I am sure DATCP’s Pest Bulletin will have more to add on potato leafhopper populations when their newsletter comes out.

It does serve as a warning to start scouting alfalfa. Typically, when the migration does arrive we will go through a period of population buildup if weather is favorable (hot/dry). At this point I am not overly concerned about second crop, however scouting will tell you for sure. Third cut would typically be when we should be sweeping on a regular basis. By this point in time we would have completed at least one generation and potentially see a significant increase in damage potential. New seedings are a different story. They should be spot-checked now. New seedings are as attractive to adults as established stands are and there is a longer time between harvest which allows numbers to increase.

In established stands avoid automatic stubble spraying after harvest even if populations are high. Leafhopper adults will leave the harvested field because its food.
source has been removed. Nymphs will usually die because of the lack of food. This forces adults to recolonize fields and you never know if or when that might happen. The best system would be to scout the field as soon as regrowth is 3 inches tall and make spray decisions based on current potato leafhopper populations. This avoids either unnecessary applications or allows application that is better timed. After first cut in new seedings there is usually some green stem or leaf materials that can sustain nymphs and keep adults in the field. Scout these field immediately after harvest to determine damage potential.

Early Season Below Ground Corn Insects

Bryan Jensen, Dept. of Entomology and Integrated Pest Management Program, University of Wisconsin-Madison

As people are getting out to monitor corn health and emergence, I thought I would take a few minutes to review some general damage characteristics of seed corn maggot, wireworm and white grub. Frankly, it isn’t easy to diagnose the problem(s) because damage isn’t always “text book”. Decisions need to be made on a range of symptoms form several plants, field histories, degree day accumulations and often times your instinct.

Seed corn maggots have multiple generations each year. This growing season, I think the first generation will be the only generation which will cause emergence issues. First generation peak occurred approximately May 7 in southern Wisconsin. Obviously, the peak will be sometime after that as you move north. Knowing the timing of this flight period may help with seed corn maggot diagnosis because damage should be concentrated on fields planted within a relatively narrow time frame for your area. Not a wide range of planting dates. Field histories may help with diagnosis as well. The adult is mobile and tend to seek out fields with green and/or livestock manure applied as well as fields which are recently tilled prior to planting to lay eggs. The immature maggot will feed on either the germinating corn seed (and soybean) or the emerging shoot. All damage is below ground. Above ground symptoms include skips in the row and cotyledons with small holes. Soybean injury may include “snakeheads”, feeding scars on the cotyledons and holes in the unifoliate leaves. Dig up areas with poor germination to verify that seed was planted. Expect to see a range of these symptoms. Not just one or the other. Also, seed corn maggot injury is usually random within a field. Assuming the entire field was treated the same. If not?

Use that information to help confirm your diagnosis.

True white grubs are a complex of several species with similar damage symptoms and a three-year life cycles. One year as the adult June (or May) beetle and two growing seasons as the immature grubs. White grubs do not feed on seed but will feed on corn roots and perhaps the underground portion of the stalk. Above ground symptoms are stunted plants which commonly exhibit nutrient deficiency symptoms because of the root feeding. Also, newly emerged leaves may be wilted as a result of below ground feeding. White grub feeding is usually clumped within a field. These areas may be where there were previous grass weed escapes or along field edges where females dropped in from surrounding food sources to lay eggs. Grubs can usually be found in the soil around damaged plants.

Wireworm larvae will feed on ungerminated seed (similar to seed corn maggot) but also on the underground portion of the stalk. Above ground symptoms will depend where the larvae are feeding. If feeding is at the growing point the whorl leaves will look wilted. If feeding is above the growing point there will be holes in the leaves. These foliar symptoms can be confused with hop vine borer, common stalk borer, black cutworm, sandhill cutworm and bill bug. Verify wireworm feeding by digging up seed and/or injured plant. Unfortunately, wireworms will move down in the soil profile if conditions are dry and/or summer temperatures return.

Expect to see a range of symptoms from wireworm feeding that include skips in the row, holes in the leaves and wilted whorl leaves. Feeding will also be spotty. Areas with a greater chance of injury include where there was previous grass weed escapes. Rotation may also help determining if wireworms are to blame. Corn planted after alfalfa or sod are likely fields to have injury. Because of wireworm’s multiple year life cycle, damage may be as severe in second or third year corn.

For more background information on these and other insect pests please review our Field Crops Scouting Training Manual.

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update June 1

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disor-
ders have been identified at the PDDC from May 26, 2018 through June 1, 2018.

The 6/1/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


Wisconsin Fruit News- June 1

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/qqr7y5

This week in the Wisconsin Fruit Newsletter you can read about:

• First brown marmorated stink bug trap-catch of the season
• Worker Protection update and another rule revision on the horizon
• Insect Diagnostic Lab update
• Plant Disease Diagnostic Clinic update
• Organic management of spotted wing drosophila in berry crops
• Cranberry plant and pest degree-days: May 30, 2018
• Grape shoot thinning for crop load adjustment
• What is THAT???
• Grape variety developmental stages: May 31, 2018
• Post-bloom fire blight management
• Precision apple thinning part V: Measuring fruitlets and using the MSU excel spreadsheet
AGRONOMY/SOILS FIELD DAY

Wednesday, August 22, 2018
UW-Arlington Agricultural Research Station

TOURS

8:30  10:30  Soil Fertility & Management
- Improve ROI and NUE by timing N applications for corn
  Carrie Laboski
- Soil sampling with banded fertilizer
  Andrew Stammer
- Use of a rye cover crop in dairy forage production: Environmental and yield benefits
  Francisco Arriaga
- Soil health in Wisconsin
  Matt Ruark

8:30  10:30  Grain Production Systems
- Forages: Old, new and reimagined
  Ken Albrecht
- Management practices that minimize the soybean yield gap on your farm
  Shawn Conley
- Advances in crop biotechnology at the Wisconsin Crop Innovation Center
  Heidi Kaeppler
- The Wisconsin corn pop-up/starter fertilizer challenge
  Joe Lauer

10:30  1:00  Pest Management
- Using fungicide in corn for grain and silage
  Damon Smith
- Weed management for annual cropping systems
  Rodrigo Werle
- Using an integrated approach to western bean cutworm management
  Bryan Jensen
- White mold management
  Megan McCaghey

8:30  1:00  Interseeding in Grain & Forage Systems
- Interseeding cover crops in organic corn and soybean production
  Erin Silva
- Interseeding legumes with Kernza
  Valentin Picasso
- Small grains with frost seeded clover
  Lucia Gutierrez
- Interseeding corn and alfalfa
  Will Osterholz

1:00  Equipment Rodeo
- Agriculture technology: Planting, UAV remote sensing and autonomous machines
  Brian Luck, Jessica Drewry, Jeff Nelson

Visit exhibits between tours and during lunch UW Soil & Forage Analysis Lab, SnapPlus, Nutrient & Pest Management Program and more!

Certified Crop Advisors
7.5 CEU credits requested
Bean can we expect any damage from herbicides and especially the Group 14 herbicides? Well unfortunately the answer to that question is the good ole Extension cop-out answer “Well folks that depends”…..

What we mean by that is as follows:

What growth stage was the soybean crop at?

Where in the United States are you located?

Was the crop stressed before or more importantly after the application?

What rate, a.i., adjuvants, carriers, tank mix partner, etc are we dealing with?

What soybean variety did you plant?

What phase is the moon in….well not really… but you all get the point.

Generally speaking as the soybean growth stage approaches R1 (flowering) the risk for yield loss increases. However this is a highly regional response as we have documented differential yield responses from a +1.2% yield gain in the south to a -4.7% to -4.1% yield loss from the I-states north (Table 1). Furthermore as we transition from specifically using lactofen as a “herbicide” to a tool in white mold management we also note a differential response. In a recent meta-analysis where Dr. Smith focused on the 6 oz lactofen rate at R1 application he noted a 3.7% yield loss in low-to-moderate disease pressure, but a significant yield increase in high-pressure situations (Figure 1). In Dr. Smith’s meta-analyses he does want to emphasize they noticed A LOT of variability among varieties and environments tested as you can see by the error bars around treatments in Figure 1.

In summary we would expect some level of yield loss in these late “hot” applications; however in-terms of long-term weed management we would rather see you take a small yield hit than allow herbicide resistant weeds go back to seed and replenish the weed seed bank. This
Understanding Nutrient Requirements and Utilization for High Yielding Soybeans

Shawn Conley, State Soybean and Small Grains Specialist

Soybean genetics and production practices have changed significantly in the past half-century. This has resulted in consistent yield increases of 0.42 bushels per acre per year in addition to physiological changes that have undoubtedly altered nutrient utilization for the soybean plant. This publication provides an updated summary of soybean uptake and partitioning of the three macro (nitrogen [N], phosphorus [P], potassium [K]), the three secondary (sulfur [S], calcium [Ca], magnesium [Mg]) and five of the micro (zinc [Zn], manganese [Mn], copper [Cu], iron [Fe], boron [B]) nutrients for soybean growth and development. These models can be used by farmers and ag industry personnel across the country to better understand and monitor soybean nutrient utilization during the growing season, including total uptake, the uptake rate and partitioning to help guide and evaluate fertility decisions. In addition, biomass (dry matter) accumulation can provide insight into soybean growth and development.

To read the rest of this publication, click here.

Palmer amaranth is now a prohibited noxious weed seed in Wisconsin, but what does it look like?

by Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist)

Under a new emergency rule, Palmer amaranth has been labeled as a prohibited noxious weed seed in Wisconsin. Given Palmer amaranth's aggressive nature, this is a worthwhile and necessary attempt to keep this troublesome weed species out of the state. For more details, see DATCP article: “Keep an Eye Out for Palmer Amaranth, DATCP Cautions”.

Palmer amaranth's late and extended emergence window throughout the growing season and vigorous growth rate (up to 2 inches per day under ideal conditions) make control in row crops very difficult. Palmer amaranth is a major weed problem in the US Mid-South and parts of the Midwest. According to University of Wisconsin-Madison Weed Scientists, Palmer amaranth

is even more critical with potential Chinese tariffs and tighter phytosanitary regulations centered around weed seeds.

Literature cited:


To read this article on their blog, click here.
Soybean Response to Nitrogen Application Across the U.S.

Shawn Conley, State Soybean and Small Grains Specialist

U.S. soybean [Glycine max (L.) Merr.] production has increased by 60% from 1996 to 2016 due to a 30% increase in area planted to soybean, and due to better genetics and improved crop management practices. While these historic seed yield increases have been substantial, U.S. soybean producers continually search for opportunities to optimize crop management and increase soybean seed yield, including applying fertilizer N to soybean.

Soybean has a large nutrient requirement throughout the growing season, and has an especially high N requirement due to its seed protein content that averages about 40% based on seed dry weight (Bellaloui et al., 2015). Soybean N requirements peak in the R3 to R6 growth stages (Gaspar et al. 2017; Harper, 1974). The N requirement of soybean is generally fulfilled by biological nitrogen fixation (BNF) plus N uptake from soil (Salvagiotti et al., 2008). However, BNF activity can be limited by a number of environmental conditions such as low soil moisture, extremes of soil pH and temperature, and soil compaction, any of which can result in insufficient N supply to the soybean plants (Purcell and King, 1996).

Wisconsin UWEX Vegetable Crop Update Issue 8

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #8

In this issue:

- late blight ‘look-alike’ disease Phytophthora nicotianae in North Carolina potatoes/tomatoes
- national late blight updates
- WI DSV accumulations – no thresholds met yet for late blight preventive fungicide application trigger
- national cucurbit downy mildew updates
- potato crop status updates

Wisconsin UWEX Vegetable Crop Update Issue 9

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #9
In this issue:

- potato dieback in response to high heat in WI
- late blight updates and DSVs
- cucurbit downy mildew updates (national)
- horticultural updates – determining potato canopy coverage and moisture

**Wisconsin Fruit News- June 8**

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/54j2q8

This week we have a variety of articles in the supplemental issue, including information on first reports of the season for spotted wing drosophila and Eastern flower thrips, along with a final installment on precision apple thinning.

- First detection of spotted wing drosophila in Wisconsin for 2018
- First reports of Eastern flower thrips in Wisconsin for 2018
- Precision apple thinning part VI: Wrapping up and rescue thinning
- Current carbohydrate models

**Wisconsin Pest Bulletin, Issue No. 5, May 31**

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 5 of the Wisconsin Pest Bulletin is now available at:


**INSIDE THIS ISSUE**

**LOOKING AHEAD:** Heavy June beetle populations reported in Grant County

**FORAGES & GRAINS:** Peak alfalfa weevil feeding expected in the next two weeks

**CORN:** Continue scouting for signs of black cutworm activity

**FRUITS:** Large codling moth flights documented in several apple orchards

**VEGETABLES:** Colorado potato beetle egg laying underway

**NURSERY & FOREST:** Red spot on peony and other nursery reports

**DEGREE DAYS:** Growing degree day accumulations as of May 30, 2018
Wisconsin Pest Bulletin, Issue No. 7, June 14

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 6 of the Wisconsin Pest Bulletin is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update June 8

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 2, 2018 through June 8, 2018.

The 6/8/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

# AGRONOMY/SOILS FIELD DAY

**Wednesday, August 22, 2018**

**UW-Arlington Agricultural Research Station**

## PROGRAM

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Registration ($0), coffee</td>
</tr>
<tr>
<td>8:30</td>
<td><strong>Tours</strong></td>
</tr>
<tr>
<td>8:30</td>
<td>Soil Fertility &amp; Management</td>
</tr>
<tr>
<td>8:30</td>
<td>Pest Management</td>
</tr>
<tr>
<td>8:30</td>
<td>Interseeding in Grain &amp; Forage Systems</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Tours</strong></td>
</tr>
<tr>
<td>10:30</td>
<td>Soil Fertility &amp; Management</td>
</tr>
<tr>
<td>10:30</td>
<td>Grain Production Systems</td>
</tr>
<tr>
<td>10:30</td>
<td>Pest Management</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch Speaker: Dan Veroff</td>
</tr>
<tr>
<td>12:00</td>
<td>Wisconsin Population &amp; Demographic Megatrends: Implications for Agriculture &amp; Farming</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch provided by Badger Crops Club ($5 donation)</td>
</tr>
<tr>
<td>1:00</td>
<td><strong>Tours</strong></td>
</tr>
<tr>
<td>1:00</td>
<td>Pest Management</td>
</tr>
<tr>
<td>1:00</td>
<td>Interseeding in Grain &amp; Forage Systems</td>
</tr>
<tr>
<td>1:00</td>
<td>Equipment Rodeo</td>
</tr>
<tr>
<td>2:45</td>
<td>Have a safe trip home!</td>
</tr>
</tbody>
</table>

**TOURS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td><strong>Soil Fertility &amp; Management</strong></td>
</tr>
<tr>
<td>8:30</td>
<td>Improve ROI and NUE by timing N applications for corn Carrie Laboski</td>
</tr>
<tr>
<td>8:30</td>
<td>Soil sampling with banded fertilizer Andrew Stammer</td>
</tr>
<tr>
<td>8:30</td>
<td>Use of a rye cover crop in dairy forage production: Environmental and yield benefits Francisco Arriaga</td>
</tr>
<tr>
<td>8:30</td>
<td>Soil health in Wisconsin Matt Ruark</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Grain Production Systems</strong></td>
</tr>
<tr>
<td>10:30</td>
<td>Forages: Old, new and reimagined Ken Albrecht</td>
</tr>
<tr>
<td>10:30</td>
<td>Management practices that minimize the soybean yield gap on your farm Shawn Conley</td>
</tr>
<tr>
<td>10:30</td>
<td>Advances in crop biotechnology at the Wisconsin Crop Innovation Center Heidi Kaeppler</td>
</tr>
<tr>
<td>10:30</td>
<td>The Wisconsin corn pop-up/starter fertilizer challenge Joe Lauer</td>
</tr>
<tr>
<td>8:30</td>
<td><strong>Pest Management</strong></td>
</tr>
<tr>
<td>8:30</td>
<td>Using fungicide in corn for grain and silage Damon Smith</td>
</tr>
<tr>
<td>8:30</td>
<td>Weed management for annual cropping systems Rodrigo Werle</td>
</tr>
<tr>
<td>8:30</td>
<td>Using an integrated approach to western bean cutworm management Bryan Jensen</td>
</tr>
<tr>
<td>8:30</td>
<td>White mold management Megan McCaghey</td>
</tr>
<tr>
<td>1:00</td>
<td><strong>Interseeding in Grain &amp; Forage Systems</strong></td>
</tr>
<tr>
<td>1:00</td>
<td>Interseeding cover crops in organic corn and soybean production Erin Silva</td>
</tr>
<tr>
<td>1:00</td>
<td>Interseeding legumes with Kernza Valentin Picasso</td>
</tr>
<tr>
<td>1:00</td>
<td>Small grains with frost seeded clover Lucia Gutierrez</td>
</tr>
<tr>
<td>1:00</td>
<td>Interseeding corn and alfalfa Will Osterholz</td>
</tr>
<tr>
<td>1:00</td>
<td><strong>Equipment Rodeo</strong></td>
</tr>
<tr>
<td>1:00</td>
<td>Agriculture technology: Planting, UAV remote sensing and autonomous machines Brian Luck, Jessica Drewry, Jeff Nelson</td>
</tr>
</tbody>
</table>

In the event of rain, presentations will be held inside.

**The Arlington ARS is located on Hwy. 51, about 5 miles south of Arlington and 15 miles north of Madison. Watch for Field Day signs.**

**GPS coordinates:** 43.300467, -89.345534

For more information contact the Arlington Ag Research Station at 608-846-3761 ext 101.

To help us organize a successful event, if you are considering attending please complete a RSVP at [https://go.wisc.edu/uwtu24](https://go.wisc.edu/uwtu24)

Thanks!

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.

Visit exhibits between tours and during lunch

UW Soil & Forage Analysis Lab, SnapPlus, Nutrient & Pest Management Program and more!

Certified Crop Advisors

7.5 CEU credits requested
Assessing Flood Damage to Soybean

Shawn Conley, State Soybean and Wheat Specialist
University of Wisconsin, Madison

Severe flooding over the weekend has many low-lying soybean fields underwater. As the water dissipates yield potential and replant questions will arise. Flooding can be divided into either water-logging, where only the roots are flooded, or complete submergence where the entire plants are under water (VanToai et al., 2001). Water-logging is more common than complete submergence and is also less damaging. Soybeans can generally survive for 48 to 96 hours when completely submersed. The actual time frame depends on air temperature, humidity, cloud cover, soil moisture conditions prior to flooding, and rate of soil drainage. Soybeans will survive longer when flooded under cool and cloudy conditions. Higher temperatures and sunshine will speed up plant respiration which depletes oxygen and increases carbon dioxide levels. If the soil was already saturated prior to flooding, soybean death will occur more quickly as slow soil drainage after flooding will prevent gas exchange between the rhizosphere and the air above the soil surface. Soybeans often do not fully recover from flooding injury.

Crop injury from water logging is difficult to assess. Water-logging can reduce soybean yield 17 to 43% at the vegetative growth stage and 50 to 56% at the reproductive stage (Oosterhuis et al., 1990). Yield losses are the result of reduced root growth, shoot growth, nodulation, nitrogen fixation, photosynthesis, biomass accumulation, stomatal conductance, and plant death due to diseases and physiological stress (Oosterhuis et al., 1990; VanToai et al., 1994 and 2003). A significant amount of genetic variability for flooding tolerance among soybean varieties occurs in maturity groups II and III (VanToai et al., 1994) and likely exists for maturity group I soybeans as well.

Increased disease incidence in the surviving plants may also occur and limit yield potential. The main culprit will likely be phytophthora given the warm wet weather; however pythium, rhizoctonia, or fusarium may also occur. Differential response among varieties will be tied to the sources of genetic resistance to these diseases.

Once we can get back into the fields the decision to replant will be based on the yield potential of the current stand relative to the cost and yield potential of the replanted soybean field (Table 1). Before any decision to tear up a field is made make sure you contact your crop insurance agent to discuss coverage and you have the replant seed on your farm or at least en route. Also remember to check herbicide labels for plant back restrictions if you are planning to plant soybean into a flooded corn field.

Table 1. Expected relative soybean yield at four replanting dates compared to predicted yields for a range of plant populations resulting from an optimum planting date of May 1-20 for full season maturity or short season maturity varieties.
Since full season maturity group soybeans are unrealistic for planting this late plant soybean cultivars 0.5 MG earlier than “normal”. The average yield potential for soybean planted in late June in southern WI is in the 30 to 35 bu yield range (Figure 1). For yield potential and harvestability, (a combine may not be able to pick up the lower pods) a grower should not go to an extreme early MG for their geographic area.

To maximize yield potential in late planted soybean, a minimum of 180,000 plants per acre is required in narrow row system (<20 inches) as yield potential in rowed beans would be significantly reduced due to decreased canopy development. To achieve 180,000 plants per acre a grower may have to seed as many as 225,000 seeds per acre.

To read this article on the Cool Bean blog, click here.

First Generation European Corn Borer

Bryan Jensen, Dept. of Entomology and IPM Program

It is no secret that European corn borer populations have been extremely low for several years. However, what does catch my attention is that I still get a few calls each year regarding field populations that (might) require management. Since there has been greater interest in growing conventional corn, a quick review might be worthwhile as we enter the best ECB treatment timing in southwest Wisconsin.

Depending on your location in Wisconsin we usually have 2 generations/year. First generation adults are usually attracted to the earliest planted corn so concentrate your scouting efforts there. Especially if corn plants are greater than 18” extended leaf height. Corn shorter than...
18 inches has a higher concentration of DIMBOA which deters larvae from feeding resulting in significant mortality. The best treatment period for first generation is usually short (between 800-1100 degree days) compared to second generation treatment period which is much longer and more difficult to manage economically.

Examine 10 consecutive plants in 10 areas of each field and keep tract of the number of plants showing leaf feeding (shot-holing). Pull the whorl leaves from two damaged plants/set and unroll the leaves to count the number of larvae/damaged plant. Calculate % damaged plants and determining the average number of larvae/plant. The worksheet (below) is taken from A3646, Pest Management in Wisconsin Field Crops (p 58). It allows you to develop a field specific threshold that is based on % damage, # larvae/plant, control costs, expected yield and selling price.

For example, a loss potential of $17.50 would be expected for a field with a rather high population of 50% damaged plants, 1 larvae/damaged plant, a yield potential of 200 Bu/A and a selling price of $3.50/bu. Compare that $ loss to control costs in your area. Remember that insecticides are only about 80% effective.

After hatch, first generation larvae migrate to the whorl and feed on leaves and mid-ribs prior to boring into the stalk. Symptoms of whorl feeding include small, irregular holes, often call shot-holing. As larvae mature, they may feed across the rolled up leaf creating a transverse pattern of holes prior to boring into the stalk. Once larvae burrow into the stalk it is too late to treat. There isn't a lot of time to make a decision. The whole process from egg hatch to stalk tunneling is weather dependent. Ten days would be a good ballpark guess.

First generation armyworm larvae are hard to predict in terms of timing, location and severity. However, it is that time of the year when I would scout fields which have the greatest likely hood of damage. In wheat (and other small grains) it is especially hard to anticipate. Areas with dense cover and perhaps areas with lodging might be worth concentrating scouting efforts on. Armyworm feed on foliage but can also clip heads. Treatment is suggested if you find an average of 3 armyworms per square foot in small grains.

In, corn I would suggest concentrating scouting efforts on fields that are no-tilled into alfalfa, had a small grain cover crop or early season grass weeds. In corn, treatment can be suggested when 25% of the plants have two or more larvae/plant or when 75% of the plants have one larvae/plant. Treatment would not be suggested if larvae are greater than 1 ¼ inch in length. Those larvae will be pupating soon and very little additional defoliation would be expected. Certainly not enough to pay for an insecticide application.

---

**Armyworms**

Bryan Jensen, Dept. of Entomology and IPM Program

Armyworms might be something you want to keep an eye open for during the next few weeks. No major concerns have been reported. This is just a heads up.
OGRAIN, Field Day Agenda, Janesville, July 12

Small grains, modest gains:
A pragmatic approach to profitability and sustainability

This field day will highlight the diversity and innovations at the Hughes Farms in Janesville, WI. Farming over 5000 acres in a parallel operation consisting of both conventional and organic practices, the Hughes have succeeded in developing diverse rotations and markets. This field day, in partnership with Practical Farmers of Iowa, MOSES, and the Organic Seed Alliance, will discuss and showcase cover crops for green manures, weed control, soil erosion reduction and water quality improvements; tips for trialing varieties for performance under organic management; and basics of transitioning to organic certification.

See attachment at the end of PDF for more information.

Wisconsin Fruit News- Volume 3, Issue 5

Janet van Zoeren and Christelle Guédot, UW-Extension
https://go.wisc.edu/5orlb7

This week in the Wisconsin Fruit Newsletter you can read about:

- A new invasive fly – the African fig fly
- Insect Diagnostic Lab update
- Plant Disease Diagnostic Clinic update
- The African fig fly in Wisconsin in 2017
- Cranberry plant and pest degree-days: June 13, 2018
- Crown gall of grapes
- Recognizing synthetic auxin herbicide injury in grape vines
- Grape variety developmental stages: June 14, 2018
- Codling moth management

Wisconsin UWEX Vegetable Crop Update Issue 11

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #11
- Disease forecast info for late blight and early blight
- Late blight on tomato confirmed in Onondaga Co. NY
- Cucurbit Downy mildew national update
- Horticultural updates

Wisconsin Pest Bulletin, Issue No. 7, June 14

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 7 of the Wisconsin Pest Bulletin is now available at:

Inside This Issue

Looking Ahead: New lily leaf beetle sightings in Portage County

Forages & Grains: Alfalfa weevil larval damage period subsiding

Corn: Corn rootworm peak egg hatch expected by late June

Soybean: Rose chafer beetle causing light soybean defoliation

Fruits: Spotted wing drosophila flies captured by UW in Dane Co.

Vegetables: Squash vine borer moth emergence starting

Nursery & Forest: Maple tree pest updates from recent inspections

Degree Days: Growing degree day accumulations as of June 13, 2018
UW/UWEX Plant Disease
Diagnostic Clinic (PDDC) Update
June 15

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 9, 2018 through June 15, 2018.

The 6/15/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

Small Grains, Modest Gains:
A Pragmatic Approach to Profitability and Sustainability
In partnership with: Organic Grain Resource and Information Network
THURSDAY, JULY 12 | 8:30 a.m. - 3 p.m. | Janesville, WI

DESCRIPTION:
Farmers and others will learn about why growing small grains as part of an extended crop rotation benefits the other cash crops in both conventional and organic cropping systems. Learn how cover crops can be green manures, control weeds, reduce soil erosion and improve water quality.

SPEAKERS:
Erin Silva – Dept. of Plant Pathology at the University of Wisconsin
Nick Baker – Rock County Extension Team
Dave Gundlach – Rock County NRCS
Jared Zystro – MOSES

THE FARM:
Hughes Farms is owned and operated by Randy and Judy Hughes. They own and rent over 5,000 acres of tillable land centered in Rock County.

RSVP FOR MEAL TO:
Debra Boekholder debra@practicalfarmers.org; (515) 232-5661 by Friday, July 6.
Evaluating the Need for Rescue N Applications

Past articles have discussed how to evaluate the need for rescue N applications for corn after excessive rainfall. A recent study completed at the Marshfield Ag Research Station on a somewhat poorly drained soil can help when deciding how much rescue N to apply. Where wet conditions caused loss of preplant applied N at Marshfield, 40 lb N/a applied 7-10 days prior to tasseling was adequate to compensate for N loss (Figure 1). Sidedressing all of the N was more profitable than preplant or split applications. When trying to decide on a rescue N application rate, consider your cost of production and remember that the first 30 to 50 lb N/a will provide the greatest return on investment.
New Videos: Early Season Soybean Management

1. Potential Causes of Poor Soybean Emergence in Cool Wet Soils

Potential Causes of Poor Soybean Emergence in Cool Wet Soils

Dr. Damon Smith, University of Wisconsin-Madison, visits a soybean field that shows signs of low emergence due to soil crusting and Pythium seed rot. The field has experienced cool wet weather after planting. Dr. Smith explains how to management is achieved through seed treatment or adjustments to planting populations. A target population on 140,000 seeds/acre applies to use of treated seeds. Without seed treatment, growers can adjust to a planting population of greater than 140,000 to make up for loses due to seed rot prior to emergence.

2. Soybean Emergence Issues in Cool Wet Soils

Soybean Emergence Issues in Cool Wet Soils

Dr. Shawn Conley, University of Wisconsin-Madison, goes to the field to discuss soybean emergence issues in cool wet soils. He shows a variety of damage that crusty soils can cause to emerging plants.

3. Soybean Replant Decisions and the Bean Cam Free App

Dr. Shawn Conley, University of Wisconsin-Madison, discusses replanting management decisions in soybeans.


4. Early Season Management Options for White Mold in Soybean

Early Season Management Options for White Mold in Soybean

Dr. Damon Smith, University of Wisconsin-Madison, visits a soybean field to talk about white mold, row spacing, and the new Sporecaster white mold management smartphone app.

Check out this application for iPhone and iPad: https://itunes.apple.com/us/app/spore... Check out this application for Android: https://play.google.com/store/apps/de... http://ipcm.wisc.edu

Introducing badgercropdoc.com

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison

We are proud to announce the launch of our new website, badgercropdoc.com! Badger Crop Doc is a one-stop-shop for all things Wisconsin Field Crops Pathology related. We have merged the website and blog found at
https://fyi.uwex.edu/fieldcroppathology/ with our University of Wisconsin academic website, so that all information can now be found in one place. If you subscribed to the blog posts at https://fyi.uwex.edu/fieldcroppathology/, don’t worry, we have already moved your e-mail over to badgercropdoc.com. Be sure that browsers are now pointed to the new URL and check your e-mail folders to be sure blog postings aren’t going to junk or trash. Finally, this posting will serve as the last posting from https://fyi.uwex.edu/fieldcroppathology/.

BadgerCropDoc was made possible with support from the Wisconsin Soybean Marketing board and is meant to be complementary to badgerbean.com and coolbean.info, while offering research-based information for the major field crops of Wisconsin. We hope you enjoy this new resource. As always, please let us know what you think. We would love to hear feedback.

---

**Japanese Beetles**

Bryan Jensen, IPM Program and Dept. of Entomology

They’re back. Anyone surprised?

Adult Japanese beetles are starting to emerge, however, we don’t expect peak emergence for a few more weeks. What will happen in 2018 is anyone’s guess. Last year was one of the heaviest years in terms of adult numbers (not necessarily economic damage). Winter temperatures were moderate and soil moisture has been adequate. Both factors contribute to higher survival.

Adults are showy. About ½ inch-long, metallic green body, bronze-colored wing covers and they have six white tufts of hair on each side of the abdomen. Furthermore, they tend to feed in large groups and their damage on soybean is conspicuous in the upper canopy. Fortunately, the threshold for defoliation on soybean is relatively high. Don’t consider treatment until there is...
30% feeding on vegetative soybean or 20% defoliation in reproductive stage soybean. Percent defoliation needs to be assessed on a whole plant basis. People tend to overestimate damage because they focus on the upper leaves not the whole plant.

During the summer months there are several insect defoliators that can be found in soybean. Japanese beetle feeding is relatively easy to distinguish from the rest. Many people describe their feeding as “net-like”. That is leaving the smaller leaf veins intact when compared to feeding from thistle caterpillars, clover worms, bean leaf beetles, grasshoppers and others. Recognizing Japanese beetle feeding may not seem important but adults easily move around from one food source to another and can abruptly leave. Diagnosing their damage may help determine the culprit and if treatment is needed.

In corn, assessing damage is much easier. Adult will feed on green silk which can affect pollination. There is very little, if any, defoliation. Like soybean, they tend to feed in groups making scouting more difficult but spot spraying more effective. It takes an average of 3 adults feeding on green silks/plant before there is economic concern.

Adults are going to be present until late-summer. During this time period they will feed, mate and lay eggs. Eggs will hatch this summer and the immature grubs will feed on roots of grasses and several other hosts. Japanese beetles overwinter as immature grubs which occasionally cause damage to seedling corn in the spring.

Weed Science Plot Tour

The Wisconsin Cropping Systems Weed Science Program (WiscWeeds) would like to invite corn and soybean farmers, agronomists, industry representatives and Ag educators to attend the 2018 “Weed Science Plot Tour” on Tuesday, July 17, 2018 at Arlington Ag Research Station (Public Events Building, N695 Hopkins Rd, Arlington, WI). See flyer attached.

We will showcase studies comparing:

- Herbicide Programs in Corn
- Weed Management in Enlist Corn
- Impact of Carrier Rate on Efficacy of PRE-Emergence Corn and Soybean Herbicides
- Comparison of PRE-Emergence Herbicides for Weed Control in Soybeans
- Systems Approach for Weed Control in Balance

Beans, Enlist, Liberty Link, and Xtend soybeans

Registration starts at 8:30 AM with coffee and donuts. Plot tour starts at 9:00 AM and concludes by 11:45 AM.

Please RSVP by July 13, 2018 with Mindy Breunig or Kelly Tomko-Ewing via phone (608-846-3761) or email (mindy.breunig@wisc.edu; ktomko@wisc.edu)

For questions related to the tour, contact Rodrigo Werle, UW-Madison Extension Cropping Systems Weed Scientist via phone: 608-262-7130 or email: rwerle@wisc.edu

*For more information, see the flyer attached at the end of this pdf.*

Reporting Soybean Crop Injuries

Shawn P. Conley, University of Wisconsin-Madison and Jeremy Ross, University of Arkansas System Division of Agriculture

For many of us in agriculture, 2017 was a year we would like to quickly forget. Unpredictable weather, low crop prices and last, but certainly not least, many of us were dealing with the D-word, and I don’t mean Dallas. Off-target movement of synthetic auxin herbicides pitted neighbor against neighbor, farmers against state boards and industry against academia. The caustic environment in agriculture in 2017 made the politics in Washington D.C. look like Sesame Street!

On October 30th 2017 Dr. Kevin Bradley published A Final Report on Dicamba-injured Soybean Acres where he listed an official count of 2,708 reported cases of dicamba-related investigations and an estimated 3.6 million acres of dicamba injured soybean. The efforts of Dr. Bradley as well as many other Extension Weed Scientists led to wholesale changes in herbicide labels and mandatory training prior to the 2018 growing season. The collective hope was to keep these herbicides on-site, where we put them!

This spring, Mother Nature gave many growers across the Midwest small windows to plant soybean in April and early May. Planters got ahead of spray rigs, pre-emergent herbicides didn’t get out and boom, we are behind the 8-ball for weed control options. Those early planted soybean acres then decided to bloom in June which put applicators and farmers against the clock to get their post emergence herbicides on according to label. In the Midwest, it has rained for the past week and applicators have been challenged again to get into the field. Later planted soybeans will start to bloom over the next week and again put applicators and farmers running against
the clock to get their post emergent herbicides on consistent with label directions. If dicamba was applied post emergence, we can simply mark our calendar forward 14-21 days, cross our fingers and hope that the label changes, applicator training, and more recognition of the potential problems worked and we don't see any off-site injury.

Let's fast forward to now. The first official unofficial report of crop damage due to dicamba injury was reported by Dr. Bradley today "Dicamba Injured Crops and Plants Becoming More Evident: June 15th Update". We are also starting to see images and early reports of dicamba injury coming from the Mid-South and lower mid-western states. It would be irresponsible to make any wide sweeping claims of pending doom; however, if it does show up it would be even more irresponsible to not report it.

I have been told by many colleagues in both academia and industry that farmers across the country are gun shy to report any damage this season. The three main reasons given by growers are:

I am in a drought stricken area and if I report any damage I will be ineligible for crop insurance!

This is my neighbor, we are friends and I don't want the government involved. We can handle this between us.

We need this technology and I don't want to lose it!

As a farm kid myself, I fully understand all of the reasons mentioned above. However, we must all be cognizant that just because we don't report a problem doesn't make it go away. There are far too many recent examples of institutional non-reporting that have come back to severely damage the reputation of the non-reporting entity (MSU, Face Book, #MeToo, etc.). Our institution is agriculture! We battle misinformation on GMO’s, we battle misinformation on animal husbandry, and we constantly battle educating the other 99% on what we do. If 2018 turns out like 2017 we do not want to stick our heads in the sand and pretend a problem does not exit. If 2018 turns out to have minimal issues then FANTASTIC! Industry and academia should be lauded for their joint accomplishments. The best way to support agriculture and freedom to operate is through honesty and accurate self-reporting.

To read this post on their blog, click here.

---

**Application Window For Most Soybean Herbicides Coming Close To An End**

by Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist)

Excessive and constant rainfall through the season thus far across southern Wisconsin has challenged timely herbicide applications in our experimental plots. If not raining, the wind was often blowing or the soil was too wet to even backpack spray. After spending several years in Nebraska, I learned that one can't complain about rain, but come on! Still, we have managed to get most of our herbicide treatments out (thanks to a dedicated and hard-working research team that is literally not afraid of getting some mud on their boots!). So those out there waiting for the right opportunity to get the rig out and spray your soybean fields, I understand your pain.

Nonetheless, the soybeans keep on growing and if they haven’t already, soon they will start flowering (UW-Madison Agronomist Dr. Shawn Conley has observed the first flowers on his early-planted high-yield soybean plots at Arlington Ag Research Station this week). With the onset of flowering (R1 growth stage), comes the end of legal application window for several commonly used POST-emergence soybean herbicides such as Pursuit (Group 2), Liberty (Group 10) in Liberty Link soybeans, and Dicamba (Group 4) in Xtend Soybeans. Glyphosate (Group 9) in Roundup Ready soybeans, FirstRate (Group 2), and Cadet (Group 14) are examples of herbicides that can be sprayed up to full bloom (R2 growth stage).

If your soybeans are close to flowering but still have a ways to go until reach full canopy, adding a herbicide with soil residual activity to the POST program may be a viable strategy, particularly in fields with known water-hemp infestation or where small-seeded late-season weeds are still actively emerging. Assuming soybeans are passed the 3rd trifoliate (V3 growth stage), herbicide options with soil residual activity become Outlook (Group 15; up to V5 growth stage), Warrant (Group 15; up to R2 growth stage), and Warrant Ultra (Groups 15 + 14; up to R2 growth stage; see label for geographic restrictions).

Though the application window is getting shorter, wait for the right opportunity to spray and adjust herbicide program if necessary (don't spray under marginal conditions).

For assistance identifying soybean growth stages, see: "A Visual Guide to Soybean Growth Stages”.

For assistance with herbicide selection, see: “Pest
Wisconsin Winter Wheat Disease Update – June 26, 2018

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison; Brian Mueller, Assistant Field Researcher, Department of Plant Pathology, University of Wisconsin-Madison

The Wisconsin Field Crops Pathology crew has scouted and rated all winter wheat variety trials across the wheat-growing region of the state. We have also looked at commercial fields for disease in the region. In general leaf diseases will be of minimal impact this season. We have observed a little Septoria leaf blotch in some fields in the lower canopy. However, this pathogen will not limit yield this season, as it has not reached the flag leaf yet. We have also not observed any stripe rust this season. As I mentioned in previous posts, the winter was cold enough with minimal snow cover, which didn’t allow the stripe rust pathogen to overwinter in the region. Subsequent spread from the southern states north, was also not fast enough to reach the crop in Wisconsin to impact yield. If stripe rust does arrive this season, it will not impact yield. Leaf rust was observed at the Arlington (south-central Wisconsin) location. However, it was at very low incidence and severity and will likely not impact yield on most varieties in the state.

To read the rest of this update, click here.

Wisconsin UWEX Vegetable Crop Update Issue 12

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #12

- national late blight and cucurbit downy mildew updates
- discerning potato black dot and silver scurf
- Horticultural updates

Wisconsin Pest Bulletin, Issue No. 8, June 21

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 8 of the Wisconsin Pest Bulletin is now available at:


PLEASE NOTE: We dedicate this issue to the memory of Lee Lovett, who was involved in the Pest Bulletin as a surveyor, editor and overseer from the mid-1960s until his retirement in 2001. He continually worked to make it a better and more useful tool for growers. Lee died June 11 at age 78.

INSIDE THIS ISSUE

LOOKING AHEAD: Japanese beetles emerging in southern Wisconsin

FORAGES & GRAINS: Potato leafhopper nymphs appearing in alfalfa

CORN: European corn borer treatment window to close next week

SOYBEAN: Soybean aphid counts extremely low

FRUITS: First apple maggot flies likely to appear soon

VEGETABLES: Squash vine borer moth observed in Dane County

NURSERY & FOREST: An assortment of reports from recent inspections

DEGREE DAYS: Growing degree day accumulations as of June 20, 2018
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 16, 2018 through June 22, 2018.

The 6/22/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

SAVE THE DATE - Friday, July 27, 2018
Keeping Water in our Soil: Uplands Watershed Group Farm Tour and Farmer-Fisherman Lunch

9:20   Stapleton Grain, Hay, and Livestock Farm, a.m.  5952 County Rd Z, Spring Green

10:45  Cates Grass-fed Beef Farm, a.m.  5992 County Rd T, Spring Green

The farm tour will be followed by lunch at the Cates Farm, compliments of the Uplands Watershed Group.

Come discuss practices that are useful for your farm and that help water infiltrate into your soil. See no-till drilling, cover crops and managed pasture systems that conserve soil and nutrients. Look inside a soil pit and see in-field soil tests conducted. Then enjoy burgers, plus seafood caught by fishermen in the Gulf – whose challenges with nutrient build-up and biological die-off in the Gulf Dead Zone we seek to help through our conservation practices. Hear Gulf fisherman Lance Nacio explain why it matters.

For questions, contact Margaret Krome, Michael Fields Agricultural Institute (608) 283-1440, mkrome@sbcglobal.net or Gene Schriefer, Iowa County Extension 608-930-9850
According to our recent survey, waterhemp has become the most concerning weed species in Wisconsin row crop production. Glyphosate-resistant waterhemp has been confirmed in 25 counties, and PPO-resistant waterhemp has been confirmed in four.

To learn more about waterhemp management in soybean, join us for a tour of our challenge plots that showcase comparisons of 29 PRE-emergence soybean herbicides, the value of Group 15 herbicides sprayed POST-emergence in soybean, and a systems approach for weed control in Xtend soybean.

**WATERHEMP MANAGEMENT CHALLENGE**

**Plot Tour**

**Friday, July 13, 2018**

**Lancaster Ag Research Station**

7396 State Rd 35 & 81, Lancaster WI 53813

Registration, coffee and donuts at 8:30 am

**Tour starts at 9 am** (concludes by 11 am)

RSVPs (by July 10th please) and questions?

Contact Dan Smith,
Southwest Regional Specialist,
Nutrient and Pest Management Program,
dhsmith@wisc.edu
(608) 219-5170
The following research trials will be showcased: 1) Herbicide Programs in Corn, 2) Weed Management in Enlist Corn, 3) Impact of Carrier Rate on Efficacy of PRE-Emergence Corn and Soybean Herbicides, 4) Comparison of PRE-Emergence Herbicides for Weed Control in Soybean, and 5) Systems Approach for Weed Control in Balance Beans, Enlist, Liberty Link, and Xtend soybean.

WEED SCIENCE PLOT TOUR

Tuesday, July 17, 2018
UW Arlington Ag Research Station
Public Events Building, N695 Hopkins Rd, Arlington, WI
Registration, coffee and donuts at 8:30 am
Tour starts at 9 am (concludes by 11:45 am)

RSVPs (by July 13th please)
Contact Mindy Breunig or Kelly Tomko-Ewing,
phone (608-846-3761) or
e-mail: mindy.breunig@wisc.edu;
kтомko@wisc.edu

Questions related to the tour, contact Rodrigo Werle,
UW-Madison Extension
Cropping Systems Weed Scientist
phone (608) 262-7130 or
e-mail: rwerle@wisc.edu
Figure 1. Apothecia, small mushroom-like structures of the white mold fungus that give rise to spores, which infect soybean flowers. Note the small pale orange structures to the right of the dime.

This first week of July also brings us a heightened awareness of white mold in soybeans and its management. In 2017 we had one of the most epic white mold epidemics on record. Many high-yielding soybean fields in the state were slammed with white mold, resulting in some serious yield losses in many fields around Wisconsin. I have been asked many times this season, “Are we in for white mold as bad as 2017?” The short answer is no, I don’t think so.

Weather in 2017 was incredibly cool for the majority of the time. This had two effects which were responsible for the extreme white mold epidemic in 2017. First, soybeans moved extremely slow through each growth stage. This meant that the flowering window went on for about twice as long as normal for many of the varieties of soybeans we grow here in Wisconsin. This extended flowering period resulted in an extended period of time that soybeans were susceptible to infection. Remember that the white mold fungus infects soybeans through open and senescing flower, by spores that are born from small mushroom-like structures called apothecia (Fig. 1). This extended bloom period meant that the window of opportunity for the fungus was also extended. Couple this with the fact that those same cool conditions were also optimal for the fungus to infect and grow. It was a
double whammy in 2017.

In 2018, the season has already seen several instances of 2 or 3 day durations of high temperatures of 90F or above. This has done a couple of things. It has pushed the soybean crop very quickly this year. I estimate that the crop is about 2 weeks ahead of last season, in the southern and south-central region of Wisconsin. With continued stretches of warm weather in the forecast, I expect flowering duration to be closer to ‘normal’, or at least shorter than last season. This means the crop won’t be subjected to such a long period of susceptibility, compared to 2017. Furthermore, these stretches of high temperatures of 90F or above should make conditions somewhat less conducive for the fungus. With that said, we need to pay attention to weather as we have had plenty of rain and humidity, which can be favorable for white mold. So will we have white mold in Wisconsin in 2018? Yes. Will it be as significant as 2017? I hope not.

Figure 2. White mold predictions for rain-fed (non-irrigated) fields for June 30, 2018. Blue indicates low risk, yellow medium risk, and red indicates high risk of infection for flowering soybeans.

Predicting White Mold

The flowering growth stages are a critical time to manage white mold in-season. You can view a fact sheet and video on the subject. As you probably know, timing in-season fungicide sprays at the correct time during the soybean bloom period can be extremely difficult. To help solve this decision-making issue, models were developed at the University of Wisconsin-Madison in conjunction with Michigan State University and Iowa State University to identify at-risk regions which have been experiencing weather favorable for the development of white mold apothecia. These models predict when apothecia will be present in the field using combinations of 30-day averages of maximum temperature, relative humidity, and wind speed. Using virtually available weather data, predictions can be made in most soybean growing regions. In past years we have overlaid model outputs onto maps to achieve a landscape view of the current risk. An example of a current map for this season is in figure 2. You can see we have some areas of favorable weather for white mold risk. However, more precise predictions would help determine the site-specific risk. To facilitate more precise predictions, we have launched the Sporecaster smartphone application for Android and iPhone for the 2018 season.

The purpose of the app is to assist farmers in making early season management decisions for white mold in soybean. The best time to spray fungicides for white mold is during flowering (R1 and R3 growth stages) when apothecia are present on the soil surface.

Sporecaster uses university research to turn a few simple taps on a smartphone screen into an instant forecast of the risk of apothecia being present in a soybean field, which helps growers predict the best timing for white mold treatment during the flowering period.

University research has indicated that the appearance of apothecia can be predicted using weather data and a threshold of percent soybean canopy row closure in a field. Based on these predictions and crop phenology, site-specific risk values are generated for three scenarios (non-irrigated soybeans, soybeans planted on 15-row-spacing and irrigated, or soybeans planted on 30-row-spacing and irrigated). Though not specifically tested we would expect row-spacings of 22 inches or less to have a similar probability response to fungicide as the 15 inch row-spacing.

The Sclerotinia apothecial models that underlie the Sporecaster prediction tool have undergone significant validation in both small test plots and in commercial production fields. In 2017, efficacy trials were conducted at agricultural research stations in Iowa, Michigan, and Wisconsin to identify fungicide application programs and thresholds for model implementation. Additionally, apothecial scouting and disease monitoring were conducted in a total of 60 commercial farmer fields in Michigan, Nebraska, and Wisconsin between 2016 and 2017 to evaluate model accuracy across the growing region. Across all irrigated and non-irrigated locations predictions during the soybean flowering period (R1 to early R4 growth stages) were found to explain end-of-season disease observations with an accuracy of 81.8% using the established probability thresholds now programmed in the app.

Click here to download the Android version of Sporecaster.

Click here to download the iPhone version of Sporecaster.

Here is a helpful video if you would like some tips on how to use Sporecaster. If you would like some advice on how to interpret the output, we have created an addi-
tional short video on this subject.

What to Spray for White Mold?

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 evaluations by CLICKING HERE.

Some Other Resources

For some other ideas on how to manage white mold you can visit this recent article.

To find out how Xtend varieties respond against white mold, CLICK HERE.

To watch an in-depth video on white mold management, CLICK HERE.

References


Maintaining Soil Fertility is Important For Soil Health

Carrie Laboski, Professor and Extension Soil Fertility/Nutrient Management Specialist, UW-Madison

Maintaining soil fertility is important not only for profitable crop production, but also soil health. In a long-term P and K fertility trial, we can see that there is much greater residue cover in plots that have received adequate potash applications over time compared to where no K was applied. Application of P had minimal to no effect on residue cover. The effect of P and K application on residue cover is not surprising because it mimics yield response to applied nutrients. Even though soil test P levels are low in the unfertilized plots, there has been minimal yield increases to applied P in both corn and soybean over the years. In contrast, we have observed very large yield increases (30 bu/a soybean, 200 bu/a corn) with K application.

Residue cover protects the soil surface from crusting which subsequently reduces the potential for soil erosion. In the photos above, plots with poor K fertility have little residue cover, even though the previous crop was corn for grain. Surface crusting is apparent in these plots. Plots with adequate K fertility have more residue cover, protecting the soil particles from detaching and forming surface crusts. Surface crusting reduces water infiltration and can result in sheet erosion. Crusts can also reduce infiltration of surface applied liquid manure. Maintaining soil fertility and keeping soil in the field are key components of healthy soils.

For more information about the yield responses to P and K, watch this video.

To read this post on their blog, click here.
Pea Aphids: Where did they come from?

Bryan Jensen, Dept. of Entomology and IPM Program

After several calls this week along with my own observations it is clear that pea aphids populations in alfalfa fields are much higher than normal. In some cases, that is an understatement.

Why are their populations so high? Do I need to be concerned? The first question is the easy one. Given suitable environmental conditions, pea aphids populations can increase exponentially by themselves. Without help from anyone or anything. No surprise there and yet another reason to be frustrated with some of the unseasonably cool weather. There is an old adage that hard driving rain can wash aphids off the plant. The important word to ponder in that sentence is “can”. Although driving rains can, they certainly have not in most cases this year.

Another commonality for some of the high aphid populations (but not all) has been the an earlier use of an insecticide. Most of our insecticides are broad spectrum and will kill beneficial insects. Their populations will not rebound as quickly as aphids. Therefore, high pea population can result. I have seen that happen several times in small research trials as well as in normal field situations. Combine the lack of beneficial insects along with weather that is conducive to aphids and you can make matters worse. Don't get me wrong. When you are over threshold you need to do something. But throwing an insecticide in because it is inexpensive or because you think you might need it can create problems on down the road.

Now to discuss the difficult question. Do I need to be concerned? The easy answer is maybe. Pea aphids are considered an occasional pest and have a long established threshold of 100/sweep. Some of the consultants indicated that fields are to be cut soon so their current problem will solve itself. Cutting an established alfalfa stands leaves almost no green alfalfa tissue which aphids need to survive. Therefore, a significant majority of aphids will be killed. Cutting essentially resets the biological clock for that field. The lack of food along with the predicted hot and dry weather would make me think there would be few worries in the next cutting. But it is anyone's guess if the cool weather trend continues???. Also, keep in mind if that alfalfa is to be used in a dairy ration that clock reset every 30+ days.

Based on past experience, I personally think that the established threshold of 100 aphids/sweep is on the conservative side. If that alfalfa field has other stresses (diseases, drought, etc.) then use the established thresh-

old. However, under good growing conditions with few, if any stresses, I think that threshold could be raised without economic loss for either yield or quality.

A bigger concern right now is new seedings. Fortunately, some of the new seeds are being cut now. But unfor-

stubble that can support pea aphids (and potato leafhoppers). This is where the hot temperatures can come into play and keep the aphid populations in check. But perhaps drive the potato leafhopper populations up. Again, that is all dependent on weather. Sweep to be sure.

“Ball” of pea aphids and other insects

Green and rose color pea aphids and immature lady-bird beetle with a “happy meal”
Fusarium Head Blight: What To Do As You Prepare For Wheat Harvest

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison; Shawn P. Conley, Extension Soybean and Small Grains Agronomist, University of Wisconsin-Madison

Figure 1. FHB on some wheat heads. Note the bleached and reddened appearance of infected kernels.

Fusarium head blight (FHB) or scab has been observed in some Wisconsin winter wheat fields this season. Incidence and severity have been variable this season, based on location and susceptibility of the wheat variety. Generally, we have observed more FHB in the southern wheat growing areas of the state, with less FHB as we moved north and east. Visit my previous post for a full report. It is important to scout your maturing wheat crop and consider how much damage from FHB might be in a field as you prepare for harvest. While FHB can cause direct yield loss, the fungus that causes this disease can also produce deoxynivalenol (also known as DON or vomitoxin). Assessing wheat fields now can assist you in determining how much vomitoxin might be expected at harvest. However, it is possible to find high levels of vomitoxin in finished grain, even if FHB levels were low.

Figure 2. Bleached heads caused by Fusarium head blight of winter wheat

What does scab look like? Diseased spikelets on an infected grain head die and bleach prematurely (Fig. 2). Healthy spikelets on the same head retain their normal green color. Over time, premature bleaching of spikelets may progress throughout the entire grain head. If infections occur on the stem immediately below the head, the entire head may die. As symptoms progress, developing grains are colonized causing them to shrink and wrinkle. Often, infected kernels have a rough, sunken appearance, and range in color from pink or soft gray, to light brown. As wheat dries down, visual inspection of heads for scab will become more difficult.

Why is identifying scab important? Scab identification is important, not only because it reduces yield, but also because it reduces the quality and feeding value of grain. In addition, the FHB fungus may produce mycotoxins, including DON or vomitoxin, that when ingested, can adversely affect livestock and human health. The U.S. Food and Drug Administration has set maximum allowable levels of DON in feed for various animal systems, these are as follows: beef and feedlot cattle and poultry < 10ppm; Swine and all other animals < 5ppm.

What should I do to prepare for wheat harvest?

1. Scout your fields now to assess risk. Wheat is maturing rapidly. As maturity progresses it will be increasingly difficult to assess the incidence and severity of the infection. Understanding a field’s risk will help growers either field blend or avoid highly infected areas so entire loads are not rejected.

2. DO NOT spray fungicide now. Research has demonstrated that the window of opportunity to manage FHB with fungicides is at the beginning of anthesis and only lasts about 7 days. Applications later than 7 days after the start of anthesis are not effective in controlling FHB. In addition, most fungicide labels do not allow a pre-harvest interval (PHI) suitable for a late application on wheat. Any application now would be off-label.

3. Adjust combine settings to blow out lighter seeds and chaff. Salgado et al. 2011 indicated that adjusting a combine’s fan speed between 1,375 and 1,475 rpms and shutter opening to 90 mm (3.5 inches) resulted in the lowest discounts that would have been received at the elevator due to low test weight, % damaged kernels, and level of the mycotoxin deoxynivalenol (DON; vomitoxin) present in the harvested grain.

4. Know your elevators inspection and dockage procedure (each elevator can have a different procedure).
5. Scabby kernels does not necessarily mean high DON levels and vice versa. For example, in a 2014 fungicide evaluation very low visible levels of FHB were observed for all treatments. However, when the finished grain was tested for DON, significant levels were identified for all treatments. Be sure to test and know what levels of DON are in your grain even if you didn’t see a high level of visible disease. Also, don’t assume that because a fungicide was used, there will be no DON.

6. DON can be present in the straw so there is concern regarding feeding or using scab infected wheat straw. DO NOT use straw for bedding or feed from fields with high levels of scab (Cowger and Arellano, 2013). If in doubt, have the straw tested for DON levels.

7. Do not save seed from a scab-infected field. Fusarium graminearum can be transmitted via seed. Infected seeds will have decreased growth and tillering capacity as well as increased risk for winterkill.

8. Do not store grain from fields with high levels of scab. DON and other mycotoxins can continue to increase in stored grain.

9. Harvest in a timely fashion to minimize elevator discounts and balance dockage due to FHB. Click here to read about some recent research on optimizing harvest timing in winter wheat.

10. For more information on Fusarium head blight click here.

References


To read this article on their blog, click here.

Wisconsin Pest Bulletin, Issue No. 9, June 28

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 9 of the Wisconsin Pest Bulletin is now available at: https://datcpservices.wisconsin.gov/pb/pdf/06-28-18.pdf

Inside This Issue

Looking Ahead: Spotted wing drosophila populations surging

Forages & Grains: Potato leafhopper counts below-threshold in alfalfa

Corn: Annual western bean cutworm flight underway

Soybean: Surveys continue to find very soybean aphid counts

Fruits: Apple maggot flies appearing on sticky traps

Growing Winter Wheat Profitably Event

UW-Extension will host a ‘Growing Winter Wheat Profitably’ at the Public Events Building of the Arlington Research Station on July 9 from 10am until 2pm.
VEGETABLES: Four-lined plant bugs causing problems for gardeners

NURSERY & FOREST: Ribes anthracnose and rose chafer found in WI nurseries this week

DEGREE DAYS: Growing degree day accumulations as of June 27, 2018

---

Wisconsin Fruit News- Volume 3, Issue 6

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/y70yf3

This week in the WI Fruit News you can read about:

- Rain and insecticide applications
- New fruit team publications, and updates to website
- Insect Diagnostic Lab update
- Plant Disease Diagnostic Clinic update
- Japanese beetle emergence has begun!
- Cranberry plant and pest degree-days: June 27, 2018
- Post bloom fruit-zone leaf removal. Now is the time!
- A reason to start spraying fungicides early in the season
- Grape variety developmental stages: June 28, 2018
- Grape insect scouting report – Japanese beetle season begins
- Section 24(c) Special Local Needs label for Mustang Maxx
- Return bloom in apples

---

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update June 29

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 23, 2018 through June 29, 2018.

The 6/29/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

**AGRONOMY/SOILS FIELD DAY**

**Wednesday, August 22, 2018**

**UW-Arlington Agricultural Research Station**

---

**PROGRAM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Registration ($0), coffee</td>
</tr>
<tr>
<td>8:30</td>
<td><strong>Tour</strong> Soil Fertility &amp; Management, Grain Production Systems, Interseeding in Grain &amp; Forage Systems</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Tour</strong> Soil Fertility &amp; Management, Grain Production Systems, Pest Management</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch Speaker: Dan Veroff, Wisconsin Population &amp; Demographic Megatrends: Implications for Agriculture &amp; Farming</td>
</tr>
<tr>
<td>1:00</td>
<td><strong>Tour</strong> Pest Management, Interseeding in Grain &amp; Forage Systems, Equipment Rodeo</td>
</tr>
<tr>
<td>2:45</td>
<td>Have a safe trip home!</td>
</tr>
</tbody>
</table>

---

**TOURS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td><strong>Soil Fertility &amp; Management</strong></td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Soil Fertility &amp; Management</strong></td>
</tr>
<tr>
<td>8:30</td>
<td><strong>Grain Production Systems</strong></td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Grain Production Systems</strong></td>
</tr>
<tr>
<td>8:30</td>
<td><strong>Pest Management</strong></td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Pest Management</strong></td>
</tr>
<tr>
<td>8:30</td>
<td><strong>Interseeding in Grain &amp; Forage Systems</strong></td>
</tr>
<tr>
<td>1:00</td>
<td><strong>Interseeding in Grain &amp; Forage Systems</strong></td>
</tr>
<tr>
<td>1:00</td>
<td><strong>Equipment Rodeo</strong></td>
</tr>
</tbody>
</table>

---

**The Arlington ARS is located on Hwy. 51, about 5 miles south of Arlington and 15 miles north of Madison. Watch for Field Day signs. GPS coordinates: 43.300467, -89.345534**

In the event of rain, presentations will be held inside. For more information contact the Arlington Ag Research Station at 608-846-3761 ext 101.

---

To help us organize a successful event, if you are considering attending please complete a RSVP at [https://go.wisc.edu/uwtu24](https://go.wisc.edu/uwtu24)

Thanks!

---

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](mailto: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.

---

Visit exhibits between tours and during lunch:

- UW Soil & Forage Analysis Lab, SnapPlus, Nutrient & Pest Management Program and more!

Certified Crop Advisors

7.5 CEU credits requested
Learn management strategies, such as variety selection, managing stands, and marketing your crop, so you can put wheat back into your rotation and make money! Also learn how wheat can increase profitability of your other crops and improve soil health.

**July 9th—10am—2pm**

**Arlington Research Station—Public Events Building**

**Cost:** $15 *(includes lunch and refreshments)*

Register online: [https://fyi.uwex.edu/danecountyag/events/wheat](https://fyi.uwex.edu/danecountyag/events/wheat)

phone: 608-224-3704

e-mail: nunez.barabara@countyofdane.com

**Topics & Presenters:**

- **“Choosing Successful Winter Wheat Varieties, Staging Wheat and Fertility Management”**
  
  *Shawn Conley, UW Soybean and Small Grain Specialist*

- **“Winter Wheat Diseases and Fungicide Selection and Timing”**
  
  *Damon Smith, UW Field Crops Plant Pathologist*

- **“Using Winter Wheat and Cover Crops in Your rotation to Improve Your Soil”** -
  
  *Jamie Patton, Outreach Specialist for the Nutrient and Pest Management Program*

- **“Marketing Winter Wheat to Maximize Profits”**
  
  *Brenda Oft, Commodity Broker and Farm Market Consultant for Midwest Market Management*

- **“Introducing Winter Wheat Into a Rotation to Increase Rotational Profitability”**
  
  *Heidi Johnson, Dane County UW-Extension Crops and Soils Agent and*  
  
  *Jeff Gaska, Dodge County Farmer*
At the beginning of July, the weather finally became conducive for POST-emergence herbicide applications in southern Wisconsin, including for dicamba application in Xtend (dicamba-tolerant) soybeans. Typically, injury from micro-rates of dicamba (via tank-contamination, particle and/or vapor drift) in susceptible crops tends to show at 10-14 days after the incident (see: Soybean Injury From Dicamba A4161). Driving around the southern part of Wisconsin this past week, I have noticed a couple instances of dicamba injury in soybeans (I estimate less than 15 total injured acres).

Non-Xtend soybeans injured by dicamba in south-central Wisconsin.

Last year, Dr. Kevin Bradley, Professor and State Extension Weed Scientist with the University of Missouri, kept track of the estimates of dicamba-injured soybean acreage across the United States (see: A Final Report on Dicamba-Injured Soybean Acres). This year, EPA (Environmental Protection Agency) and others have requested Dr. Bradley to continue the effort.

Dr. Bradley is in communication with the State Departments of Agriculture regarding official complaints but is also attempting to track dicamba-injured acres that are not being officially reported. Thus, if you have noticed dicamba injury in your soybeans and/or other susceptible crops in Wisconsin, regardless on whether an official
The resultant SBM value will thus vary and can potentially affect the per bushel price offered locally, regionally, and nationally each year.

To Spray or Not to Spray Fungicide on Corn for Grain or Silage?

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

Treating field corn, for grain, with fungicide has become a common practice in the Midwest. With so many fungicide programs and formulations, and the re-emergence of yield-limiting corn diseases, like northern corn leaf blight (NCLB) and gray leaf spot (GLS), foliar fungicide application has demonstrated an ability to reduce foliar disease severity and increase grain yield under some circumstances.

How do I know if disease is active at the time I want to spray? While I hate talking about threshold levels for managing disease, it can be helpful in your decision making process to know what might be severe. While scouting look in the lower portion of the canopy… (read more)

It’s Time to Check for Corn Rootworm Damage

Bryan Jensen, UW Extension, UW-Madison Integrated Pest Management Program

The next 2-3 weeks will be a good time to start spot-check continuous corn fields for corn rootworm feeding injury. Peak damage will usually occur by late July. Waiting longer increases the risk of regenerated roots masking injury.

Mid to late July in Wisconsin is the time you can validate your corn rootworm management decisions by checking for root damage. This is the time period just after feeding damage would have occurred, and just before regrowth would start to mask the damage.

Some growers have elected to change their rootworm control practices because of low corn prices and very low beetle populations. Digging and rating roots for injury
during this time period can confirm efficacy and hopefully relieving anxiety questioning if the made the correct choice. Evaluating roots will also give you a heads up on any Bt resistance problems you may have.

Short field video about digging for corn rootworm CRW damage:

Dig a 6-7 inch ball of roots and pressure wash all the soil off to expose damage. To quantify root damage use the Nodal Injury Scale developed by J. Oleson, Y. Park, T. Nowatzki and J. Tollefson at Iowa State University. This is an excellent rating system. More information is available at http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html. Essentially, the injury scale uses a decimal system. The number to the left of the decimal indicates the number of complete nodes (or equivalent number of nodes) of roots pruned back to within 1 ½ of the stalk. The number to the right of the decimal indicates the % of the next node of roots pruned. A root rating of 1.2 indicates the equivalent on one complete nodes of roots is pruned and 20% of the next.

Video on root damage scoring:

Relating injury to yield loss can be difficult because of several variables which include, weather, hybrid, etc. Typically, a field rating of greater than 0.75 indicates economic yields loss. Ratings less than 0.25 will probably not have economic loss. Injury between 0.25 and 0.75 is a gray area. Economic loss will be dependent on the factors mentioned above as well as compaction, general plant health and future environmental conditions.

Surveying roots on first year corn will give you information regarding the prevalence and/or severity of damage from the rotation resistant western corn rootworm. Although damage to first year corn was originally diagnosed in Wisconsin during the 2002 growing season, its incidence has diminished. Also, there have been no reports of first year corn injury outside of southern Wisconsin. As we stress the need to revive IPM practices for corn rootworm, this information can give corn growers and crop consultants information needed to make an informed decision in rotated corn.

One of the first tools needed for resistance management is documentation. Making a practice of evaluating roots from Bt CRW hybrids will give you the information needed to make appropriate management decisions that will help delay resistance. It is unlikely we can “turn the clock back” on resistance to individual Bt CRW proteins so early detection will be important. Resistance could be expected if you have a field average NIS of 1.0 and you have been using a single Bt toxin for two consecutive years or more. Or, if a field average, NIS rating of 0.5 or higher is noticed in a field that has used a pyramid Bt CRW toxin for at least two consecutive years. If resistance is expected, please contact your county extension agent as well as your seed dealer.

A frequently asked question I get is how reliable is lodging as a predictor of larval feeding?

The short answer is that corn lodging is a very poor indicator of rootworm damage. Corn can lodge because of several causes. Rootworm feeding can be a reason but you still have to dig/wash roots to verify. Incidentally, you may have corn that is standing straight yet have significant rootworm feeding.

**Gear Up: Western Bean Cutworm**

Bryan Jensen, UW Extension, UW-Madison Integrated Pest Management Program

It is that time of the year to start thinking, if not scouting for Western bean cutworm. Degree days suggest the moth flight is underway, although not peaking, in southern Wisconsin. Female moths will seek late vegetative corn or corn in the early stages of pollination. Eggs are laid in clusters each having several eggs/mass. After hatch larvae will disperse w/in and across rows and will begin to feed on corn pollen or move down to silks when available. Larvae will enter at the ear tip and feed on
developing kernels causing direct yield loss and perhaps create a site for ear molds to grow on damaged kernels.

Scout fields for eggs and larvae by monitoring a minimum of 20 consecutive plants in each of 5 locations. However, larvae will be difficult to find because of their small size. Because of the long adult flight period several visits per field may be necessary. Eggs are typically laid on the upper leaf surface and on leaves in the top 1/3 of the plant. If scouting on sunny days, the egg mass can be easier to spot because of the shadow it creates on the leaf when backlit by the sun. After hatching larvae will consume their egg shell making them difficult to spot.

When eggs are first deposited they are white and eventually turn a dark purple color just prior to hatch. Treatment is suggested when approximately 5% of the plants have an egg mass. Keep in mind the flight period is extended and you should try to time the foliar insecticide for first egg hatch. Our foliar insecticides will not kill eggs nor will they kill larvae which have entered the ear.

For field-specific predictions, we encourage you to use the Sporecaster smartphone application. These predictions will be most accurate for your specific location. Information about Sporecaster and how to download can be found by clicking here. Sporecaster takes into account crop phenology, in addition to weather parameters, to make field-specific recommendations. The maps below are based on weather only and you must determine if your crop is currently phenologically at risk for infection. For more information on white mold and how to manage it, see my previous post.**

---

**True Armyworms**

Bryan Jensen, UW Extension, UW-Madison Integrated Pest Management Program

No worries just yet. More of a feeling than anything else. Based on a few calls and emails, be on the lookout for armyworms. The summer generation can be cryptic. Corn is tall and unless you are actively scouting populations can “magically appear.” Wheat is not out of the woods until combined and oats could be an excellent habitat for the summer generation. Throw pastures on the list as well.

Based on your location in Wisconsin, you may be at the tail end of the spring generation or starting the summer generation now. Infested fields are hard to predict so spot checking all fields is a good idea especially if you have grassy weeds that have escaped control.

Armyworm larvae have tan heads with a net-like pattern of lines, yellow belly, faint orange stripes on sides and darker striping on back. The intensity of striping can vary from those which are faint to those which are so dark colored that lines are not easily visible. Base your identification by looking at several individuals.

Economic thresholds and guidelines for corn is to treat when either 75% of the plants have one armyworm/plant or 25% of the plants have two or more larvae AND
the larvae are 1 inch or less in length. Treating in small grains is suggested if there are 3 or more armyworm/sq ft. But be careful of head clipping.

**Two-spotted Spider Mites**

Bryan Jensen, UW Extension, UW-Madison Integrated Pest Management Program

Some may think this article should fall in the category of “sleeping with the light on” but I am not so sure. We’ve had some relatively hot dry weather lately and I think spot checking for spider mites would be a good practice in the very near future if not now. Spider mites are not something you want to miss because populations can be hard to control once they get out of hand. Especially if dry weather continues.

Places I would concentrate scouting efforts on would be field areas where there are obvious symptoms of drought stress including sandy knolls as well as field edges. Look for plant symptoms called stippling and/or spider mites themselves. Although spider mites are hard to see use magnification (10X) and look on the undersides of leaves. Also, hold a white sheet of paper under leaves and tap leaves to dislodge the mites on to the white sheet of paper.

**True Armyworms Continued**

Bryan Jensen, UW Extension, UW-Madison Integrated Pest Management Program

Just the name “armyworms” conjures up images of defoliated corn fields. Well, this summer they are living up to their names in isolated fields. To be sure, there has been a range of damage from the curiosity, to economic damage to near complete defoliation.

Armyworm do not overwinter in Wisconsin. Migrating adults usually arrive early spring and this migration is usually not a single event but rather a sequence of arrivals over a period of time. Armyworm larvae have tan head yellow belly with faint orange stripes on their sides and darker striping on the sides and back. Overall color intensity may range from individuals which may have faint coloration to those which are extremely dark colored.

Right now we appear to be in the middle to end of the second generation which is sometimes called the summer generation. Some references suggest the possibility of a third generation but I think that is doubtful for Wisconsin.

Typically, armyworms are attracted to grassy areas to lay eggs and this may explain some of the infestations. However, it doesn't explain all of them. Wheat and other small grains are at risk until harvest. Before considering an insecticide application look at the PHI to make sure that the insecticide fits with your harvest plans. Many if not most insecticides have along PHI which may prevent timely harvest. Pastures should also be monitored. If larvae run out of a food source they can move to adjacent crops and/or lawns. They may also move from adjacent marshes into fields.

Feeding in corn fields above the ear zone is particularly of economic concern. If you find signs of armyworm feeding, check five sets of 20 plants at random. Record the number of damaged plants and the number of worms per plant. Spot treat, if possible, when you find two or more armyworms (0.75-1.0 inch or smaller) per plant on 25% of the plants or one per plant on 75% of the plants. When making a treatment decision think about damage you can prevent. Don't focus on how much damage is currently there. Large larvae will be feeding for a much shorter period of time. However, from taken at Feekes 11.1 (kernel milky ripe).

To view the results of the Hybrid Winter Rye Forage Trial, click here.

**Hybrid Winter Rye Forage Trial Results – 2018**

Shawn P. Conley, Extension Soybean and Small Grains Agronomist, University of Wisconsin-Madison

A research trial was established in the fall of 2017 at the Arlington Agricultural Research Station, Arlington, WI to help determine the value of hybrid winter rye as a forage. Three hybrid winter rye varieties were tested along with one winter triticale variety. The first cutting was taken at Feekes 10.1 (head emergence), and a second cutting was
the reports and pictures I have received many fields had a range of different sized larvae making control decisions more difficult. Do not assume corn planted with an above ground Bt trait(s) will not have damage. Traits packages vary in their insect control spectrum and may not provide adequate control under heavy infestations.

For specific insecticide recommendations please consult A3646, Pest Management in Wisconsin Field Crops.

Wisconsin UWEX Vegetable Crop Update Issue 14

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #14

• PDay and DSV disease risk for potato early and late blight
• Late blight and early blight updates for WI and nation
• cucurbit downy mildew national updates
• horticultural updates
• agenda for the Jul 26 2018 Potato Virus Detection Field Workshop in Antigo (also attached with plot maps)

Wisconsin Fruit News – Volume 3, Issue 7

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/9ag6yw

This week in the Wisconsin Fruit Newsletter you can read about:

• Insect Diagnostic Lab update
• Plant Disease Diagnostic Clinic update
• White grubs: pests of strawberry roots and foliage
• Cornell’s online diagnostic tool for berry crops
• Cranberry plant and pest degree-days: July 11, 2018
• Tissue analysis to determine nutrient status of cold-hardy wine grapes
• Grape variety developmental stages: July 12, 2018
• Grape insect scouting report — Japanese beetles and phylloxera are picking up
• High temperatures and mites in apple
• First apple maggot adult emergence reported

Wisconsin Pest Bulletin, Issue No. 10, July 5

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 10 of the Wisconsin Pest Bulletin is now available at:


INSIDE THIS ISSUE

LOOKING AHEAD: Western bean cutworm flight off to a slow start

FORAGES & GRAINS: Potato leafhopper counts still below-threshold

CORN: Corn rootworm beetle emergence beginning in southwestern Wisconsin

SOYBEAN: Soybean aphid counts remain very low in surveyed fields

FRUITS: Apple maggot fly emergence continued for second week

VEGETABLES: Scouting advised for squash bug adults and nymph

NURSERY & FOREST: Hemlock twig rust and pear blister mite reports

DEGREE DAYS: Growing degree day accumulations as of July 4, 2018

Wisconsin Pest Bulletin, Issue No. 11, July 12

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection
Volume 63 Issue No. 11 of the Wisconsin Pest Bulletin is now available at:

INSIDE THIS ISSUE

LOOKING AHEAD: Spotted wing drosophila larvae infesting berries

FORAGES & GRAINS: Pea aphid counts variable this week

CORN: Very few western bean cutworm moths trapped so far

SOYBEAN: Japanese beetles prevalent in the state’s soybeans

FRUITS: Apple maggot fly emergence well underway in orchards

VEGETABLES: Potato late blight risk thresholds surpassed in central Wisconsin

NURSERY & FOREST: Assorted reports from recent nursery inspections

DEGREE DAYS: Growing degree day accumulations as of July 11, 2018

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update July 13

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 July 7, 2018 through July 13, 2018.

The 7/13/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update July 6

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 30, 2018 through July 6, 2018.

The 7/6/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

Follow us
2018 Wisconsin Winter Wheat Performance Trials
Shawn P. Conley, Extension Soybean and Small Grains Agronomist, University of Wisconsin-Madison; Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison
The Wisconsin Winter Wheat Performance Trials are conducted each year to give growers information to select the best-performing varieties that will satisfy their specific goals. The performance trials are conducted each year at four locations in Wisconsin: Arlington, Chilton, Fond du Lac and Sharon. Trials include released varieties, experimental lines from University breeding programs and lines from private seed companies. The primary objective of these trials is to quantify how varieties perform at different locations and across years. Growers can use this data to help select which varieties to plant; breeders can use performance data to determine whether to release a new variety.

To view the Wisconsin Winter Wheat Performance Trials Publication, click here.

Soybean Flowering Fallacy
Shawn P. Conley, Extension Soybean and Small Grains Agronomist, University of Wisconsin-Madison
In a bean pod…
- There is an old rule-of-thumb that soybean does not flower until after the summer solstice — the longest day of the year occurring on June 21st in the Northern Hemisphere — yet many of us have seen soybean flower much earlier.
- Early planted soybean experience shorter days before June 21st, so floral induction and the subsequent appearance of flowers may occur ahead of the summer solstice.
- Soybean management decisions depend on proper identification of reproductive stage R1 (1st flower), which means relying on scouting to observe flowers, not calendar date.

To read this full article, click here.
Wisconsin White Mold Risk Maps – July 29, 2018

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

**These maps are for guidance only and should be used with other sources of information and professional advice when determining risk of white mold development. For field-specific predictions, we encourage you to use the Sporecaster smartphone application. These predictions will be most accurate for your specific location. Information about Sporecaster and how to download can be found by clicking here. Sporecaster takes into account crop phenology, in addition to weather parameters, to make field-specific recommendations. The maps below are based on weather only and you must determine if your crop is currently phenologically at risk for infection. For more information on white mold and how to manage it, see my previous post.**

Map Legends: No color = model is inactive and risk of apothecia in the field is not likely; Gray = apothecia might be present, but likelihood of apothecial presence is extremely low; Blue = low risk of apothecia; Yellow = medium risk of apothecia in the field; Red = high risk of apothecia in the field. Model predictions must be combined with soybean growth stage and canopy characteristics to aid in timing of fungicide sprays.

Cooler, dry weather has changed the white mold risk map over the last several weeks for non-irrigated (dry-land or rain-fed) soybean fields (Figure 1). Cool weather has generated some areas of high risk in the southwest, western, and north-central regions of the state. However, the dry conditions have dissipated much of the moderate and low risk areas that showed several weeks ago. Risk in general is much more spotty than it has been. The soybean crop is also moving through growth stages much more rapidly than in 2017. Thus, the risk window for infection by the white mold fungus will end soon. Remember that once the crop has finished flowering risk of new infections is low to non-existent. In addition, late applications (R4 and later growth stages) of fungicide will not be needed for white mold control.

Figure 2. White Mold Risk Map for irrigated fields planted on 15-inch row-spacing – July 29, 2018

Risk remains high across much of the state for irrigated soybeans planted to 15-inch rows (Figure 2). Risk is starting to dissipate in areas in the east-central region, due to dryer conditions. However, a fungicide application should be considered if irrigating and soybeans are flowering and planted to a 15-inch row-spacing. Note that if you have irrigation in your field but are not actually irrigating, you should be using the non-irrigated model above to make an accurate prediction of white mold risk.

Figure 3. White Mold Risk Map for irrigated fields planted on 30-inch row-spacing – July 29, 2018

**These maps are for guidance only and should be used with other sources of information and professional advice when determining risk of white mold development. For field-specific predictions, we encourage you to use the Sporecaster smartphone application. These predictions will be most accurate for your specific location. Information about Sporecaster and how to download can be found by clicking here. Sporecaster takes into account crop phenology, in addition to weather parameters, to make field-specific recommendations. The maps below are based on weather only and you must determine if your crop is currently phenologically at risk for infection. For more information on white mold and how to manage it, see my previous post.**
Risk of white mold in irrigated fields planted to 30-inch row-spacing has decreased a bit in some areas, since the last post (Figure 3). However, much of the state is at risk if irrigating on 30-inch spaced soybeans. In these areas, a fungicide application should be considered if soybeans are being irrigated, canopy is nearly closed, and flowers are present. Note that if you have irrigation in your field but are not actually irrigating, you should be using the non-irrigated model above to make an accurate prediction of white mold risk.

These models were developed at the University of Wisconsin-Madison in conjunction with Michigan State University and Iowa State University to identify at-risk regions which have been experiencing weather favorable for the development of white mold fungus apothecia. Weather information and maps are provided by the Soybean Integrated Pest Information Platform for Extension and Education (iPIPE), which is managed by ZedX, Inc. These models predict when apothecia will be present in the field using combinations of 30-day averages of maximum temperature, relative humidity, and maximum wind speed. Using virtually available weather data, predictions can be made in most soybean growing regions. Based on these predictions, a map is generated under three scenarios (non-irrigated soybeans, soybeans planted on 15-inch-row-spacing and irrigated, or soybeans planted on 30-inch row-spacing and irrigated). The maps are colored to show the likelihood of apothecial presence within a region. If the model is predicting high risk (red) in your area for your planting scenario, the soybeans are flowering, and the canopy is somewhat closed, then the white mold risk is high. If your fields are at-risk, we recommend to consult your local extension personnel or other research-based resources for the best in-season management options for your area.

Pollinator Habitat Planning Workshop for Farmers and Landowners

Mark Renz, Associate Professor and Extension Specialist
University of Wisconsin Madison

Interested in pollinator plantings for a client or your own farm? If so consider attending one of two workshops being held in August in Dane county (August 14th Edgerton, August 30th Cooksville). Presented by Friends of Silverwood Park, they will be taught by the Xerces Society in conjunction with NRCS and UW Extension. Trainings will offer a crash course in the basics of pollinator identification, biology, and habitat requirements as well as best management practices for establishment. Technical resources will be provided to participants to aid in establishment as well as an afternoon field session where participants can learn from experiences of landowners who have recently planted pollinator habitat. A registration fee of $50 will cover lunch and technical guides/resources. Scholarships are available to reduce registration costs. Farmers/landowners should contact Emily Halapatz (registration@silverwoodpark.org or 608.241-9744) and educators can apply through Wisconsin NCSARE program (Diane Mayerfield: dbmayerfeld@wisc.edu).

Registration is available online for Edgerton (8/14) and Cooksville (8/30) or by contacting Emily Halapatz (registration@silverwoodpark.org or 608.241-9744).

*For more information on this, see the file attached at the end of this pdf.

Cover Crops Following Wheat and Other Short Season Crops in Wisconsin: Selection and Management Guidelines

Kevin Shelley, UWEX Nutrient and Pest Management Program

A new cover crops publication is available from the University of Wisconsin-Madison Nutrient and Pest Management Program (NPM). The short 4-page paper discusses the pros and cons of several species that can be used as cover crops and annual forage crops when planted following wheat or other short season crops mid-July through mid-August. Practical objective-based management and selection guidelines, based on university research trials and multiple years of on-farm collaboration, are provided for several legume, cereal grain and brassica species as well as insights on some mixtures. Following harvest of winter wheat or other short season crops, if not planted to alfalfa, fields in Wisconsin are often left fallow. However, with more than 40 percent of the growing season remaining, planting a cover crop may be a good option. Many farmers are looking to cover crops to keep the soil covered, suppress some of the weeds that may otherwise grow, recycle and/or fix nutrients and improve soil condition with additional roots and organic matter. Producing supplemental forages,
managing nutrient budgets and meeting conservation requirements are other objectives for which cover crops can provide value. Thanks to reviewers Dan Undersander, Mike Ballweg, Eric Birschbach and Jim Stute for their contributions. The 4-page publication is available for free download at http://ipcm.wisc.edu/download/pubsNM/2018_CoverCropRec_final.pdf

Corn Rootworm Beetle Scouting

Bryan Jensen, Department of Entomology and IPM Program

We are soon to be in that time period where female corn rootworm beetles will be laying the majority of their eggs. Scouting for adults during this time period can give us great insight regarding the potential for damage in continuous corn. Adult emergence occurs over a long period of time. Although some beetles have already emerged, more are yet to come. Once emerged, the adults need time to find a mate and for those eggs to mature. Typically, we target mid-August to early September as being that time period where our adult beetle scouting efforts are the best predictor of larval damage.

Here is a dilemma. Corn rootworm adult populations have been very low the past three years. Although it is early to tell for 2018, the latest issue of DATCP’s Pest Survey Bulletin shows this trend is continuing. Furthermore, corn prices are very low as are profit margins. If a grower can’t rotate to a non-host crop next year beetle scouting during the egg laying period can give us a lot of direction (and confidence!) in choosing cost effective methods to control larval feeding.

Scouting for corn rootworm beetles, in my opinion, needs to be thorough and done according to established guidelines. It is a commitment. Spot-checking occasional fields and/or field edges leaves a lot to be desired because of the potential for a wrong recommendation. However, if done according to these guidelines there is an upside which includes considerable rootworm management cost savings.

The long established economic threshold is if you have an average of 0.75 beetles/plant during the egg laying period a control method needs to be used in continuous corn. If you are over the threshold on the first scouting visit you could stop scouting that field and be satisfied with a recommendation that control will be needed. I do think that because of the range of control costs a second scouting visit 7-10 days later will provide additional useful information that will help select a more cost effective control method. Beetles are mobile and can readily move around the landscape. That second visit will give additional confidence and reduce anxiety. For that same reason if you are under threshold during the first visit, a second visit would be required to make sure beetles have not moved into that field.

There are several resources listed below which can help describe or demonstrate rootworm scouting methods. In a nutshell. Scout during the egg laying period (mid-August to early-September). Count the number of adults on a total of 50 plants in 10 areas of the field. When approaching a plant cover the silks with one hand to trap those beetles before counting the adults on the rest of the plant. When finished remove your hand from the silk and count those additional beetles. Walk several feet down the row before counting adults on the second plant. Adults will fly or drop off the plant when disturbed.

Corn Rootworm Beetle Scouting
Corn Rootworm: How to Validate Your Management Decision (Video)
How to Scout for Rootworm Beetles (Video)

Soybean Insect Update

Bryan Jensen, Dept. of Entomology and IPM Program

So far this summer, soybean insects have been relatively quiet. However, there have some reports of soybean aphids increasing. That may not be too surprising based on recent weather trends but hot weather is predicted and may slow aphid population growth. Also, in some areas of the state it has been relatively dry and it makes me suspicious about the potential for two-spotted spider mite infestations. Populations of both pests really need to be considered before making a spray recommendation. Please be aware that spraying soybean aphids at below threshold levels will not recover applications costs and potentially could drive mite populations up. Especially if dry conditions continue. If soybean aphid
populations do reach threshold levels and there are signs of active mite populations in the field choosing a product that is active on both pests should be considered. Please consult A3646, Pest Management in Wisconsin Field Crops for insecticide/miticide recommendations. Be sure to monitor populations in the sprayed fields after the restricted entry interval (REI) has been met. Killing 90% of a pest means 10% are still living. For spider mites the insecticide/miticides do not control eggs. Killing beneficial insects with an insecticide application can “release” a pest population and rebounds are possible.

Japanese Beetles and/or their damage have been noticed by a lot of people this summer. However, it takes a lot of feeding to cause economic damage. For soybeans in the reproduce stages need an average of 15-20% defoliation on a whole plant basis before economic damage is realized. Before considering an insecticide application, I would have the same caution about spraying below threshold levels. Do consider the possible impact on both soybean aphid and spider mite populations.

How long will Japanese Beetle populations be around? Typically by the time we reach mid-August you can notice an overall drop in adult numbers.

Wisconsin Pest Bulletin, Issue No. 12, July 19

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 12 of the Wisconsin Pest Bulletin is now available at:


INSIDE THIS ISSUE

LOOKING AHEAD: Brown marmorated stink bug nymphs captured on survey traps

FORAGES & GRAINS: Alfalfa caterpillars abundant in some fields

CORN: Western bean cutworm trap continue to capture very few moths

SOYBEAN: Soybean aphid densities remain low

FRUITS: Treatment for second-generation codling moth larvae underway

VEGETABLES: Potato late blight risk thresholds surpassed in central Wisconsin

NURSERY & FOREST: Update on emerald ash borer detections in the state

DEGREE DAYS: Growing degree day accumulations as of July 18, 2018

Wisconsin Pest Bulletin, Issue No. 13, July 26

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 13 of the Wisconsin Pest Bulletin is now available at:


2018 Large-Scale Dicamba Drift Study YouTube Video

Rodrigo Werle, UW-Madison Extension Cropping Systems Weed Scientist
INSIDE THIS ISSUE

LOOKING AHEAD: Localized true armyworm outbreaks reported this week

FORAGES & GRAINS: Potato leafhopper counts low for late July

CORN: Western bean cutworm flight 50-75% complete in southern Wisconsin

SOYBEAN: Annual soybean aphid survey now underway

FRUITS: Stink bug activity increasing in field crops, possibly orchards

VEGETABLES: Squash vine borer larvae likely to begin pupating soon

NURSERY & FOREST: Jumping worms found in Columbia County nursery

DEGREE DAYS: Growing degree day accumulations as of July 25, 2018

Wisconsin Fruit News – Volume 3, Issue 8

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/c2s8m6

This week in the Wisconsin Fruit Newsletter you can read about:

• Insect Diagnostic Lab update
• Plant Disease Diagnostic Clinic update
• Insecticides for organic berry production
• Cranberry plant and pest degree-days: July 24, 2018
• Rupestris speckle on grape
• Keeping your grape mildews straight!
• Grape variety developmental stages: July 26, 2018
• Grape insect scouting report — are Japanese beetles over the hump?
• Apple field day at Oakwood Fruit Farm
• Mating disruption for management of insect pests in apple

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update July 20

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 July 14, 2018 through July 20, 2018.

The 7/20/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update July 27

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 July 21, 2018 through July 27, 2018.

The 7/27/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


Wisconsin UWEX Vegetable Crop Update Issue 15

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #15
• early blight/late blight disease risk forecast updates
• cucurbit downy mildew updates
• cucurbit powdery mildew management
• potato crop status updates
• managing irrigation in vegetable crops under high heat

Wisconsin UWEX Vegetable Crop Update Issue 16

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #16

• PDays/DSVs for potato disease control
• Early blight/brown spot fungicides
• National late blight update
• National cucurbit downy mildew update
• Potato productivity updates
• agenda for the Jul 26 2018 Potato Virus Detection Field Workshop in Antigo (also attached with plot maps)

Wisconsin UWEX Vegetable Crop Update Issue 17

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Vegetable Crop Updates Newsletter #17

• Disease forecasting/Early Blight and Late Blight Status updates (still no late blight in WI, recent report in MN)
• Cucurbit downy mildew update (none in WI, recent report in MI)
• Potato crop status updates
Learn how to attract pollinators & beneficial insects to fields, farms, & orchards!

**Tuesday, August 14**
9:30 am - 4:30 pm
*Edgerton Library (AM classroom)*
101 Albion St, Edgerton, WI 53534
*Silverwood County Park (PM field session)*
771 Silver Ln, Edgerton, WI 53534
Register: SilverwoodWorkshop.brownpapertickets.com

**Thursday, August 30**
9:30 am - 4:30 pm
*Cooksville Community Center (AM classroom)*
11204 W State Road 59, Evansville, WI 53536
*Royer Farm (PM field session)*
49 Danks Rd, Stoughton, WI 53589
Register: CooksvilleWorkshop.brownpapertickets.com

Registration fee: $50 (includes lunch)
Contact registration@silverwoodpark.org or 608.241-9744 with questions

**About the Workshop**
Get a crash course in basic bee field identification, pollinator biology and habitat requirements, habitat restoration, bee-friendly farm management practices, and federal programs that help to create pollinator habitat on farms. Technical & financial assistance resources provided.

Taught by Karin Jokela of the Xerces Society with Mark Renz, Extension Weed Specialist, and local planners from NRCS. This is a comprehensive one-day training tailored to farmers, landowners, crop consultants, Extension agents, NRCS personnel, and others interested in pollinator conservation.

**Acknowledgements**
Presented by Friends of Silverwood Park
With a grant from the John A. Johnson Environment Fund, Madison Community Foundation. Sponsored by the Xerces Society and the USDA Natural Resource Conservation Service (NRCS). In partnership with Dane County UW Extension, WI Farmers Union, Fairshare Coalition, NC SARE, and Dr. Mark Renz. USDA is an equal opportunity provider, employer and lender.
Update on Waterhemp and Palmer Amaranth in Wisconsin

Waterhemp and Palmer Amaranth in Wisconsin: an update on locations and call to report new infestations.

Mark Renz, UW Madison Associate Professor and Extension Specialist

We have been observing the continued spread of waterhemp and Palmer amaranth in Wisconsin. These species are a concern as they are more competitive, can germinate later into the season (requiring additional management), and have a high potential to develop herbicide resistance. This is a recent picture from western Wisconsin highlighting what herbicide resistant waterhemp can look like (Photo taken by Katie Wantoch).

While waterhemp has been in Wisconsin since before 1860 it has spread throughout the state with populations now in over 80% of counties (a 20% jump compared to 2009). In contrast Palmer amaranth has only been identified in fourteen locations throughout the state. See below for maps of each species of current known infestations. You will notice that some counties are shaded even though a point is not present. These are from observations did not provide a specific location.
We require active monitoring and reporting by YOU! Active monitoring has allowed us to better understand distribution of waterhemp and Palmer in Wisconsin. While our knowledge has improved greatly (over 350 known locations of waterhemp) please submit additional reports. We are most interested in new infestations in counties or parts of counties where infestations have not previous been reported. If would like to share a new observation we have several methods for doing so.

The easiest is to download the Great Lakes Early Detection Network App (apple or android). This app allows you to select the species you are reporting, take multiple pictures to allow us to confirm the identification, and it automatically takes GPS coordinates. Once uploaded the reports are automatically sent to us for verification. This App is free, but does take some time to learn how to operate. A brief tutorial can be found here.

Another option is to send an email to reportapigweed@gmail.com. Detailed instructions are available here, but in brief we are asking that you include these items in your email:

- Location of the pigweed: GPS coordinates or an address/road intersection
- The habitat where the pigweed is growing: agricultural field (indicate what type of field, e.g. corn, soybean, etc.), home garden, roadside, or other (please describe).
- Do you think it is herbicide resistant? if so, what herbicide has been applied.

Helpful links to factsheets:


http://ipcm.wisc.edu/download/weeds/Waterhemp-Fact-Sheet-Final-Draft.1_2.pdf

ID video: https://www.youtube.com/watch?v=LwE-8ZLKhkL

Integrated Pest Management of Soybean Aphids

Bryan Jensen, Department of Entomology and Integrated Pest Management (IPM) Program

It seems like soybean aphid populations have been creeping up and I understand a few fields have been sprayed. When we get to this time of year economical soybean aphid management is not easy. For every “no brainer” decision we get there are 100 “head scratchers”. Several factors to consider are crop stage, aphid numbers, how long they have been feeding, wheel track injury, cost of production, beneficial insects and pathogens… the list goes on.

Economics: The economic threshold (250 aphids/plant on 80% of the plants from R1-R5) is a conservative estimate. You will not have yield loss at that point solely as a result of aphid feeding. When crop prices were high several people were asking about lowering the economic threshold. The same answer holds true now. The economic threshold is an arbitrary number. It doesn’t change. Its intent is to provide a cushion for crop advisors to use to prevent aphid populations from reaching the Economic Injury Levels (EIL, approx. 600-700 aphids/plant) which is the point where economic loss can occur. What does slightly change with crop prices is the EIL.
With low crop prices that number goes up. Frankly, continuing to use the current Economic Threshold gives you even more cushion and perhaps more time to observe populations trends before a spray decision is reached.

Crop stage also has an impact on our decision. I like to think in terms of “preventable yield loss”. That is the amount of yield my decision can impact. I can’t resurrect what has happened in the past but more to the point, for this article, is how much yield is “in the bank” and how much is unprotected. The amount of unprotected yield decreases each day/week as the crop advances. In other terms, the later the growing season gets the less likely we are to make good economic spray decisions on marginal aphid populations.

White dwarf aphids on soybean leaf, shown in red circles.

“White dwarf” soybean aphids are important to look for at this stage in time. White dwarfs should be included in all counts. However, they can have an important negative impact on future aphid populations. White dwarves are cream-colored, smaller in size and can be found on the lower soybean foliage. However, they do not live as long (50%) and their reproductive is about 70%. Both important impacts on soybean aphid reproductive rates as well as your recommendation.

Beneficial insects: Later during the growing season, you are more likely to get help from beneficial insects and insect pathogens. Make sure you have some handle on their role (if not potential role). Insect pathogens can be hard to predict but beneficial insects are more visible.

Pest population: An important concept regarding the use of Economical Thresholds is that the pest population is increasing. Beneficial organisms can certainly impact the population curve. An extreme example would be if we sprayed an aphid population that reached the Economic Threshold today, but the aphid population would have naturally crashed in 5 days, would we have gotten a return on investment from that insecticide application? Likely not.

As I mentioned in last week’s article, a spray decision can impact spider mite populations. Especially if the insecticide used is weak on mites. In that situation the beneficial insects are killed and you could potentially have a resurgence in both aphids and mites. Also, insecticide resistance can be a result of increased insecticide use. I am not aware of any soybean aphid resistance issues in our state but if you have a concern please contact the DATCP Pest Survey Program (krista.hamilton@wi.gov) to have aphids sampled and tested.

Bt Trait Performance Concerns

Bryan Jensen, Department of Entomology and IPM Program

Perhaps not all that surprising was a phone call I recently received regarding poor performance of the Herculex RW (CRY34/35ab1) trait. Although resistance has been documented in other states it was the first time that I had a very reliable source indicate performance issues for that trait in Wisconsin. It is not a widespread problem, as far as I know, but certainly is an issue we need to identify, respect and manage for years to come.

As a result of this report all 4 CRW Bt traits have had performance issues somewhere in the state. The first step is documentation that the problem exists (or doesn’t). Both are important to know. For background information on digging/rating roots please go to a past WI Crop Manager Article on monitoring corn roots for guidance.

It is not too late to dig roots although you will see more root regeneration now than in July which can mask rootworm damage. You cannot and should not assume fields which do not show symptoms of lodging will not have significant rootworm feeding. Furthermore, do not assume that all lodging is a result of rootworm feeding. You will have to do the legwork. Use of an unmanned aerial vehicle could be of assistance to identify field areas which are lodged. Once those areas are identified good boots, time, a shovel and a power washer are necessary for verification.

Expect to see some root feeding even on pyramid hybrids. They are not immune to feeding. However, if you have average root ratings greater than 1.0 on single traits and 0.5 on pyramids it would typically be considered higher than damage which you typically expect. If so, future mitigation practices should be implemented and include practices such rotation (preferred), use of alternate CRW traits (if reliable), use of soil applied insecticides on conventional corn or the use of the rootworm rate of seed treatments if population are verified to be
low through beetle scouting. Strongly consider contacting your seed sales representative to initiate reporting of this unexpected damage or at least to verify the Bt trait was present in that hybrid.

Although this information is not good to hear. It is important that we understand the potential, appreciate its significance and recognize that changes in control practices are going to be important for durability of all management practices.

Harvest timing of winter wheat to maximize yield and minimize elevator discounts

Shawn Conley, State Soybean and Small Grains Specialist
John Gaska, Senior Outreach Specialist, Adam Roth, Program Manager

A research trial was initiated in the fall of 2017 at the Arlington Agricultural Research Station, Arlington, WI to assess the impact of delayed grain harvest on yield and test weight in soft red winter wheat. Here is the report.

• Wheat yields varied across harvest dates with no apparent trend
• We noted lower test weights in later harvest dates, but it was not a linear trend
• The difference in total pricing discount between the early harvest and late harvest date was negligible
• Elevator discounts were affected mainly by moisture on the first date and solely on test weight on the last date
• By the second harvest date, moisture discounts were very low or zero and any further discounts came from lower test weights

Click here to read the 4 page report.

Intensive Winter Wheat Management

Shawn Conley, State Soybean and Small Grains Specialist
John Gaska, Senior Outreach Specialist, Adam Roth, Program Manager, and Spyridon Mourtzinis, Post-doctoral researcher, Agronomy. Damon Smith, Field Crops Plant Pathologist and Brian Mueller, Asst. Researcher, Plant Pathology

A research trial was initiated at the Arlington Agricultural Research Station to assess the impact of various management levels (Table 1) on the yield, grain quality, and disease incidence on 14 soft red winter wheat varieties. Management levels were stair-stepped with increasing intensity of inputs. Each management step increased yield, however growers should verify individual farm gate input prices to see if yield increases had a positive ROI.

To view the results of the trial, click here.

Response of 4 Oat Varieties to a Plant Growth Regulator and Foliar Fungicide Combination

Shawn Conley, State Soybean and Small Grains Specialist

In an Oat Shock:

• Trivapro fungicide increased oat yield in Badger, Esker and Shelby 427 oat varieties
• Trivapro fungicide plus Palisade PGR reduced lodging in all four varieties tested
• The application of Trivapro reduced crown rust incidence
• Growers should explore expected ROI and apply BMP’s prior to adding any additional inputs

A research trial was initiated in the spring of 2018 at the Arlington Agricultural Research Station, Arlington, WI to assess the impact of a plant growth regulator (PGR) (Palisade, trinexapac-ethyl, Syngenta) and a foliar fungicide (Trivapro, benzovindiflupyr+azoxystrobin+propiconazole, Syngenta) in oats to offset the negative effects of lodging and protect against stem rust. Four high yielding varieties were selected for this trial: 1) Antigo is a high yielding, early maturing oat with excellent test weight, medium lodging, and moderate resistance to crown rust. 2) Badger is an early season yellow seeded oat variety with medium plant height. Badger has high yield potential and excellent test weights. It has good straw strength and lodging resistance. Badger is resistant to crown rust and has good tolerance to barley yellow dwarf virus. 3) Esker is a mid-season oat which has had consistently high grain yields. BYDV tolerance is comparable to that of Ogle. Crown rust resistance is good. 4) Shelby 427 has a high yield potential, test weight, and groat percentage. It is resistant to smut, crown rust, and BYDV, and has moderate resistance to stem rust. Shelby 427 also has excellent lodging resistance, a medium plant height, and
an early maturity. Palisade PGR was chosen because of its potential to mitigate lodging caused by high nitrogen fertilization levels. It acts by shortening the internodes and strengthening the stem through inhibition of cell elongation. It was applied at 12 fl oz/a at the Feekes 4 stage (23-May). Trivapro was chosen as a broadspectrum, preventative fungicide against many leaf diseases including rusts. It was applied at 13.7 fl oz/a at the Feekes 9 stage (4-Jun). Normal, UWEX recommended nitrogen and corrective fertilization practices were used in this trial.

To view the results, click here.

Starter Fertilizer for Winter Wheat – Two Year Results

Shawn Conley, State Soybean and Small Grains Specialist

Research trials were initiated in the fall of 2016 and 2017 at four locations (Arlington, Sharon, Chilton and Fond du Lac) to assess the impact of starter fertilizer on early season growth, grain yield, and grain quality of soft red winter wheat. Dry granular starter fertilizer was applied in-furrow with the seed at planting time. Treatments were selected based on common availability of dry starter fertilizers and previous research using these rates. No early growth, vigor, or phytotoxicity differences were noted in any of the fertilizer treatments compared to the nontreated control. Normal, UWEX recommended corrective and nitrogen fertilization practices were used at each location in addition to the individual fertilizer treatments.

To view the rest of the results, click here.

Wisconsin Pest Bulletin, Issue No. 14, August 2

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 14 of the Wisconsin Pest Bulletin is available at: https://datcpservices.wisconsin.gov/pb/pdf/08-02-18.pdf

LOOKING AHEAD: Second flight of European corn borer moths has peaked

FORAGES & GRAINS: Potato leafhopper below-threshold in most fields

CORN: Western bean cutworm flight 75% complete

SOYBEAN: Annual soybean aphid survey now underway

FRUITS: Large summer codling moth flights continue

VEGETABLES: No significant corn earworm migrations reported

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update August 3

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 July 28, 2018 through August 3, 2018.

The 8/3/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


Follow us
Survey seeks Wisconsin soybean farmers’ views on dicamba

Dicamba Use in Wisconsin Soybean Production – SURVEY

Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist)

In 2017 the Xtend soybean technology was completely launched in the United States (e.g., Environmental Protection Agency [EPA] approval of dicamba-tolerant seed trait and POST-emergence application of labeled dicamba formulations). Despite the great level of broadleaf weed control observed when dicamba was sprayed POST-emergence in Xtend soybeans, particularly of the troublesome weeds giant ragweed and waterhemp, off-target dicamba movement is still a concern.

We have designed a short survey intended to investigate Wisconsin soybean farmers’ perceptions on dicamba use in Xtend soybeans. The survey comprises of four main sections:

1. Demographics of participants
2. Outcomes from dicamba application in Xtend soybeans in 2017 and 2018
3. Perceived dicamba injury in non-Xtend soybeans in Xtend 2017 and 2018
4. Expected adoption of the technology in 2019 (assuming it remains available to US soybean farmers in 2019).

We truly appreciate the time of those answering the survey (even if you did not and don’t plan to adopt the technology, please take the time to answer; your feedback is of extreme importance). Dr. Paul Mitchell, UW-Madison Extension Ag Economist, will assist with data summarization and analysis. Your answers will be kept confidential and the final results will be made available via Wisconsin Crop Manager.
**Soil pH** is also important to alfalfa crown health. Alfalfa grows best at soil pH near 6.8. Because ag lime needs 3 years to be fully effective, lime applications prior to stand establishment are most effective. Top hay producers maintain soil pH and fertility levels throughout the crop rotation.

Another important factor affecting winter survival of alfalfa is a **fall resting period**. Alfalfa must build a good store of protein and carbohydrates in the crown and taproot to survive the winter. Alfalfa uses root reserves for early growth in the spring and after each cutting. As regrowth occurs, protein and carbohydrate reserves are replaced in the root. If alfalfa is cut, and regrows to 6 or 8 inches and freezes, it will suffer more winter injury and death than if more or less growth occurs before dormancy. This is because root reserves will be used, but not enough regrowth will have occurred to replenish the root reserves.

Late fall cutting can also stress alfalfa. It removes top growth, which provides insulation for the crown, primarily by catching and holding snow. Alfalfa will generally be killed when the crown reaches minus 15 degrees F.

Overall crown health, soil nutrient management and late summer/ fall cutting management can all influence an alfalfa stand’s ability to survive through the winter.

---

**Time to Start Getting Alfalfa Field Ready for Winter**

Bill Halfman, Monroe County Ag Agent, Carrie Laboski, Soil Fertility/Nutrient Management Specialist

Management decisions made now can impact how alfalfa stands make it through next winter. This year there were a lot of reports of alfalfa stands coming through winter but were weak and not yielding up to normal expectations. Certainly, some of that is due to last winter’s weather, but management practices and overall health of the crowns can influence how well the plants make it through the winter.

**Crown health** is a strong indicator of an alfalfa plant’s likelihood of making it through the winter in good shape. This should be assessed by digging up crowns in several places in each field to determine if they are healthy or not. Crowns that are in poor health will have lower yield anyway, and those fields should be considered good candidates to rotate out of alfalfa. The UW Extension publication titled: “Alfalfa stand assessment: Is this stand good enough to keep?” located at: [http://learningstore.uwex.edu/assets/pdfs/a3620.pdf](http://learningstore.uwex.edu/assets/pdfs/a3620.pdf) has pictures of alfalfa roots and also indicates their probability of winter survival. This guide can help assess stand health when planning crop management and rotations. Overall crown health declines with age and older stands are typically less tolerant of stress compared to younger stands (18-36 months). Younger stands commonly have lower levels of disease incidence and less physical damage from wheel traffic.

**Potassium** is vital for carbohydrate movement to the tap root. Therefore, stands with optimum or higher levels of potassium (K) in the soil are at lower risk to experience winter injury than stands growing on low fertility sites. Sufficient potassium levels must be present before the fall rest period. Applying potassium in August/ September is ideal for the alfalfa plant to prepare for winter dormancy. Topdressing in October/November is too late for the plant use the potassium for winter preparation.

---

**How to use Plant Tissue Analysis for In Season Nutrient Management**

Andrew Stammer, Lab Director UW Soil and Forage Analysis Lab

The growing season is in full swing and the UW Soil and forage lab is receiving questions about how to use plant tissue analysis for in season nutrient management. Plant tissue analysis is a way of measuring macro and micro-nutrients in plant tissue. It is a direct measure of plant nutritional status during the growing season. When sampling plant tissue, a clear understanding of the plant part and growth stage to be sampled is essential. Nutrient concentrations vary between plant parts. Additionally, processes such as dry matter accumulation and movement of nutrients from one part of the plant to another influence nutrient concentrations across the growing season. These fluctuations require that sample results be compared to recommended nutrient sufficiency ranges for the same plant part and growth stage or to tissue results from healthy looking plants in the same field.
Nutrient concentration in the plant are influenced by a variety of factors. Soil conditions such as pH, soil temperature, compaction and moisture influence plant nutrient concentrations occasionally leading to situations where tissue nutrient concentrations are depressed when the soil has adequate nutrient levels. Conversely, plant tissue can show abnormally high results when testing leaves recently sprayed with a foliar fertilizer, while excessively high concentrations of iron are usually the result of a small amount of soil contaminating the plant sample. Different varieties or maturities of crops may have different optimal tissue nutrient concentration ranges. Because of these possible interferences, collecting separate tissue samples from good and bad areas within a field can be a helpful comparative diagnostic.

The interpretation ranges available for plant tissue can be used as rough guidelines, but do not provide enough information to advise fertilizing on their own. Collecting soil samples from the same areas that plants are sampled allows an evaluation of both the crop and the soil. These samples may explain plant tissue levels and may be used to guide fertilizer application next season.

For additional information on plant parts and growth stages to sample and interpretation data see: http://ipcm.wisc.edu/blog/2016/06/plant-analysis-are-you-using-it-and-interpreting-the-results-correctly/

For more information on tissue testing and lab Submission Sheets visit: https://uwlab.soils.wisc.edu/plant-tissue/

Late Season Corn Foliar Disease Update and Hail-Damaged Corn

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

To view this article on their website, click here.

Scouting by my team and phone calls from extension personnel, consultants, and farmers have made it evident that there are several foliar diseases of corn showing up in this first part of August. Gray leaf spot (GLS), northern corn leaf blight (NCLB), and tar spot have all been found in various locations over the last week or so. It is becoming very late in the season to try to control GLS or NCLB. Current data on tar spot indicate it likely doesn’t need to be controlled. Thus, there is likely not much to do at this point, but to document which fields have which diseases. This can help in fall scouting to make harvest decisions, as fields with higher levels of leaf disease may not have experienced any yield loss, but might have stalk integrity issues, which could lead to lodging. Determining which fields might be more prone to lodging can help establish harvest order to minimize any losses due to severely lodged plants. Below is more information about each foliar disease.

Gray leaf spot (GLS)

Figure 1. Gray leaf spot on a corn hybrid. Photo Courtesy of Craig Grau, University of Wisconsin-Madison

Gray leaf spot is caused by a fungus named Cercospora zeae-maydis. During times of very warm temperature and high humidity (greater than 90%), GLS can increase rapidly on susceptible hybrids. In fields with large amounts of corn residue (e.g. corn-on-corn rotation, minimal tillage, etc.) GLS may be more prominent due to higher levels of inoculum. Symptoms start as small narrow, blocky lesions that might be tan in the center and have a darker margin (Fig. 1). Lesion can increase in size and number and will typically move from lower leaves to upper leaves. Yield loss is most prominent when lesions reach the ear leaves either 2 weeks before tasseling or two weeks after tasseling. Currently, in Wisconsin, we have seen few fields where lesions have reached the ear leaves prior to brown silk. However, in a small number of fields planted to a susceptible hybrid, there has been rapid increase to the ear leaves prior to tassel. In those fields a fungicide application may result in adequate yield protection to cover the cost of fungicide application. See my previous article on how to make the decision to spray fungicide on corn.

Northern corn leaf blight (NCLB)

Figure 2. Northern corn leaf blight on corn.

Northern corn leaf blight is caused by the fungus Ssetsosphaeria turcica. The fungus is most active when wet weather coincides with temperatures between 65 F and 80 F. During these conditions, the fungus will readily make microscopic spores (called conidia) inside the
symptomatic areas of leaves and those spores will get splashed onto more leaves. Therefore, the disease typically moves from the lower canopy, up the corn plant as the season progresses. When temperatures get above 80°F and it is dry, growth and spread of the fungus slows dramatically. This is why little NCLB was observed in July, but is showing up now. It is all about the temperature at which the fungus likes to grow. Lesions initiate as cigar-shaped lesions on lower leaves. When conditions are conducive lesions can expand and increase, moving rapidly up the plant (Fig. 2). Occasionally a gray-to-black fuzzy growth is evident in the center of lesions. This growth is sporulation of the fungus. Like GLS, yield loss is greatest when lesions reach the ear leaf either two weeks before or two weeks after tasseling. Again, consult my previous article on how to make the decision to spray fungicide on corn.

**Tar Spot**

Tar spot is a relatively new disease in the U.S. and Wisconsin. It is caused by a fungus called *Phyllachora maydis*. Tar spot causes small tar-like spots on the surface of corn leaves. For great information about tar spot and what it looks like, consult this Purdue Extension fact sheet. Tar spot was first found in the U.S. in 2015. In 2016 and 2017, tar spot was identified in Green, Iowa, Grant, and Lafayette counties in Wisconsin. In 2018 confirmations have been made in these same general areas. In Latin America *Phyllachora maydis* can be found in a complex with another fungus called *Monographella maydis*. In areas where the complex occurs significant yield loss has been described. However, in the U.S. *Monographella maydis* has not been found in complex with *Phyllachora maydis*. Furthermore, *Phyllachora maydis* is not known to cause yield loss on corn in the U.S. While it can be a striking disease, fungicide applications are not recommended for tar spot in the U.S. Much more work is needed to characterize this pathogen and understand the disease. We are working with Dr. Nathan Kleczewski at the University of Illinois to improve our understanding of this pathogen in the U.S. If you would like to confirm tar spot on corn, or provide samples for research purposes, you can send samples to the University of Wisconsin Plant Disease Diagnostic Clinic.

**What about Spraying Fungicide After Hail Damage?**

The best study on this subject was conducted by my colleagues at Iowa State University a couple years back. They found that for the most part application of fungicide after hail does not result in any benefits. Especially after the R2 growth stage. We also had an opportunity to look at a natural hail event in 2014 at Arlington. This happened around VT. We were also unable to find a significant difference in treating with a fungicide versus not treating after late season hail damage. In addition, it isn’t likely that fungal infections will increase after hail. In fact in the Iowa State University study, they found a negative correlation between hail damage and fungal disease. Hail CAN increase Goss’s wilt risk. However, Goss’s wilt is caused by a bacterium. Thus, fungicide application does not work for this disease. For more information on Goss’s Wilt and how to manage it click here.

In summary, given the current market prices and the fact that corn is generally through the silking period, fungicide application on hail-damaged corn is not needed.

---

**Cancellation of Chlorpyrifos**

Bryan Jensen, Dept. of Entomology and IPM Program

Some of you have probably heard or seen popular press articles about the Ninth Circuit Court of Appeal’s order ruling that EPA must ban the active ingredient chlorpyrifos which is an active is several insecticides including Lorsban 4E, Lorsban Advanced, Cobalt, Cobalt Advanced and several generic insecticides. At this point it is very early in the process and impossible to tell what the outcome will be and how it affects us.

Currently EPA is reviewing the court’s decision and it is unknown how they will respond. EPA could appeal or decide to fully comply. Perhaps it will be something in between. I am sorry but the best thing to do, for now, is to stay tuned. The glass half-full response is that the 60-day cancellation period will get us through the 2018 Wisconsin growing season. We will just have to take a wait and see approach for next year.

For the interim, you can continue to use chlorpyrifos according to label directions. Typically, with a cancellation or tolerance revocation there is window of time where existing stocks can be used. I do not know if there will be such a window or how long that window will be open. Stay connected.

---

**Limiting the Spread of Weed Seeds- Combine Cleaning Clinic**

Daniel H. Smith, Nutrient and Pest Management Program, University of Wisconsin-Madison

An upcoming field day on August 30th in Green County will provide insight into limiting the spread of weed seeds. The field day will start with Dr. Rodrigo Werle (UW-Madison and Extension Cropping Systems Weed Scientist) discussing weed seed production, viability, and the spread of common weeds. Then there will be a demonstration of how to clean a combine to limit the spread of weed seeds. The field day will begin at
10:00 a.m. and conclude by 12:00 p.m. The field day is being hosted by Tim and Bryon Feller at N6437 Schneeberger Rd., Monticello, WI. The field day is free.

For additional details please contact Tonya Gratz, Green County LWCD at 608-325-4195 ext.121. CCA credits have been applied for.

Please see the attached flyer for more information.

Planter Set-up and Enhancement Workshop

Daniel H. Smith, Nutrient and Pest Management Program, University of Wisconsin-Madison

An upcoming field day on September 14th in Grant County will provide insight into optimizing planting equipment for corn, soybean, small grains, and cover crops. The field day will start with John Gaska (Senior Outreach Specialist, UW Madison Soybean Program) demonstrating planter operations and discussing options for optimal no-till and conventional till planter performance. Then there will be discussion lead by Jamie Horsfall (Southwest Technical College) and Daniel Smith on establishing cover crops using a no-till drill and broadcast seeding options.

The field day will begin at 9:00 a.m. and conclude by 12:00 p.m. The field day is being hosted by Southwest Technical College at 1800 Bronson Blvd, Fennimore, WI 53809. The field day is free. For more information please contact Jamie Horsfall or Daniel Smith. CCA credits have been applied for. Please see the attached flyer for more information.

Wisconsin Pest Bulletin, Issue No. 15, August 16

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 15 of the Wisconsin Pest Bulletin is now available at:


INSIDE THIS ISSUE

LOOKING AHEAD: First significant corn earworm migration recorded this week

FORAGES & GRAINS: Potato leafhopper levels in alfalfa still below-threshold

CORN: Surveys indicate corn rootworm beetle numbers low for mid-August

SOYBEAN: Annual soybean aphid survey finds non-economic populations in all fields

FRUITS: Large summer codling moth flights continue in Wisconsin orchards

VEGETABLES: UW confirms late blight on potato in Adams and Marquette Cos.

NURSERY & FOREST: Reports on brown rot, tar spot, and hosta foliar nematode

DEGREE DAYS: Growing degree day accumulations as of August 15, 2018

Wisconsin Fruit News – Volume 3, Issue 9

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/0kw6wn

This week in the Wisconsin Fruit Newsletter you can read about:

• Insect Diagnostic Lab update
• Plant Disease Diagnostic Clinic update
• Raspberry rust diseases
• Strawberry root health
• Cranberry plant and pest degree-days: Aug 8, 2018
• New cranberry early rot scouting guide available
• UW-Extension Door County vineyard walk on August 13th
• Grape variety developmental stages: Aug 9, 2018
• Grape scouting report: spotted wing drosophia review
• Apple summer diseases
• It is time already to start apple harvest?
Wisconsin UWEX Vegetable Crop Update Issue 19

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Newsletter 19 August 11, 2018

- summary of late blight findings and risk
- cucurbit downy mildew reports from the US
- crop products updates for potato

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update August 10

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 August 4, 2018 through August 10, 2018.

The 8/10/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

AGRONOMY/SOILS FIELD DAY

Wednesday, August 22, 2018
UW-Arlington Agricultural Research Station

PROGRAM

8:00  Registration ($0), coffee

8:30  Soil Fertility & Management
     Grain Production Systems
     Interseeding in Grain & Forage Systems

10:30 Soil Fertility & Management
     Grain Production Systems
     Pest Management

12:00 Lunch Speaker: Dan Veroff
      Wisconsin Population & Demographic Megatrends:
      Implications for Agriculture & Farming
      Lunch provided by Badger Crops Club ($5 donation)

1:00  Pest Management
     Interseeding in Grain & Forage Systems
     Equipment Rodeo

2:45  Have a safe trip home!

TOURS

8:30 10:30  Soil Fertility & Management

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td></td>
<td>Improve ROI and NUE by timing N applications for corn Carrie Laboski</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Soil sampling with banded fertilizer Andrew Stammer</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Use of a rye cover crop in dairy forage production: Environmental and yield benefits Francisco Arriaga</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Soil health in Wisconsin Matt Ruark</td>
</tr>
</tbody>
</table>

10:30 1:00  Grain Production Systems

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td></td>
<td>Forages: Old, new and reimagined Ken Albrecht</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Management practices that minimize the soybean yield gap on your farm Shawn Conley</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Advances in crop biotechnology at the Wisconsin Crop Innovation Center Heidi Kaeppler</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>The Wisconsin corn pop-up/starter fertilizer challenge Joe Lauer</td>
</tr>
</tbody>
</table>

10:30 1:00  Pest Management

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td></td>
<td>Using fungicide in corn for grain and silage Damon Smith</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Weed management for annual cropping systems Rodrigo Werle</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Using an integrated approach to western bean cutworm management Bryan Jensen</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>White mold management Megan McCaghey</td>
</tr>
</tbody>
</table>

8:30 1:00  Interseeding in Grain & Forage Systems

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td></td>
<td>Interseeding cover crops in organic corn and soybean production Erin Silva</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Interseeding legumes with Kernza Valentin Picasso</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Small grains with frost seeded clover Lucia Gutierrez</td>
</tr>
<tr>
<td>8:30</td>
<td></td>
<td>Interseeding corn and alfalfa Will Osterholz</td>
</tr>
</tbody>
</table>

1:00  Equipment Rodeo

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td></td>
<td>Agriculture technology: Planting, UAV remote sensing and autonomous machines Brian Luck, Jessica Drewry, Jeff Nelson</td>
</tr>
</tbody>
</table>

The Arlington ARS is located on Hwy. 51, about 5 miles south of Arlington and 15 miles north of Madison.
Watch for Field Day signs.
GPS coordinates: 43.300467, -89.345534

In the event of rain, presentations will be held inside.
For more information contact the Arlington Ag Research Station at 608-846-3761 ext 101.

Visit exhibits between tours and during lunch
UW Soil & Forage Analysis Lab, SnapPlus, Nutrient & Pest Management Program and more!

To help us organize a successful event, if you are considering attending please complete a RSVP at https://go.wisc.edu/uwtu24
Thanks!

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.

Certified Crop Advisors
7.5 CEU credits requested
Limit the Spread of Weed Seeds -

Combine Cleaning Clinic
Thursday, August 30, 2018

10AM– Noon

@ Tim & Bryon Feller’s  N6437 Schneeberger Road, Monticello– south of County Rd EE

Speakers: Dr. Rodrigo Werle, Extension Weed Scientist & Dan Smith, Southwest Regional Specialist

Learn how:
- Weeds are spread
- Seeds weeds produce
- Time seeds are viable
- Reduce risk of spread

More information contact Tonya Gratz, Green County LWCD  608-325-4195 ext 121

Stop spreading potential herbicide resistant weeds

Giant Ragweed

Palmer Amaranth

Waterhemp
Planter Set-up and Enhancement Workshop
Friday, September 14th, 2018
Southwest Technical College Demonstration Farm
1800 Bronson Blvd, Fennimore, WI 53809

11:30-noon
Registration and introductions

9:00-11:30
Optimizing your corn and soybean planter
John Gaska Senior Outreach Specialist, UW Madison
• Planter demonstration
• Overview of equipment
• Closing wheel options
• Optimal planter set-up demonstration

9:00-11:30
Planting cover crops
Jamie Horsfall, Southwest Tech, Dan Smith, Nutrient and Pest Management Program, UW Madison
• No-till drill and broadcast spreader calibration methods
• Planting depth and seed coverage
• Seeding rates
• Final considerations: Herbicide carryover, forage use, cover crop goals

Questions and Registration: Jamie Horsfall, Southwest Tech (jhorsfall@swtc.edu) 608.822.2465 or Dan Smith, NPM Program, (dhsmith@wisc.edu) 608.219.5170

Free event!
Soybeans will survive longer when flooded under cool and cloudy conditions. Higher temperatures and sunshine will speed up plant respiration which depletes oxygen and increases carbon dioxide levels. If the soil was already saturated prior to flooding, soybean death will occur more quickly as slow soil drainage after flooding will prevent gas exchange between the rhizosphere and the air above the soil surface. Soybeans often do not fully recover from flooding injury.

Crop injury from water logging is difficult to assess. Water-logging can reduce soybean yield 17 to 43% at the vegetative growth stage and 50 to 56% at the reproductive stage (Oosterhuis et al., 1990). Yield losses are the result of reduced root growth, shoot growth, nodulation, nitrogen fixation, photosynthesis, biomass accumulation, stomatal conductance, and plant death due to diseases and physiological stress (Oosterhuis et al., 1990; VanToai et al., 1994 and 2003). A significant amount of genetic variability for flooding tolerance among soybean varieties occurs in maturity groups II and III (VanToai et al., 1994) and likely exists for maturity group I soybeans as well.

Increased disease incidence in the surviving plants may also occur and limit yield potential. The main culprit will likely be phytophthora given the warm wet weather; however phythium, rhizoctonia, or fusarium may also occur. Differential response among varieties will be tied to the sources of genetic resistance to these diseases.

Once we can get back into the fields the decision to replant will be based on the yield potential of the current stand relative to the cost and yield potential of the replanted soybean field (Table 1, next page). Before any decision to tear up a field is made make sure you contact your crop insurance agent to discuss coverage and you have the replant seed on your farm or at least en route. Also remember to check herbicide labels for plant back restrictions if you are planning to plant soybean into a flooded corn field.
To maximize yield potential in late planted soybean, a minimum of 180,000 plants per acre is required in narrow row system (<20 inches) as yield potential in rowed beans would be significantly reduced due to decreased canopy development. To achieve 180,000 plants per acre a grower may have to seed as many as 225,000 seeds per acre.

### Table 1. Expected relative soybean yield at four replanting dates compared to predicted yields for a range of plant populations resulting from an optimum planting date of May 1-20 for full season maturity or short season maturity varieties.

<table>
<thead>
<tr>
<th>Early plant population</th>
<th>Replanting date</th>
<th>% of maximum yield</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>May 1-20</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>June 1</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>June 10</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>June 20</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>July 1</td>
<td>75</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>180</td>
<td></td>
<td>98</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>160</td>
<td></td>
<td>97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>140</td>
<td></td>
<td>95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
</tr>
<tr>
<td>120</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>82</td>
</tr>
<tr>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>80</td>
<td></td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

1 Yield potential of full season varieties are in bold while yield potential of earlier maturity group soybeans are given in normal text.

Since full season maturity group soybeans are unrealistic for planting this late plant soybean cultivars 0.5 MG earlier than “normal”. The average yield potential for soybean planted in late June in southern WI is in the 30 to 35 bu yield range (Figure 1). For yield potential and harvestability, (a combine may not be able to pick up the lower pods) a grower should not go to an extreme early MG for their geographic area.

#### 2018 Pest Management Update Meeting Series Announced

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

The schedule for the Wisconsin Pest Management Update meeting series has been set. Presentations will include agronomic pest management information for Wisconsin field and forage crops. Speakers include Mark Renz and Rodrigo Werle, weed scientists, Damon Smith, plant pathologist, and Bryan Jensen, entomologist.

The format will be the same as in 2017. Meetings will either be in the morning or afternoon On November 12-16, 2018. Simply choose a day/location to attend with each meeting running 3 hours. Note that several locations and contacts have changed since 2017 (marked with * in the meeting flier). Please read the informational flier carefully and make sure you contact the appropriate person at your desired location.

#### 2018 Pest Management Update Highlights:

- Integrated Pest Management Updates in corn, soybeans, alfalfa, and small grains: Update on new products and/or use of existing products as well as brief highlights of the 2018 pest situations in each crop.
- Waterhemp management

---

**Figure 1.** Planting date effect on grain yield of early to mid maturity group soybeans (0.4 to 1.8 RM) in southern WI (Data from early 1990s planting date study).
- Dicamba off-target research
- Pollinator Training
- Soybean cyst nematode training and management

Please make your reservation with the host contact at least one week prior to the scheduled meeting date.

Three hours of Certified Crop Advisor CEU credits in pest management are requested for each session.

To download a PDF of the flier, CLICK HERE.

Wisconsin Late-Season Soybean Disease Update

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

To read this post from its original site, click here.

The calls have been coming in this past week on a couple of soybean diseases. In the southern third of the state most of the calls have centered on sudden death syndrome or SDS. To the north, most questions pertain to Sclerotinia stem rot or white mold. I’ll discuss SDS in some detail, plus provide a detailed description of brown stem rot (BSR) which also typically shows up this time of year. Finally I’ll provide a brief update on the white mold situation.

Sudden death syndrome (SDS)

The first noticeable symptoms of SDS are chlorotic (i.e., yellow) blotches that form between the veins of soybean leaflets. These blotches expand into large, irregular, chlorotic patches (also between the veins), and this chlorotic tissue later dies and turns brown. Soon thereafter entire leaflets will die and shrivel. In severe cases, leaflets will drop off leaving the petioles attached. Taproots and below-ground portions of the stems of plants suffering from SDS, when split open, will exhibit a slightly tan to light brown discoloration of the vascular (i.e., water-conducting) tissue. The pith will remain white or cream-colored. In plants with advanced foliar symptoms of SDS, small, light blue patches will form on taproots and stems below the soil line. These patches are spore masses of the fungus that causes the disease.

Foliar symptoms of SDS can be confused with those of brown stem rot. However, in the case of brown stem rot (BSR), the pith of affected soybean plants will be brown. In addition, roots and lower stems of plants suffering from BSR will not have light blue spore masses.

Once symptoms of SDS are evident, yield losses are inevitable. Yield losses can range from slight to 100%, depending on the soybean variety being grown, the plant growth stage at the time of infection and whether or not SCN is present in a field. If SDS occurs after reproductive stages R5 or R6, impact on yield is usually less compared to the development of SDS at flowering that can lead to substantial yield losses. When SCN is present, the combined damage from both diseases can be substantially more than the sum of the damage expected from the individual diseases.

SDS is caused by the soilborne fungus, Fusarium virguliforme (synonym: F. solani f. sp. glycines). F. virguliforme can overwinter freely in the soil, in crop residue, and in the cysts of SCN. The fungus infects soybean roots (by some reports as early as one week after crop emergence), and is generally restricted to roots as well as stems near the soil line. F. virguliforme does not invade leaves, flowers, pods or seeds, but does produce toxins in the roots that move to the leaves, causing SDS’s characteristic foliar symptoms.

SDS cannot be controlled once plants have been infected. Foliar fungicides have NO effect on the disease. Recently a new seed treatment has been identified that has efficacy against SDS. The active ingredient fluopyram can be found in the seed treatment iLeVo and is rated “very good” in multi-state trials. Other methods of control include using SDS-resistant varieties whenever possible in fields with a history of the disease; however, keep in mind that SDS-resistant varieties with maturity groups suitable for Wisconsin and other northern regions (groups I and II) can be limited. If SDS and SCN are both problems in the same field, planting an SCN-resistant soybean variety may also be beneficial in managing SDS.

Do not delay planting soybeans to avoid symptoms of SDS. In Wisconsin, it has been demonstrated that the benefits to yield when planting early outweigh the benefits of reduced SDS symptoms if planting is delayed. Improve soil drainage by using tillage practices that reduce compaction problems. Rotation, while useful in managing other soybean diseases, does not appear to significantly reduce the severity of SDS. Even after several years of continuous production of corn, F. virguliforme popula-
tions typically are not reduced substantially. Research from Iowa State University has shown that corn (especially corn kernels) can harbor the SDS pathogen.

For more information CLICK HERE to download a full color fact sheet on SDS. A short video on SDS can also be viewed by CLICKING HERE.

**Brown stem rot (BSR)**

Symptoms of BSR are usually not evident until late in the growing season and may be confused with signs of crop maturity or the effect of dry soils. The most characteristic symptom of BSR is the brown discoloration of the pith especially at and between nodes near the soil line. This symptom is best scouted for at full pod stage. Foliar symptoms, although not always present, typically occur after air temperatures have been at to below normal during growth stages R3-R4, and often first appear at stage R5, peaking at stage R7. Foliar symptoms include interveinal chlorosis and necrosis (i.e., yellowing and browning of tissue between leaf veins), followed by leaf wilting and curling. Yield loss as a result of BSR is generally greatest when foliar symptoms develop. The severity of BSR symptoms increases when soil moisture is near field capacity (i.e., when conditions are optimal for crop development).

Foliar symptoms of BSR can be confused with those of sudden death syndrome (see description below). However, in the case of sudden death syndrome (SDS), the pith of affected soybean plants will remain white or cream-colored. In addition, roots and lower stems of plants suffering from SDS (but not those suffering from BSR) often have light blue patches indicative of spore masses of the fungus that causes SDS.

BSR is caused by the soilborne fungus Cadophora gregata. There are two distinct types (or genotypes) of the fungus, denoted Type A and Type B. Type A is the more aggressive strain and causes more internal damage and plant defoliation than Type B. P. gregata Type A also is associated with higher yield loss. P. gregata survives in soybean residue, with survival time directly related to the length of time that it takes for soybean residue to decay. Thus, P. gregata survives longer when soybean residue is left on the soil surface (e.g., in no till settings) where the rate of residue decay is slow. P. gregata infects soybean roots early in the growing season. It then moves up into the stems, invading the vascular system (i.e., the water-conducting tissue) and interfering with the movement of water and nutrients.

Several factors can influence BSR severity. Research from the University of Wisconsin has shown that the incidence and severity of BSR is greatest in soils with low levels of phosphorus and potassium, and a soil pH below 6.3. In addition, C. gregata and soybean cyst nematode (Heterodera glycines) frequently occur in fields together, and there is evidence that BSR is more severe in the presence of this nematode.

BSR cannot be controlled once plants have been infected. **Foliar fungicides and fungicide seed treatments have NO effect on the disease.** Use crop rotations of two to three years away from soybean with a non-host crop (e.g., small grains, corn, or vegetable crops), as well as tillage methods that incorporate plant residue into the soil. Both of these techniques will help reduce pathogen populations by promoting decomposition of soybean residue. Also, make sure that soil fertility and pH are optimized for soybean production to avoid overly low phosphorus and potassium levels, as well as overly low soil pH. Finally, grow soybean varieties with resistance to BSR. Complete resistance to BSR is not available in commercial varieties. However several sources of partial resistance that provide moderate to excellent BSR control are available. Also, some, but not all, varieties of soybean cyst nematode (SCN) resistant soybeans also are resistant to BSR. Most soybean varieties with SCN resistance derived from PI 88788 express resistance to BSR. However, the same is not true of varieties with SCN resistance derived from Peking. Therefore growers should consult seed company representatives about BSR resistance when selecting a variety with SCN resistance derived from this source. You can download a full color fact sheet on BSR by clicking here.

**White Mold**

Symptoms of white mold are becoming pretty apparent in Wisconsin. White fluffy growth (mycelium) is readily evident. Incidence in the northern half of the state is higher. We have visited fields as far north as Wausau and Pulaski, Wisconsin and have observed incidence ranging from 0% to 30% of plants infected. Reports from areas in the northwest indicate white mold present, but not as high of incidence levels. As we move to the southern
portion of Wisconsin, white mold can be found, but at reasonably low levels. Most of the soybean crop is at the R5 growth stage, with some earlier maturing fields approaching R6.

Questions have arisen about spraying fungicide now to reduce the damage caused by white mold and preserve yield. The short answer is NO. The reason is that the primary means of infection by the white mold fungus is through soybean flowers. These infections happened weeks ago. Therefore, the optimal time to spray would be when flowers were out. A low level of plant-to-plant transmission can occur late in the season in soybeans. However, this rate is low enough, that spraying to prevent it does not produce favorable results.

How much soybean yield might I lose from white mold?

Research has demonstrated that for every 10% increase in the number of plants that are infected with white mold at the R7 growth stage, you can expect between 2 to 5 bushels of yield loss. Thus, the fields I mentioned earlier will likely range from little detectable yield loss (3% incidence) to as high as 10 bushels lost (20% incidence).

What should I do if I see white mold in my soybean field now?

Get out and survey your fields for white mold. It is a good idea to determine how much white mold you have in your fields, so you can make some educated harvest decisions. One way to move white mold from one field to the next is via combines. You could clean your combine between each field, but this can be time consuming.

So by determining which fields have no white mold and which fields have the most white mold, you can develop a logical harvest order by beginning your harvest on fields with no white mold and working your way to the heavily infested fields. This will help reduce spread of the white mold fungus to fields that aren’t infested. You can also make some decisions on your rotation plan and future soybean variety choices based on these late season observations.

If you would like to learn more about white mold and management of this disease, CLICK HERE to download a fact sheet from the crop protection network.

---

**Drought Stricken Soybeans.. Should I Leave Them or Take Them for Forage?**

Shawn Conley, State Soybean and Wheat Specialist
University of Wisconsin, Madison

To read this article from its original blog, click here.

Late soybean plantings followed by dry conditions have some northern WI growers considering chopping their soybean as a forage. Before you even consider this option make sure you check the label of the pesticides applied to the crop before you grease the chopper.

- Let’s start with the herbicides first. In short, outside of glyphosate (25 day) and a handful of pre’s and posts (please refer to Table 3-3 in A3646, Pest Management is WI Field Crops) most soybean herbicides are listed as “not permitted” for forage use.

- Next, many common insecticides used for soybean aphid management implicitly state “Do NOT graze or feed treated forage or straw to livestock” (please refer to A3646, Pest Management is WI Field Crops.

- Lastly, fungicide labels are as equally exclusive with pre-harvest intervals ranging from 14 days to “Do NOT graze or feed soybean forage or hay” (please refer to A3646, Pest Management is WI Field Crops)

If you somehow pass the gauntlet of “Do not” or “Not Permitted” and the forage value is greater than the grain value then the highest protein and yields are obtained from soybean harvested at the R6 to R7 growth stage. Harvesting soybeans for forage between the R1 and R5 stage will result in a very high quality silage, but dry matter yields will be reduced significantly. Forage quality will be reduced from R5 soybean forward if a conditioning process is used during harvest as conditioning will cause significant seed shattering.

Here are some options for you to consider to help think through the forage versus grain decision.

Option # 1: Soybean haylage considerations

What is my realistic tonnage expectations?

- Late planted drought stricken soybean will yield ~1 to 2 tons of dry matter per acre.

What is it going to cost me to harvest and put this crop up?

- The average cost on a per acre basis to harvest and ensile a soybean forage according to 2017 WI Farm
Custom rate survey are as follows:

- Mowing ($14.20 per acre)
- Swathing ($7.75 per acre)
- Haylage (Chopping, hauling, & packing bunker; $49.20 per acre)

How should I price this crop?

- “Soybean silage pricing will fall between good quality hay and poor quality hay (Refer to: https://fyi.uwex.edu/forage/hay-market-report-8-13-2018/)”
- If you were to price the soybean forage based on expected grain yield and CBOT then realistic yield levels would range from 15 – 25 bu per acre at $7.95 per bu (local cash price: 8/22/18). Expected forage value range would be $119.25 to $198.75 per acre.

Option #2: Green manure considerations

I am tired of throwing money at this crop……….

- Though you will save on harvest costs the average cost of a plow down disk operation is $19.70 per acre.

How much will I save on next years fertilizer bill?

- By not harvesting the crop you will not remove the 30# P and 85# K (estimated removal rates of P2O5 and K2O for 15-25 bu per acre soybean grain and straw (A2809)).
- You may contribute 20-40 pounds of N to next years corn or wheat crop.

Neither of these prove to be particularly attractive options. However I would encourage growers, crop consultants, and nutritionists to weigh the true economical value of each option carefully before proceeding.

Wisconsin DATCP Pest Bulletin, August 23

Krista Hamilton, Entomologist, Bureau of Plant Industry
Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 16 of the Wisconsin Pest Bulletin is now available at: Print/View this issue

LOOKING AHEAD: Large corn earworm flights registered in southern WI

FORAGES & GRAINS: Late-season grasshopper activity increasing in alfalfa

CORN: Preliminary corn rootworm beetle survey results show mostly low populations

SOYBEAN: Japanese beetles still common in Wisconsin soybeans

FRUITS: Brown marmorated stink bug confirmed in a Marquette Co. orchard

VEGETABLES: Cucurbit downy mildew reported in Columbia County

NURSERY & FOREST: Powdery mildew especially prevalent in nurseries this year

DEGREE DAYS: Growing degree day accumulations as of August 22, 2018

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update August 17

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 August 11, 2018 through August 17, 2018.

The 8/17/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at: https://pddc.wisc.edu/wp-content/uploads/sites/39/2018/08/FullTable081718.pdf

Follow us
2018 Pest Management Update Highlights:

- Integrated Pest Management Updates in corn, soybeans, alfalfa, and small grains: Update on new products and/or use of existing products as well as brief highlights of the 2018 pest situations in each crop.
- Waterhemp management
- Dicamba off-target research
- Pollinator Training
- Soybean cyst nematode training and management

Please make your reservation with the host contact at least one week prior to the scheduled meeting date.

Three hours of Certified Crop Advisor CEU credits in pest management are requested for each session.

To download the PDF of the flier from the end of this issue, CLICK HERE.

Top 8 Recommendations for Winter Wheat Establishment in 2018

Shawn Conley, State Soybean and Small Grains Specialist; John Gaska, Outreach Specialist; Damon Smith, State Field Crops Pathology Specialist

Top 8 winter wheat establishment recommendations:

- Variety selection: please see the 2018 WI Winter Wheat Performance Test
- Plant new seed (DO NOT plant saved seed).
- A fungicide seed treatment is recommended for winter wheat in WI, especially for seed damaged by Fusarium head blight (FHB).
Wheat should be planted 1 to 1.5 inches deep.

The target seeding rate for wheat planted from September 15th to October 1st is 1,300,000 to 1,750,000 seeds per acre.

The optimal seeding rate for wheat planted after October 1st should be incrementally increased as planting date is delayed to compensate for reduced fall tillering.

Crop rotation matters.

Plant between September 20 and October 5

To hear more about each of these recommendations in detail, click here.

Tar Spot on Corn in Wisconsin

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

Tar spot is no longer a cosmetic leaf disease in Wisconsin and Illinois. We have seen epic levels this season, resulting in severe damage in some fields and early dry-down of corn.

Read the full blog post here >>> Holy Tar Spot, Batman!

Send in Waterhemp Seeds for Free Herbicide Resistance Screening

Wisconsin Waterhemp Herbicide Resistance Project

Rodrigo Werle, UW-Madison Extension Cropping Systems Weed Scientist

According to our recent survey, waterhemp has become the most concerning weed in row crop production in Wisconsin. Thus, we invite Wisconsin farmers and agronomists to collect waterhemp seeds this fall from their row crop production fields and submit them to UW-Madison for herbicide resistance screenings (we ask farmers to collect samples from only one of their fields; preferably the one with the most troublesome infestation level).

We intend to screen samples in the greenhouse for resistance to glyphosate (Group 9) and also to PPO-inhibitor (e.g., Cobra, Flextar, Cadet; Group 14), ALS-inhibitor (e.g., Pursuit, Classic, FirstRate; Group 2), HPPD-Inhibitor (e.g., Group 27), PSII-inhibitor (e.g., Atrazine; Group 5) and Growth Regulator (e.g., dicamba, 2,4-D; Group 4) herbicides. Results will be made available to those who submit the samples after the greenhouse screenings are completed.

There is no cost associated to the herbicide resistance screening. The only cost will be your time to collect the seed samples and mailing them to: Rodrigo Werle, 1575 Linden Drive, Madison, WI 53706.

Please download and print the SEED COLLECTION FORM (PDF file) for information on how to collect the seeds and fill out the information necessary for the project. Please submit the form with the seed sample. Samples will only be included in the herbicide resistance screening if the information requested herein is provided by the farmer/ agronomist.

For questions, contact Dr. Rodrigo Werle via e-mail: rwerle@wisc.edu or phone: 608-262-7130.

We thank the Wisconsin Soybean Marketing Board for providing partial funding to support this project and also those submitting samples.

Here is a short ID video which includes waterhemp.
Warrant Now Registered For Use in Alfalfa in Wisconsin

Mark Renz, Associate Professor and Extension Specialist, University of Wisconsin

Warrant is an encapsulated formulation of acetochlor, often used for pre-emergent weed control in soybeans, has just received registration for use in establishing and established alfalfa in Wisconsin. For details on the use please visit the supplemental label (click here). Below is a summary of the use pattern and restrictions.

Seedling alfalfa:

- Apply 1.25 to 2 quarts per acre following alfalfa emergence to the 4th-trifoliate stage. If fall planted you can also apply the following spring after green-up.
- A sequential application between 1.25 to 2 quarts per acre may be made after the first or second cutting but no later than 7 days after the alfalfa is cut.
- Wait a minimum of 20 days after application before cutting for forage or hay, or before open grazing of forage by livestock.

Established Alfalfa Stands (Non-Seeding Year):

- Apply 1.25 to 2 quarts per acre after spring green-up and between cuttings but no later than 7 days after alfalfa is cut.
- Remove any previously cut forage or hay from the field before making applications.
- Wait a minimum of 20 days after application before cutting for forage or hay, or before open grazing of forage by livestock.

Restrictions:

- Do not use this product on alfalfa grown for seed production.
- Remove domestic livestock from alfalfa stands before making applications of this product.
- Allow a minimum of 20 days between an application and subsequent cutting for forage or hay, or before open grazing of forage by livestock.
- Do not exceed a maximum of 2 quarts (1.5 lbs a.i.) per acre of this product as a single application.
- Do not exceed a total of 3 applications of this product per alfalfa growing season.

Managing Volunteer Wheat in Late Summer Seeded Alfalfa

Mark Renz, Associate Professor and Extension Specialist, University of Wisconsin

This summer is shaping up to be a great year for volunteer wheat in our late summer seeded alfalfa stands. This “weed” often raises questions about whether it should be managed or not in alfalfa stands. It can provide valuable forage the following spring (1-2 tons DM/A) but its forage quality is less than alfalfa and dense infestations reduce alfalfa survival. To better understand these issues and what the impacts of successful control would be we established experiments at three locations throughout Wisconsin. Results are summarized in this factsheet. Key points are below. Based on results we recommend maintaining volunteer wheat biomass so that it is < 35% of the total forage the following spring. This will minimize the impact to alfalfa stand density while providing high yields the following spring. To attain this level of control we recommend applying an herbicide that will provide at least 70% control of volunteer wheat in the fall.

Key points

- Glyphosate and sethoxydim applied when volunteer wheat is 4-6 inches tall provided high levels of control that persisted through spring resulting in near pure stands of alfalfa.
- Controlling volunteer wheat protected alfalfa stem density, with applications to 4-6” tall wheat providing 22% higher stem density than later timings (6-12” tall).
- Yield the following spring was highest in treatments with low volunteer wheat control but wheat was between 47 and 85% of the forage biomass.
- Forage quality was reduced in treatments that had substantial amounts of wheat in the forage (> 35%) resulting in approximately a 5% reduction in Milk/ton of forage.
Wisconsin Pest Bulletin, Issue No. 17, August 30

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection

Volume 63 Issue No. 17 of the Wisconsin Pest Bulletin is now available at:


INSIDE THIS ISSUE

LOOKING AHEAD: Corn earworm migration flights continue for third consecutive week

FORAGES & GRAINS: Alfalfa insect counts mostly low throughout August

CORN: Corn rootworm beetle survey results indicate low crw pressure this season

SOYBEAN: Soybean aphid populations higher than in past two years, still low overall

FRUITS: Economic codling moth flights continue in some orchards

VEGETABLES: Late blight confirmed by UW on potato in Waushara County

NURSERY & FOREST: Verticillium wilt and magnolia scale found during August inspections

DEGREE DAYS: Growing degree day accumulations as of August 29, 2018

Wisconsin Fruit News – Volume 3, Issue 10

Janet van Zoeren and Christelle Guédot, UW-Extension

https://go.wisc.edu/z7573w

Cooler temperatures and rainy days herald the beginning of fall and the harvest season. We hope you’re all gearing up for a great harvest season and a great fall — it’s my favorite time of year!

We will continue to publish the WFN into October.

This week in the Wisconsin Fruit Newsletter you can find:

• Insect Diagnostic Lab update
• Plant Disease Diagnostic Clinic update
• High Tunnel Raspberry and Blackberry Guides
• Leaf tissue analysis for berry crops- Now is the time
• Cranberry plant and pest degree-days: Aug 22, 2018
• Grape variety developmental stages: Aug 23, 2018
• Botrytis bunch rot of grapes
• Brown marmorated stink bug in Dane County apple orchards
• Oblique banded leaf roller

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update August 31

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 August 25, 2018 through August 31, 2018.

The 8/31/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

The schedule for the Wisconsin Pest Management Update meeting series is listed below. Presentations will include agronomic pest management information for Wisconsin field and forage crops. Speakers include Mark Renz and Rodrigo Werle, weed scientists, Damon Smith, plant pathologist, and Bryan Jensen, entomologist.

The format will be the same as in 2017. Meetings will either be in the morning or afternoon and will run for 3 hours. Note that several locations and contacts have changed since 2017 (marked with *). Please read carefully and make sure you contact the appropriate person at your desired location.

*Please make your reservation with the host agent at least one week prior to the scheduled meeting date.*

<table>
<thead>
<tr>
<th>Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday, November 12</strong></td>
<td></td>
</tr>
<tr>
<td>Marshfield</td>
<td>Richard Halopka</td>
</tr>
<tr>
<td>Marshfield Agricultural Research Station</td>
<td>Clark County Extension Courthouse</td>
</tr>
<tr>
<td>2611 Yellowstone Drive Marshfield, WI 54449</td>
<td>Room 104, 517 Court Street Neillsville, WI 54456</td>
</tr>
<tr>
<td></td>
<td>(715) 743-5121</td>
</tr>
<tr>
<td><strong>Tuesday, November 13</strong></td>
<td></td>
</tr>
<tr>
<td>Chippewa Falls</td>
<td>Jerry Clark</td>
</tr>
<tr>
<td>Lake Hallie Eagles Club, 2588 Hallie Road</td>
<td>Chippewa County Extension</td>
</tr>
<tr>
<td>Chippewa Falls, WI 54729</td>
<td>711 N. Bridge Street Chippewa Falls, WI 54729</td>
</tr>
<tr>
<td></td>
<td>(715) 726-7950</td>
</tr>
<tr>
<td><strong>Wednesday, November 14</strong></td>
<td></td>
</tr>
<tr>
<td>Platteville*</td>
<td>Amanda Cauffman*</td>
</tr>
<tr>
<td>Student Center – University Rooms University of Wisconsin-Platteville</td>
<td>Grant County Extension</td>
</tr>
<tr>
<td>1 University Plaza</td>
<td>916 E. Elm Street Lancaster, WI 53813</td>
</tr>
<tr>
<td>Platteville, WI 53818</td>
<td>(608) 723-2125</td>
</tr>
<tr>
<td><strong>Wednesday, November 14</strong></td>
<td></td>
</tr>
<tr>
<td>Janesville</td>
<td>Nick Baker</td>
</tr>
<tr>
<td>Holiday Inn Express Janesville</td>
<td>Rock County Extension</td>
</tr>
<tr>
<td>3100 Wellington Place Janesville, Wisconsin 53546</td>
<td>51 S. Main Street Janesville, WI 53545</td>
</tr>
<tr>
<td>(I-90 and US Highway 14, West on 14)</td>
<td>(608) 757-5698</td>
</tr>
<tr>
<td><strong>Thursday, November 15</strong></td>
<td></td>
</tr>
<tr>
<td>Fond du Lac*</td>
<td>Tina Engelhardt*</td>
</tr>
<tr>
<td>University of Wisconsin – Fond du Lac</td>
<td>Fond du Lac County Extension</td>
</tr>
<tr>
<td>Rm 113 University Center</td>
<td>227 Admin/Extension Bldg. 400 University Dr.</td>
</tr>
<tr>
<td>400 University Drive Fond du Lac, WI 54935</td>
<td>Fond du Lac, WI 54935</td>
</tr>
<tr>
<td></td>
<td>(920) 929-3171</td>
</tr>
<tr>
<td>Kimberly</td>
<td>Kevin Jarek</td>
</tr>
<tr>
<td>Liberty Hall</td>
<td>Outagamie County UW Extension</td>
</tr>
<tr>
<td>800 Eisenhower Drive</td>
<td>3365 W. Brewster St. Appleton, WI 54914</td>
</tr>
<tr>
<td>Kimberly, WI 54136</td>
<td>(920) 832-5128</td>
</tr>
<tr>
<td>(Highway 441, College Avenue Exit, East 1 block)</td>
<td>(920) 832-5128</td>
</tr>
<tr>
<td><strong>Friday, November 16</strong></td>
<td></td>
</tr>
<tr>
<td>Bangor*</td>
<td>Kaitlyn Lance*</td>
</tr>
<tr>
<td>Log Cabin, Jones Road, Bangor, WI 54614</td>
<td>La Crosse County UW Extension</td>
</tr>
<tr>
<td></td>
<td>212 6th Street North La Crosse, WI 54601</td>
</tr>
<tr>
<td></td>
<td>(608) 785-9593</td>
</tr>
</tbody>
</table>
Wheat is an important agronomic crop in the rotations of many Midwestern states and is often followed by a late summer seeding of alfalfa. In this situation, wheat seed not collected in the combine becomes a weed and impacts alfalfa establishment and productivity, especially in no and reduced till fields. Previous research in Wisconsin has shown that volunteer wheat can reduce alfalfa density by up to 50%, resulting in shorter alfalfa stand life and reducing forage quality the following spring. This past research documented a well-timed application of sethoxydim (Poast Plus) during establishment in the fall when wheat is less 6 inches tall can alleviate this impact and provide excellent control (see photo below).

This research (done between 2008-2010) led to further questions about managing volunteer wheat in alfalfa:

- **Does glyphosate (Roundup) in Roundup Ready Alfalfa or imazamox (Raptor) provide similar control as sethoxydim (Poast Plus)?**
- **Is performance maximized when applied to volunteer wheat that is less than or equal to 6 to 6 1/2 inch tall?**
- **What level of volunteer wheat control is needed to prevent impact on alfalfa establishment while maximizing forage productivity and quality for dairy-based systems?**

To address these questions, a study was initiated in 2015 at three locations across Wisconsin to compare the effectiveness of Roundup (glyphosate), Raptor (imazamox) and Poast Plus (sethoxydim) in controlling volunteer wheat in alfalfa. Research sites were located in central, eastern and southwestern parts of the state. Roundup Ready alfalfa was seeded into fields where winter wheat was harvested earlier that summer. Roundup WeatherMAX at 22 fl oz/acre, Poast Plus at 2.25 pt/acre and Raptor at 4 fl oz/acre were compared to an untreated control at all three locations. Adjuvants were used per label recommendations for each product. Early applications were made when wheat was 4-6 inches tall, and alfalfa was at the 2-3 trifoliate leaf stage; the later application was made 12-20 days later, when wheat was 6-12 inches tall. Results are averaged across all three locations.
By 28 days after treatment (late October – early November), both herbicide treatments and timings of application affected control of volunteer wheat (P < 0.05). Roundup controlled volunteer wheat the best (100%), followed by Poast Plus (88%) and Raptor (66%). Roundup and Poast Plus control was maintained through spring as cover of volunteer wheat was less than 5% present. Raptor treated plots had on average half the cover of untreated plots (65%) [data not shown]. Although an earlier application timing provided better volunteer wheat control, it averaged less than 10% improvement versus the later timing [data not shown].

April alfalfa stem density increased with herbicide and the early application timing compared to the untreated areas (P < 0.05). Stem density was greatest with Roundup resulting in the highest stem density (83 stems/ft²) followed by Poast Plus applied early (72 stems/ft²). Stem density from Raptor treatments and untreated areas were, on average, unacceptable as stem density was below the recommended levels for established alfalfa fields of 55 stems/ft². Low stem density from Raptor treatments was likely due to the variable and poor volunteer wheat control and could be improved if higher rates and/or an earlier application timing is used. Application timing also influenced stem density, with early application timings providing 22% greater stem density compared to later timings [data not shown].
FORAGE YIELD

Yield in May was 0.5-0.6 tons dry matter/acre higher in the Raptor and untreated treated plots compared to Poast Plus and Roundup (P < 0.05). Increased forage in the Raptor and untreated plots was from volunteer wheat biomass, as it averaged 84% and 53% of the total forage biomass. Forage biomass from the Roundup and Poast Plus treatments, in contrast, were mostly alfalfa with on average 5% and 16% wheat biomass, respectively.

Forage quality averaged across three locations when volunteer wheat was managed by one of three herbicides (P value = <0.01)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Crude protein</th>
<th>ADF</th>
<th>NDF</th>
<th>RFQ</th>
<th>Milk/ton forage</th>
<th>Milk/acre forage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup (glyphosate)</td>
<td>21.6a</td>
<td>30.2b</td>
<td>37.5c</td>
<td>184a</td>
<td>3,190a</td>
<td>5,405b</td>
</tr>
<tr>
<td>Poast Plus (sethoxydim)</td>
<td>20.9a</td>
<td>30.3b</td>
<td>38.9c</td>
<td>178a</td>
<td>3,169a</td>
<td>5,200b</td>
</tr>
<tr>
<td>Raptor (imazamox)</td>
<td>16.7b</td>
<td>32.1a</td>
<td>47.0b</td>
<td>152b</td>
<td>3,030b</td>
<td>6,412a</td>
</tr>
<tr>
<td>Control (non-treated)</td>
<td>14.0c</td>
<td>32.7a</td>
<td>51.5a</td>
<td>138c</td>
<td>3,010b</td>
<td>6,967a</td>
</tr>
</tbody>
</table>

* Dan Undersander (University of Wisconsin -Extension Agronomy Professor) developed a method for estimating milk per ton of forage dry matter (DM) as an index of forage quality of alfalfa and grasses. For more information, see https://fyi.uwex.edu/forage/milk2016-combining-yield-and-quality-into-a-single-term/
In developing a threshold, one must consider the benefits of volunteer wheat to forage production as well as the reduction in forage quality and impact on alfalfa stand establishment. While yield and resulting milk/acre were highest in uncontrolled areas the following spring, the forage quality and resulting milk/ton of forage is reduced. Additionally stem density is reduced if volunteer wheat is not controlled, potentially impacting alfalfa stand life. We found at least 60% control of volunteer wheat was needed to, on average, meet the minimum alfalfa stand stem density that will allow for maximum yield (55 stems/ft²). The relationship was linear and for every increase in control by 10%, an increase of 6 stems/ft² was observed. Thus, higher yields can be expected in the first harvest in spring if winter wheat is not controlled, but the forage quality will be reduced and wheat presence could reduce alfalfa stand life. To offset these conflicting results, we recommend producers aim to keep volunteer wheat less than 35% of the total forage. This translates to 70% or better control in the fall. To obtain these levels of control, several herbicides could be utilized at a range of timings.

Results across three locations confirm that volunteer wheat can impact summer seedings of alfalfa. Applications of Roundup or Poast Plus to volunteer wheat that was 4-6 inches tall provided the best control in these experiments 28 days after treatment and the following spring with minimal amounts of volunteer wheat in the total forage. As the volunteer wheat does have value as a forage, its presence in the forage can increase milk production per acre; however this impacts the alfalfa stem density and long-term stand life of the alfalfa. Based on our results, we recommend that producers prevent volunteer wheat from becoming more than 35% of the total forage the following spring. This would translate to 70% control of volunteer wheat 28 days after application.
Lodged corn
Fields that have lodged at denting (R5) might “goose-neck” back upright if they are still green. However, high yielding heavy ears may prevent the stalks from straightening at all. Fields should respond to any straightening within 7-10 days.

Silage harvest
Some things to consider as we head into corn silage harvest season:

1. Safety first.

2. Water saturated soils will slow down plant dry-down rate, especially with cooler temperatures. Allowing a little more time for the field to dry out will help alleviate potential soil compaction.

3. Regardless of lodging, the key management driver is plant moisture. Yield is no longer a concern. Target fields at the ideal moisture content of the storage structure. Bag silos have the greatest moisture range (60 to 70%) and may be best option when the field is variable.

4. Good fermentation will help with preservation. Consider a silage inoculant, however, balance the cost of the product with the loss expected in in the field. Don’t throw good money after bad.

5. Use a Kemper head and go against the direction in which it leans.

6. Reach down low. Run the head as close to the ground as possible. Be wary of rocks and uneven terrain.

Handling Flooded and Down Corn at Silage and Grain Harvest

Dr. Joe Lauer, UW-Madison Agronomy and UWEX state corn specialist

Rain events during August produced localized flooding affecting numerous corn fields. Recent high winds combined with saturated soils have resulted in lodged corn. All this is occurring at the dent growth stage (R5) as we head into corn silage harvest season. Heavy silage harvest equipment can further damage soils by causing compaction which could influence next year’s crop.

Flooded corn
Flood water from streams and silt can be a source of pathogens. Flooded corn grain is “adulterated” grain. Farmers are strongly encouraged to work closely with their veterinarian and animal nutritionist when determining which vaccination and feeding protocol to use to further protect the herd from possible health issues associated with feeding flooded crop material. Flooded crops should be stored separately from the rest of your feed. In cases of production problems, this allows for feeding or disposal options without affecting your good feed.
7. Make sure the kernel processor is adjusted correctly. Kernel processing allows for grain that might be more mature extending the harvest window and allowing the soil to dry more avoiding compaction.

**Grain harvest**

Identify fields that are at greatest risk and harvest these fields first. Fields which experienced late season stress or disease would be prime candidates for early harvest.

8. Safety first

9. Reduce ground speed. Slow down and adjust gathering chain and snapping roll speed to match combine speed

10. Go against the grain. Combine corn the opposite direction from which it leans.

11. Catch the corn. Adjust gathering chains and snapping plate as close as possible to the stalks.

12. Reach down low. Run the head as close to the ground as possible. Be wary of rocks and uneven terrain.


**Further Reading**

- [Flooding Effects on Corn](#)
- **Lodging in Corn**


---

**What to Expect from Stalk Rot and Mycotoxins in Severely Diseased and Damaged Corn**

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

To view this blog post from its original website, click here.

Corn is looking pretty rugged in many areas of the Wisconsin corn belt. Areas in southern, southwestern, and south-central Wisconsin have experienced major foliar disease epidemics including the new disease, tar spot. Areas in eastern, east-central, and south-central Wisconsin have also seen heavy flooding and storm damage in corn fields. We have seen fields severely diseased, experiencing stalk rot, lodged, flooded – you name it, it has been a challenging finish to a season that had much promise.

**How is tar spot affecting stalk integrity?**

---

**Two New Videos Posted on Corn Diseases In Wisconsin**

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison

Gibberella ear rot on corn>>> The 2018 corn growing season has been met with numerous disease challenges this season. From typical foliar disease issues like gray leaf spot and northern corn leaf blight, to new diseases like **tar spot** and **bacterial leaf streak**, the season has not been easy. As we have started to chop silage, ear rot and mycotoxin issues are also readily apparent.

In an effort to address the new disease, tar spot, we have put together a new video on what we know and don’t know. You can view that new video on YouTube, by [CLICKING HERE](#). We have also assembled a second video on ear rots and mycotoxin issues in silage corn. That video can be found on YouTube by [CLICKING HERE](#).

We hope you find these videos informative and help you gain ideas to manage these issues in your operation.
For corn foliar diseases such as northern corn leaf blight (NCLB) and gray leaf spot (GLS), it is well known that high severity can lead to stalk integrity issues. As foliage is damaged, less photosynthetic capacity is available from the leaves to produce carbohydrates for the plant. To fill an ear of corn, carbohydrates are needed from somewhere. In corn where the foliage is significantly damaged, the stalks become a considerable source to fill out the ear (a sink for nutrients). This leaves the stalk tissues devoid of carbohydrates leading to cell death and subsequent colonization of the stalk by fungal pathogens who are taking the opportunity to feed on a weak stalks. Thus, it isn’t uncommon to see stalk rots like Gibberella stalk rot, Fusarium stalk rot or Anthracnose stalk rot at higher incidence where high foliar disease pressure was observed (Fig.1). Where you find stalk rots, you often find root rots caused by the same pathogens. Root rot and stalk rot often go hand-in-hand.

Other causes for loss in stalk integrity can include large ears (nutrient sinks) that the plant can't fill out, without using some of the stalk resources. In 2018 we saw many fields where the crop was moving through growth stages quickly and setting what appeared to be good yields. However, weather conditions changed midseason, with wet weather and more cloud cover, combined with nitrogen issues in some fields. This led to large ears that needed to be filled out, with again, limited photosynthetic capacity. The stalks were scavenged for carbohydrate, leaving them, again, with limited integrity.

What about tar spot, lodged corn, and mycotoxins?

Mycotoxins have not been implicated in the organisms reported to cause tar spot in Latin America. However, that doesn’t mean that other organisms that cause mycotoxins might not be present on harvested grain or silage. As plants dry down they can no longer actively fight fungal infection. We have looked at many brown and drying leaf samples from corn plants with tar spot. We do find many other fungal organisms, including Fusarium-organisms, which can produce mycotoxins. So while tar spot itself may not lead to mycotoxins, opportunistic fungi that colonize secondarily may result in elevated mycotoxin levels.

In addition, corn that has lodged and is in contact with the wet and saturated ground is at risk of being colonized by organisms that produce mycotoxins. Many of the known mycotoxin-producing fungi are found in the soil and on residue on the surface of the soil. If lodged corn is in contact with the ground and there is good moisture, it is possible that the ear and plant are being colonized and mycotoxins are being produced. So while your combine might be able to pick a plant up and harvest the ear, beware that it might be heavily colonized with organisms that produce mycotoxins. If taking corn for silage, lodged plants run the risk of significant hygiene issues in the bunker, including mycotoxins issues.

Where else can mycotoxins come from?

Figure 3. Diplodia ear rot on an ear of corn

Corn ears don't have to touch the ground to be infected with ear-rot...
fungi, they can also be colonized by ear-rot fungi through the silks. Given the kind of crazy year we have had, ear rot might be a significant concern in fields that saw erratic weather this season. Ear rots caused by fungi in the groups Diplodia (Fig. 3), Fusarium, and Gibberella will be the most likely candidates to watch for as you begin harvest. Fusarium and Gibberella are typically the most common fungi on corn ears in Wisconsin. This group of fungi not only damage kernels on ears, but can also produce mycotoxins. The toxins of main concern produced by these organisms are fumonisins and vomitoxin and can threaten livestock that are fed contaminated grain. Thus grain buyers actively test for mycotoxins in corn grain, and feed managers monitor silage for mycotoxin levels to be sure they are not above certain action levels established by the U.S. Food and Drug Administration (FDA).

The FDA has established maximum allowable levels of fumonisins in corn and corn products for human consumption ranging from 2-4 parts per million (ppm). For animal feed, maximum allowable fumonisin levels range from 5 ppm for horses to 100 ppm for poultry. Vomitoxin limits are 5 ppm for cattle and chickens and 1 ppm for human consumption.

For more information about ear rots and to download a helpful fact sheet produced by a consortium of U.S. corn pathologists, CLICK HERE.

How do I reduce mycotoxin risks at harvest?

Before harvest, farmers should check their fields to see if moldy corn is present. Sample at least 10-20 ears in five locations of your field. Pull the husks back on those ears and observe how much visible mold is present. If 30% or more of the ears show signs of Gibberella or Fusarium ear rot then testing of harvested grain is definitely advised. If several ears show 50-100% coverage of mold testing should also be done. Observe grain during harvest and occasionally inspect ears as you go. This will also help you determine if mycotoxin testing is needed.

If substantial portions of fields appear to be contaminated with mold, it does not mean that mycotoxins are present and vice versa. For example, Diplodia ear rot does not produce mycotoxins. However, if you are unsure, then appropriate grain samples should be collected and tested by a reputable lab. Work with your corn agronomist or local UW Extension agent to ensure proper samples are collected and to identify a reputable lab.

For more information on mycotoxins and to download a fact sheet, CLICK HERE.

Helpful information on grain sampling and testing for mycotoxins can be found by CLICKING HERE.

For a list of laboratories that can test corn grain for myco-
toxins, consult Table 2-16 in UW Extension publication A3646 – Pest Management in Wisconsin Field Crops.

How should I store corn from fields with ear rots and mold?

If you observe mold in certain areas of the field during harvest, consider harvesting and storing that corn separately, as it can contaminate loads; the fungi causing the moldy appearance can grow on good corn during storage. Harvest corn in a timely manner, as letting corn stand late into fall promotes Fusarium and Gibberella ear rots. Avoid kernel damage during harvest, as cracks in kernels can promote fungal growth. Also, dry corn properly as grain moisture plays a large roll in whether corn ear rot fungi continue to grow and produce mycotoxins. For short term storage over the winter, drying grain to 15% moisture and keeping grain cool (less than 55F) will slow fungal growth. For longer term storage and storage in warmer months, grain should be dried to 13% moisture or less. Fast, high-heat drying is preferred over low-heat drying. Some fungi can continue to grow during slow, low-heat drying. Also, keep storage facilities clean. Finally, mycotoxins are extremely stable compounds: freezing, drying, heating, etc. do not degrade mycotoxins that have already accumulated in grain. While drying helps to stop fungal growth, any mycotoxins that have already accumulated prior to drying will remain in that grain. The addition of acids and reducing pH can reduce fungal growth but will not affect mycotoxins that have already accumulated in harvested grain.

For more information on properly storing grain and to download a fact sheet on the subject, CLICK HERE.

References


In addition, This article is a compilation of the following previously written resources:


Bacterial Leaf Streak of Corn Confirmed for the First Time in Wisconsin

Damon L. Smith, Extension Field Crops Pathologist, University of Wisconsin-Madison; Carol Groves, Associate Researcher, University of Wisconsin-Madison; Brian Hudelson, Plant Disease Diagnostician, University of Wisconsin-Madison; Sue Lueloff, Assistant Plant Disease Diagnostician, University of Wisconsin-Madison

To view this post from its original website, click here.

Figure 1. Symptoms of bacterial leaf streak on corn.

The 2018 corn production season in Wisconsin has been challenging to say the least. We had what looked to be some of the best corn production we ever had, and then the diseases started to move in. We have observed numerous foliar disease issues and have spent a lot of time trying to understand the tar spot epidemic in Wisconsin and surrounding states.

To add insult to injury, we have now confirmed bacterial leaf streak (BLS) of corn. You may remember that we have been on the lookout for this disease over the past several seasons, but have not confirmed it officially in the state until now. A corn sample was received in our Plant Disease Diagnostic Clinic this season from Pierce County with symptoms consistent with those for BLS (Fig. 1). The sample was confirmed positive in our clinic through multiple tests, including bacterial streaming and PCR. Subsequently, the sample has been confirmed positive by multiple laboratories, including the CPHST-Beltsville Laboratory.

Bacterial leaf streak (BLS) of corn was reported for the first time on corn in the U.S. in 2016, but was likely present in Nebraska since 2014. The first report was in Nebraska with subsequent reports coming in from other states in the U.S. corn belt. Other states where the disease has been confirmed include Iowa, Illinois, Colorado, Kansas, Minnesota, Oklahoma, South Dakota, Texas, and now Wisconsin.

What causes bacterial leaf streak and what are the symptoms?

Bacterial leaf streak is caused by a bacterium named Xanthomonas vasicola pv. vasculorum. It causes wavy narrow leaf lesions with wavy edges that are often brown in color. Lesions can appear translucent and have halos when backlit. Symptoms on corn have been observed as early as V7, starting in the lower canopy and moving up the canopy if weather conditions are favorable (wet weather, with hot temperatures). Little is known about the disease cycle, but researcher believe it can overwinter on corn residue. The bacterium is presumed to be spread by irrigation, splash-inning rain, or wind-driven rain. No injury is needed for the bacterium to enter the plant. It is unknown if the bacterium can be spread on, or in, seed and if there are alternative weed hosts.

Does bacterial leaf streak cause yield loss?

Little is actually known about the disease on corn in the U.S. Most researchers believe that yield loss is minimal if the disease moves in late in the season. If the disease moves in earlier and causes extensive leaf blighting during grain fill, then yield losses could be more substantial. Little is known about the effect of BLS on grain quality.

How do I manage bacterial leaf streak of corn?

Some corn hybrids appear to have better resistance to BLS than others. Work with your seed dealer to find a hybrid that is rated as resistant and fits your environment. Hybrid resistance will be key to manage this disease. BLS is caused by a bacterium, thus, fungicides are not effective in controlling this disease. Withholding irrigation has also been shown to not be effective as the disease can occur in dry-lands and irrigated fields. Managing corn residue through rotation may be helpful. Tillage and burying residue might also be an option, but managing soil erosion should be placed as a higher priority.

Other Resources about bacterial leaf streak

• You can click here to read the USDA APHIS Statement on Xanthomonas vasicola pv. vasculorum.

• To learn more about the disease and to watch a video by Dr. Tamra Jackson-Ziems at the University of Nebraska CLICK HERE.

• To learn how BLS is diagnosed in the lab, CLICK HERE to watch a video from Iowa State University.

• CLICK HERE to download a fact sheet on BLS of corn, by a team of U.S. plant pathologists.

How do I get a diagnosis if I suspect bacterial leaf streak?

If you suspect that you have BLS in your corn crop in Wisconsin, leaf samples of corn plants can be sent in a sealed plastic bag with NO added moisture to the University of Wisconsin Plant Disease Diagnostic Clinic (PDDC). Informa-
tion about the clinic and how to send samples can be found by [CLICKING HERE].

---

2018 Wisconsin Soybean Yield Contest

Shawn Conley, State Soybean and Small Grains Specialist

The Wisconsin Soybean Association (WSA) Soybean Yield Contest is organized to encourage the development of new and innovative management practices that highlight the importance of using sound cultural practices in Wisconsin soybean production systems. Any soybean production system can enter in the contest. Two winners will be selected from each of four geographical divisions in the state. Divisions are based on long-term county soybean yield averages. WSA is not responsible for incorrect or missing entries. All rules set forth herein apply to all entries.

For contest details, click here.
Crappy Prices Followed by Crappy Harvest Weather…These Beans Better Not Sprout Too!

Shawn Conley, State Soybean and Small Grains Specialist

To view this post on its original blog, click here.

The weather outlook does not look promising for any soybeans getting harvested over the next few weeks. This reality has many growers concerned about soybean sprouting in the pod. Fortunately this is not a common concern for northern soybean farmers but may be a problem in 2018. Given my lack of experience on this topic I leaned on a few of my southern colleagues for thoughts and advice on this topic.

Dr. Jeremy Ross; Extension Agronomist – Soybean/Professor; Crop, Soil, and Environmental Sciences Department; University of Arkansas System Division of Agriculture stated:

“We’re having issues with this again this year. From my observation, this tends to be a bigger problem in years where we have adverse weather conditions (typically hot and dry) during early reproduction, and then we have wetter than normal conditions during late reproduction. This is what we saw in 2009, 2016, and this year. My thoughts are that the pod cannot expand as rapidly as the seed expands, rupturing the pod suture. Once exposed to moisture, these seed sprout. I have seen seed sprout prior to the pod rupturing, and I can’t explain that sprouting other than excessive moisture caused the sprouting. Usually it’s just a few pods that show this, and they are usually at the same position on the main stem (all the pods developed at the same time). I’ve seen this happen up and down the main stem, but usually in the upper ½ of the plant is where I see the occur most frequently. From what I have seen in the past, the affected pods are less than 5% of the total number per plant. I haven’t seen this specific to any one particular genetics, variety or company. For more information refer to his blog article entitled: Splitting pods and sprouting soybean seed in the pods”

Dr. William Wiebold, Professor of Agronomy in the Division of Plant Science at the University of Missouri provides very detailed and excellent information regarding the mechanisms of sprouting in soybean in this article entitled: Wet Weather Can Cause Seeds to Sprout on the Plant.

Lets just hope the weather forecast is wrong and WI soybean farmers start rolling in their soybean fields like Bucky will roll over Nebraska this Saturday! Go Bucky!!!

2019 Wisconsin CCA of the Year Open for Nominations

Bryan Jensen, UW Extension and IPM Program

I know and understand there is never a slow time of the year in this business. But is there ever a bad time of the year to recognize an exceptional CCA? Didn’t think so.
Wisconsin Fruit News – Volume 3, Issue 12

Janet van Zoeren and Christelle Guédot, UW-Extension

http://bit.ly/2xPtSWZ

This will be our final issue of the Wisconsin Fruit Newsletter for this season. We hope you found it interesting, and look forward to beginning again next spring. Happy fall!

This week in the Wisconsin Fruit Newsletter you can read about:

• The end of another season
• Insect Diagnostic Lab update
• Plant Disease Diagnostic Clinic update
• Blueberry pruning
• Cranberry plant and pest degree-days: Sept 19, 2018
• Grape developmental stages: Sept 20th
• Post-harvest tasks in the apple orchard
• Beware: brown marmorated stink bug is on the increase this fall!

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update September 28

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 September 22, 2018 through September 28, 2018.

The 9/28/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update September 21

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 September 15, 2018 through September 21, 2018.

The 9/21/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update September 7

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 September 1, 2018 through September 7, 2018.

The 9/7/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


The Wisconsin CCA Board will be accepting nominations for the 2019 WI CCA of the Year Award. This award will recognize an exceptional CCA that is highly motivated and a leader in their field. To qualify, a person must be a CCA in good standing (holds a current CCA certification) and have a completed nomination form submitted by the March 1, 2019 deadline.

Customers, employees, colleagues or others associates may nominate a candidate. The selection committee is comprised of current WI CCA Board. Nominations will be evaluated solely on the information provided in the nomination form and accompanying letters of recommendation.

Two letters of reference are required along with a completed Nomination Form. Pay close attention to indicated character limits for each question. Electronic submissions are preferred but not required. Nomination criteria, Tips and a Nomination Checklist should help with preparation.

For questions or comments please contact Bryan Jensen, bmjense1@wisc.edu.
Recent Vegetable Crop Updates

Amanda Gevens, Associate Professor & Extension Specialist, Potato & Vegetable Pathology, UW-Madison Plant Pathology Department

Newsletter 24, September 17, 2018

In this issue we address:

- Late blight risk and updates
- Cucurbit updates
- Potato production updates

Newsletter 23, September 10, 2018

In this issue I address:

- Updates on potato late blight and cucumber downy mildew.
- No tomato late blight has been confirmed yet this season, but we typically see an increase in tomato detections at the end of the production season if weather promotes the disease. Sunny days have and will continue to limit late blight.
- We’ve been seeing an increase in incidence and severity of downy mildew on cucumbers this season, in comparison to past recent years. Maintain protective fungicide applications on winter squash and pumpkins that require a longer time to maturation/harvest.

Newsletter 22, September 6, 2018

In this issue we address:

- Late blight disease updates and risk (disease severity values)
- Pink eye and tuber diseases
- Cucurbit downy mildew update

Newsletter 21, August 27, 2018

In this issue we include articles on the following topics:

- Late blight risk updates and new report from Waushara Co. potato
- Cucumber downy mildew updates – news reports from Columbia, Dane, Ozaukee, and Portage Cos.
- Basil downy mildew confirmed in Rock Co.
- Hop phoma disease described – and management recommendations offered
- Potato storage trial updates
such as loss in stalk integrity or a plant that is left susceptible to other pathogens. I have written a previous article describing some of these issues, and how to deal with them.

To manage some of these foliar issues, increasing interest has been placed on using fungicides, especially in grain corn. Over the last several seasons, interest is growing from dairy producers who are also treating corn silage hybrids with fungicide. Why all the interest in treating silage corn with fungicides? Some of the intent is to improve feed digestibility. Dr. Felipe Cardoso’s animal science laboratory at the University of Illinois has published several peer-reviewed papers describing the physiological changes in the corn plant treated with fungicides, that result in improved feed digestibility. In those studies, yield was often not directly impacted by the fungicide application, but fibrous changes in the corn plant improved feed conversion to milk production in cows fed silage corn treated with fungicide (Haerr et al., J. Dairy Sci., 2015; Kalebich et al., J. Animal Feed Sci., 2017).

Our laboratory at the University of Wisconsin-Madison is also interested in the effects that fungicides might have on mycotoxin accumulation in silage corn hybrids. We are especially interested in the accumulation of deoxynivalenol (DON or vomitoxin). In corn, DON is primarily produced by a fungus called Fusarium graminearum. Fusarium graminearum can cause Gibberella ear rot (Fig. 1) and also Gibberella stalk and crown rot of corn (Fig. 2).

Figure 1. Gibberella ear rot on corn.
Soil, Water and Nutrient Management Meetings

Francisco Arriaga, Professor UW Soil Science, Soil Science Specialist, UW-Madison

Madison, Wis. – The University of Wisconsin-Extension in conjunction with UW-Madison Department of Soil Science will conduct eight Soil, Water and Nutrient Management Meetings Nov. 27 – Dec. 6, 2018 around the state to provide research updates in the field of soil management, fertility, and nutrient management.

Presentations include: – Cover crops and nutrient management – Can we use soil health tests for fertilizer recommendations? – Evaluating fall manure BMPs – Sampling soils and plants in Wisconsin – Are FGD and SDA calcium sulfite worth using? – Soil compaction issues after a wet fall – recap – Wisconsin nutrient management update

Speakers include UW-Extension Soil Specialists Carrie Laboski, Matt Ruark and Francisco Arriaga; Andrew Stammer, Director of the Soil & Forage Analysis Laboratory; and Sue Porter, Wisconsin Department of Agriculture, Trade and Consumer Protection.

Meetings will be held from 10:00am to 3:00pm with a lunch break between 12:00pm and 1:00pm. Registration is $45 per person. Lunch and a packet with relevant resources are included with registration. It is requested to contact the host of the location you are interested in attending to pre-register at least 1-week prior to the event to save a seat, meal, and materials packet. Continued Education Units (CEUs) for Certified Crop Advisers will be provided (2.0 NM and 2.0 SW).

The schedule for the meetings is:

- **Tuesday, November 27:** DeForest at Comfort Inn, 5025 County Hwy V. Contact: Heidi Johnson, UW-Extension Dane County at 608-224-3716. Please register online at fyi.uwex.edu/danecountyag/upcoming-ag-programs/

- **Wednesday, November 28:** Eau Claire at Clarion Hotel, 2703 Craig Road. Contact: Mark Hagedorn, UW-Extension Eau Claire County, 227 First St., Altoona, WI 54720; 715-839-4712.

- **Thursday, November 29:** Sparta at Jake’s Northwoods, 1132 Angelo Rd., Hwy 21. Contact: Bill Halfman, UW-Extension Monroe County, 14345 Co. Hwy B, Rm. 1, Sparta, WI 54656; 608-269-8722.

Animal nutritionists have observed many impacts of mycotoxins on animals, including dairy cattle. These can range from simple reductions in milk production all the way up to feed refusal, hemorrhaging, and death. For this reason, nutritionists have devised guidelines for dietary limits of some mycotoxins to reduce harm to the animal. Dr. John Goeser has assembled the “Mycotoxin Guidelines and Dietary Limits” fact sheet to help producers better understand the potentially harmful toxin levels in the total diet (DM). You will see in that chart that for DON, the suggested limit is just 0.5 to 1.0 ppm for dairy cattle. The fact sheet also provides a helpful formula to understand the contribution of toxin in a particular component of feed, relative to the total diet.

So how do fungicides affect DON in corn plants at harvest? Let’s look at some data from Wisconsin in 2017 and 2018.

This article continues on Damon Smith’s blog with several more research graphs and charts.

To read the rest of this article, click here.
• Friday, November 30: Marshfield at Marshfield Ag Research Station Auditorium, 2611 Yellowstone Dr. Contact: Evan Henthorne, UW-Extension Adams County, 569 N. Cedar St. Ste. 3, Adams, WI 53910; 608-339-4237.

• Monday, December 3: Juneau at Dodge County Admin Bldg., 127 Oak St. Contact: Laure Dei, UW-Extension Dodge County, Admin Bldg. 127 Oak St., Juneau, WI 53039; 920-386-3790.

• Tuesday, December 4: Kiel at Millhome Super Club, 3 miles East on Hwy. 57/31. Contact: Mike Ballweg, UW-Extension Sheboygan County, 5 University Dr., Sheboygan, WI 53081; 920-459-5904.

• Wednesday, December 5: Cecil at The Main Event, 206 North Lemke St. Contact: Kimberly Kassube, UW-Extension Shawano County, Courthouse, Rm. 101, 311 N. Main St., Shawano, WI 54166; 715-526-6136.

• Thursday, December 6: Dodgeville at Iowa County Health and Human Services Bldg., 303 W. Chapel St. Contact: Gene Schriefer, UW-Extension Iowa County, 303 W. Chapel St., Ste. 1200, Dodgeville, WI 53533; 608-930-9850.

*For more information, see the flyer attached at the end of this pdf.

2019 Agronomy Update Meetings

This is the first announcement for the 2019 Agronomy Update meeting series. The Department of Agronomy and UWEX will offer Crop Production and Management meetings at eight locations during 2019. Joe Lauer and Shawn Conley will present the latest information on hybrid/variety performance, an analysis and discussion of last year’s growing season, and updated recommendations for field crop production.

We invite you to be a part of these meetings. The meeting dates and locations for the 2019 Agronomy Update meetings are:

• Janesville Monday, Jan. 7 at 12:00
• Madison Tuesday, Jan. 8 at 7:30 am
• Fond du Lac Tuesday, Jan. 8 at 12:00
• Kimberly Wednesday, Jan. 9 at 7:30 am
• Wausau Wednesday, Jan. 9 at 12:00
• Eau Claire Thursday, Jan. 10 at 7:30 am
• Sparta Thursday, Jan. 10 at 12:00
• Belmont Friday, Jan. 11 at 12:00

Please join us at a meeting in your area. Help us spread the word by informing seed dealers and the ag industry from your county or area, and encourage them to attend.

If you have any questions, or if I can be of any assistance, please contact Joe Lauer:

Office: (608) 263-743
Cell: (608) 575-0731
Fax: (608) 262-5217
Lab: (608) 262-1840
Farm: (608) 846-3761 x120
Email: jglauer@wisc.edu
Website: http://corn.agronomy.wisc.edu

For more information, see the flyer attached at the end of this pdf.

Can Conservation Pay? Iowa County Uplands Watershed Group Farm Tour

Daniel H. Smith, Nutrient and Pest Management Program, University of Wisconsin-Madison

An upcoming field day on October 24th in northern Iowa County will provide insight into the economics of conservation. The field day will showcase speakers on the economics of no-till and nutrient management planning. Additionally, speakers will discuss cover crops following silage corn and manure in cover crop systems.

The field day will include a tour of the farm’s cover crop fields. The field day will begin around 9:45 a.m. and conclude by 12:00 p.m. A complimentary lunch will be served with guest speaker Lance Nacio, a Gulf of Mexico fisherman. The field day is free, however, registration is required.

Please see the attached flyer for more information.
Herbicide Site of Action Key for Crop Injury Symptoms

by Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist) and Maxwel Oliveira (UW-Madison Weed Science Postdoctoral Research Associate)

With the widespread occurrence of herbicide-resistant weeds, corn and soybean farmers are having to diversify their herbicide programs to obtain adequate levels of weed control. The increased herbicide diversification increases the likelihood of crop injury due to carryover, misapplication, tank contamination, and/or drift.

To help you determine which herbicide(s) may be responsible for suspected injury on crops, this key uses the herbicide’s site of action (SoA) and respective Weed Science Society of America group number; herbicides within the same SoA can cause similar symptoms. After reaching a specific SoA, you can check if any of the herbicides from that group are the source of crop response. Herbicide control (selectivity) is specified for broadleaf and/or grass weed species and remember to also observe weeds for injury symptoms.

To download the “Herbicide Site of Action Key for Crop Injury Symptoms” click HERE

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update October 12

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 October 6, 2018 through October 12, 2018.

The 10/12/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:

OTHER PROGRAMS OF INTEREST

2019 Wisconsin Agribusiness Classic
January 15-17, 2019
Alliant Energy Center, Madison
For more details, see
http://agclassic.org

2018 SOIL, WATER & NUTRIENT MANAGEMENT MEETINGS
November 27 through December 6, 2018
The Department of Soil Science, in conjunction with University of Wisconsin-Cooperative Extension, will conduct eight Soil, Water, and Nutrient Management Meetings in 2018 (from November 27 to December 6).

Meetings will be held from 10:00am to 3:00pm (with lunch from 12:00pm to 1:00 pm).

The purpose of these meetings is to provide research and information updates in the field of soil, water, and nutrient management.

Francisco Arriaga, Matt Ruark, Carrie Laboski, Andrew Stammer (UW-Madison and UW-Extension), and Sue Porter (Wis. DATCP) will present current soil, water, and nutrient management information.

Registration is $45 per person. Lunch and relevant materials packet are included with registration. Pre-register with the host at least 1 week before the meeting you wish to attend to save your spot.

Continuing Education Units (CEUs) for Certified Crop Advisers will be provided (2.0 NM and 2.0 SW).

For program content questions, contact
- Francisco Arriaga
- Email: farriaga@wisc.edu
- Phone: 608-263-3913
Field Day and Seafood Lunch: Can Conservation Pay?  
Wednesday, October 24, 2018  
WI Conservation Farming With Gulf Seafood!

Join Iowa County’s Uplands Watershed Group at Dolan Farms, followed by brats and seafood

5443 County Rd ZZ, Dodgeville, WI 53533

9:45 — Refreshments  
10:00 — Speakers on Economics of No-Till, Nutrient Management Plans  
10:40 — Tour Ryan Dolan’s cover crops  
11:20 — Speakers – Cover crops following corn silage - manure in cover crop systems  
12:00 — Lunch (Hear from Gulf fishermen)

Come discuss the economics of conservation. (Bring your own examples and experiences to share.)  
Then enjoy brats, plus seafood caught by fishermen in the Gulf – whose challenges with nutrient build-up and biological die-off in the Gulf Dead Zone we aid with our conservation practices.

For more information, contact: Margaret Krome, Michael Fields Agricultural Institute 608-238-1440 or Gene Schriefer, Iowa County Extension 608-930-9850
2019 Wisconsin Agronomy Update Meetings

The Department of Agronomy will offer Crop Production and Management Meetings at eight locations during 2019. Joe Lauer and Shawn Conley will present the latest information on hybrid/variety performance, an analysis and discussion of last year's growing season, and updated recommendations for field crop production. The registration fee includes a meal and information materials. Certified Crop Advisor CEU credits have been requested (3.0 CEU hours-Crop Management). Below is a list of meeting sites, dates and times. A $45.00 registration fee (which includes the meal) will be charged for the meeting. A “walk-in” fee will be charged to those who have not preregistered. Extra information packets are available for $21.00 each. **Make your reservations with the host agent one week prior to the scheduled meeting date.**

<table>
<thead>
<tr>
<th>Location, date and time</th>
<th>Address</th>
<th>Host Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Janesville</strong></td>
<td>Holiday Inn Express</td>
<td>Nick Baker</td>
</tr>
<tr>
<td>Monday, Jan. 7 at 12:00</td>
<td>3100 Wellington Dr.</td>
<td>Rock Co. Extension Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51 S. Main St.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Janesville, WI 53545-3978</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(608) 757-5696 <a href="mailto:nick.baker@ces.uwex.edu">nick.baker@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Madison</strong></td>
<td>Comfort Inn</td>
<td>Heidi Johnson</td>
</tr>
<tr>
<td>Tuesday, Jan. 8 at 7:30 am</td>
<td>5025 County Hwy. V, De Forest, WI</td>
<td>Dane Co. Extension Office</td>
</tr>
<tr>
<td></td>
<td>(Hwy V exit off of 90/94)</td>
<td>5201 Fen Oak Drive, Rm. 138</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Madison, WI 53718</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://fyi.uwex.edu/danecountyag">http://fyi.uwex.edu/danecountyag</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(608) 224-3716 <a href="mailto:Heidi.johnson@ces.uwex.edu">Heidi.johnson@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Fond du Lac</strong></td>
<td>UW Fond du Lac</td>
<td>Tina Kohlman</td>
</tr>
<tr>
<td>Tuesday, Jan. 8 at 12:00</td>
<td>Rm. 114 University Center</td>
<td>Fond du Lac Co. Extension Office</td>
</tr>
<tr>
<td></td>
<td>400 University Drive</td>
<td>400 University Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fond du Lac, WI 54935-2998</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(920) 929-3171 <a href="mailto:tina.kohlman@ces.uwex.edu">tina.kohlman@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Kimberly</strong></td>
<td>Liberty Hall</td>
<td>Kevin Jarek</td>
</tr>
<tr>
<td>Wednesday, Jan. 9 at 7:30 am</td>
<td>800 Eisenhower Drive</td>
<td>Outagamie County</td>
</tr>
<tr>
<td></td>
<td>(Hwy. 441, College Avenue Exit, East 1 block)</td>
<td>3365 W Brewster St.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appleton, WI 54914</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(920) 832-5121 <a href="mailto:kevin.jarek@ces.uwex.edu">kevin.jarek@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Wausau</strong></td>
<td>Marathon County UWEX Office</td>
<td>Heather Schlesser</td>
</tr>
<tr>
<td>Wednesday, Jan. 9 at 12:00</td>
<td>Room 5</td>
<td>Marathon County UW-Extension Office</td>
</tr>
<tr>
<td></td>
<td>212 River Drive</td>
<td>212 River Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wausau, WI 54403</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(715) 261-1230 <a href="mailto:heather.schlesser@ces.uwex.edu">heather.schlesser@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Eau Claire</strong></td>
<td>Clarion Hotel Campus</td>
<td>Mark Hagedorn</td>
</tr>
<tr>
<td>Thursday, Jan. 10 at 7:30 am</td>
<td>Area/Green Mill Restaurant and Bar</td>
<td>Eau Claire Co. Extension Office</td>
</tr>
<tr>
<td></td>
<td>(Campus area)</td>
<td>227 1st Street West</td>
</tr>
<tr>
<td></td>
<td>2703 Craig Road</td>
<td>Altoona, WI 54720-1601</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(715) 839-4712 <a href="mailto:mark.hagedorn@ces.uwex.edu">mark.hagedorn@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Sparta</strong></td>
<td>Jakes Northwoods</td>
<td>Bill Halfman</td>
</tr>
<tr>
<td>Thursday, Jan. 10 at 12:00</td>
<td>Hwy 21 (NE side of town)</td>
<td>Monroe County - UW Extension</td>
</tr>
<tr>
<td></td>
<td>1132 Angelo Rd.</td>
<td>14345 County Highway B, Room 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sparta, WI 54656-0309</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(608) 269-8722 <a href="mailto:bill.halfman@ces.uwex.edu">bill.halfman@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Belmont</strong></td>
<td>Belmont Inn &amp; Suites</td>
<td>Gene Schriever</td>
</tr>
<tr>
<td>Friday, Jan. 11 at 12:00</td>
<td>Convention Center103 W Mound View Ave.</td>
<td>Lafayette County – UW Extension Agriculture</td>
</tr>
<tr>
<td></td>
<td>(North of Hwy 151 at Belmont)</td>
<td>Center 627 Washington Street</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Darlington, WI 53530-1396</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(608) 776-4820 <a href="mailto:gene.schriever@ces.uwex.edu">gene.schriever@ces.uwex.edu</a></td>
</tr>
</tbody>
</table>

**Wisconsin Agribusiness Classic**
- January 15-17, 2019
  - Alliant Energy Center, Madison

**Midwest Forage Association Forage Production and Use Symposium**
- February 18-20, 2019
  - Chula Vista, Wisconsin Dells

**Wisconsin Corn Growers Association**
**CORN / SOY EXPO**
- January 31-February 1, 2019
  - Kalahari Resort, Wisconsin Dells
2018 UW Waterhemp Challenge: Comparison of Soil Residual Soybean Herbicides

Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist), Dan Smith (UW NPM Southwest Wisconsin Regional Specialist) and Richard Proost (UW NPM Sr. Outreach Specialist)

Waterhemp management in soybeans was a challenge for several farmers in 2018. As we finalize harvesting our crops, it’s important to properly map the fields infested with waterhemp and start developing an effective management plan for 2019.

The use of PRE-emergence herbicides is a foundation for waterhemp control in soybeans. According to our SURVEY conducted earlier this year, the use of a single POST herbicide pass is still a common weed control strategy for several farmers in Wisconsin. Unfortunately, as many learned this year, this strategy will likely not work if glyphosate-resistant waterhemp is present in the field.

In 2018 we conducted a study to evaluate and demonstrate the effectiveness of multiple PRE-emergence soybean herbicides. This was a joint effort between the UW-Madison Nutrient and Pest Management Program (NPM; Dan Smith and Richard Proost) and my team (Wis- cWeeds; Maxwel Oliveira, Victor Ribeiro, Sarah Striegel, Nikola Arsenijevic, and Ryan DeWerff). The study was conducted at UW Lancaster Ag Research Station, in Lancaster, Grant County, southwest WI in a field with natural and significant waterhemp and common lambsquarters infestation. Treatments consisted of PRE-emergence soybean herbicides containing one, two and three different active ingredients and/or sites of action. Herbicides were sprayed the day after soybeans were planted. Since we wanted to evaluate the residual activity of the PRE-emergence herbicide treatments throughout the season, no POST-emergence herbicides were sprayed to the research plots.

Our intent was not to promote one product versus another, instead, demonstrate the value of using an effective PRE-emergence herbicide program. Three well-attended and well-received plot tours were held at the research site in the summer. Per request of those who attended and also from several of those who could not attend the plot tours, we decided to make our 2018 findings available.

To download the 2018 Preliminary Report of the “UW Waterhemp Challenge: Comparison of Soil Residual Herbicides” (PDF file) click HERE.

While these results should be taken with a grain of salt (only one year of data), they clearly indicate the value of PRE-emergence herbicides and the programs that don’t work. Moreover, the herbicide rates used in the study are the ones recommended by our industry colleagues and supported by us for a typical Wisconsin Silt Loam soil, thus, valuable information for decision-makers. In this publication we also include site and study information, pictures of plots, and the equivalent rate of single active ingredient products in the premixes evaluated (herbicides with multiple active ingredients).

When selecting a PRE-emergence herbicide program, we challenge agronomists and farmers to balance efficacy
Wisconsin Soybean Variety Performance Trials

Shawn P. Conley, Adam C. Roth, John M. Gaska, and Damon L. Smith
Departments of Agronomy and Plant Pathology
University of Wisconsin, Madison

The Wisconsin Soybean Performance Trials are conducted each year with the producer’s needs in mind. Our objective is to give producers the information to select varieties that will satisfy their specific goals and are most likely to perform best under their management practices. In this PDF, you will find the results of the Wisconsin Soybean Variety Performance Trials as well as how they were conducted in terms of growing conditions, data collections and so on.

Click here to view the Wisconsin Soybean Variety Performance Trials.

2018 Wisconsin Oats & Barley Performance Tests

Shawn Conley, State Soybean and Small Grains Specialist

The Wisconsin oat and barley performance trials are conducted each year to serve Wisconsin growers. Trials include released varieties, experimental lines from Wisconsin and Midwestern states, and lines from private companies. The main objective of these trials is to obtain data on how varieties perform in different locations and years. Growers can use this data to choose the best varieties to plant in their area. Breeders use this information to decide whether to release a new variety and to select parents to make new crosses. The best varieties for yield performance, disease resistance and quality are entered into the Wisconsin Certification Program. As new varieties are released to the public, older varieties with inferior qualities are removed from the recommended list and eventually dropped from the certified list as seed production declines. Additionally, varieties that perform well from other states may be recommended and/or certified in Wisconsin. Occasionally varieties are certified without being recommended to Wisconsin growers.

These varieties may include commercial varieties developed by private seed companies or varieties where there is a substantial market for Wisconsin-produced seed. Thus, in Wisconsin, recommendation and certification are different things. Recommended varieties are those with superior in-state production performance.

To view the rest of this article, click here.

Key Take-Home from the “2018 Comparison of Soil Residual Soybean Herbicides Study”:

- Several PRE-emergence soybean herbicides evaluated provided good levels of waterhemp and lambsquarters control. The onset of waterhemp emergence in the research site was noticed in the first week of June. Because of excessive rainfall in the spring, soybean planting was delayed and happened on 05/24/2018 at the research site; thus, the application of our PRE-emergence treatments (05/25/2018) matched the time waterhemp started to emerge, explaining the overall satisfactory level of weed control observed in most treatments (perfect timing!).

- Group 2 herbicides (e.g., Pursuit, Classic, First Rate) applied alone were effective on lambsquarters but NOT on waterhemp. The use of imazethapyr (e.g., Pursuit, Extreme, Thundermaster), which is a common practice in Wisconsin, did not provide satisfactory control of waterhemp. When using imazethapyr (which is an effective herbicide for control of several weed species) as part of the PRE-emergence herbicide program for waterhemp control, the tank mixture with or selection of herbicides that contain other effective active ingredient(s) is recommended.

- PRE-emergence herbicide programs containing multiple effective sites of action are recommended to broaden weed control spectrum and to lower selection for additional herbicide resistance.

Always read, understand and follow the pesticide label.

Acknowledgements: we would like to thank Mimi Broske, UW-NPM Senior Editor, for developing the publication layout. Thanks to Doug Wiedenbeck and the UW Lancaster Ag Research Station staff for their support. This study was partially funded by the Wisconsin Soybean Marketing Board.
UW Discovery Farms 7th Annual Conference

Pigeon Falls, WI. – Register today for the 7th Annual UW Discovery Farms Conference set to be held on December 12, 2018, at the Glacier Canyon Convention Center in Wisconsin Dells, WI. Farmers, crop consultants, agency personnel and anyone with an interest in agriculture and water quality are encouraged to attend this educational day.

The theme this year is Using science to intersect production and water quality goals. UW Discovery Farms understands there are challenges intertwining conservation into field operations while maintaining economic goals, especially in depressed market time periods. This year’s conference will provide the solutions and tools needed to strategize back in the field.

UW Discovery Farms provides Wisconsin farmers with credible water quality information straight from privately-owned farms, and is excited to bring together a lineup of innovators and experts to this year’s event. Presentations will focus on Midwestern research with speakers from Indiana, Iowa and Wisconsin. Attendees will hear the latest data on cover crops, nitrogen and phosphorus management, and water quality.

In addition to hearing renowned applied research, attendees will get a chance to hear from and ask questions to a panel of farmers. The title of the farmer panel is Plant green, harvest green, spread green and will feature farmers who have adopted and adapted techniques to plant into a growing cover crop, interseed into corn or soybeans and successfully combine living covers and manure. At the end of the day a reality check panel will bring up all speakers and panelists from the day to get last questions answered and look for ways to put thoughts into action.

The conference will be held on December 12, 2018, from 9:00 a.m. to 3:45 p.m. at the Glacier Canyon Conference Center in Wisconsin Dells, WI. 4.5 CEUs will be available in Soil & Water Management. Registration is now open online at [www.uwdiscoversfarms.org](http://www.uwdiscoversfarms.org) or call 715.983.5668. The cost is $50 for members of sponsoring organizations and $60 for non-members. Snacks, beverages and lunch are included. For more updates follow UW Discovery Farms on Facebook and Twitter. Questions? Contact Erica.olson@ces.uwex.edu.

Sporebuster, a New White Mold Fungicide Value Calculator

Damon L. Smith, Ph.D., Associate Professor and Extension Specialist, Department of Plant Pathology, UW-Madison

When a fungicide application is needed to control white mold in soybeans, Sporebuster can help determine a profitable program. You enter your expected soybean price, expected yield, and treatment cost. Sporebuster instantly compares ten different treatment plans at once to determine average net gain and break even probability of each. You can mark, save and share by email, the best plans for your farming operation.

The purpose of Sporebuster is to assist soybean farmers in making a fungicide program decision that is profitable for their operation. Sporebuster is meant to complement Sporecaster, which is a tool that can be used to make the decision whether a fungicide application is even needed. Once Sporecaster recommends a fungicide application, Sporebuster can be used to determine a profitable program. To learn more about Sporebuster, how to use it, and to download it, click here.

2019 IPM Field Scout Training Class

Bryan Jensen, UW Extension and IPM Program

The Madison Field Scout Training Class (354) will be held on the UW Madison Campus from January 7-11, 2019. The course is designed to provide the skills necessary for proper pest identification, crop scouting techniques as well as provide complimentary baseline information for people preparing for the state CCA exam. Additional information such as crop growth and development, pest life cycle, pest damage symptoms and economic thresholds will be covered. Pest control recommendations, although discussed, will not be highlighted in detail during this course. Crops covered will include, corn, alfalfa, soybean and wheat. Click here for the course syllabus.
Non-student registration fee is $225/person but does not cover campus parking. Online registration (preferred) for the Field Crop Scout School can be made at the PAT Store. Checks should be made payable to University of Wisconsin-Madison and sent to Bryan Jensen, Dept. of Entomology, 1630 Linden Dr., Madison, WI 53706.

For more information on this course, please contact Bryan Jensen at:

Dept. of Entomology
1630 Linden Dr.
Madison, WI 53706
(608) 263-4073
bmjense1@facstaff.wisc.edu

**Recent UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Updates**

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 October 13, 2018 through November, 2018.

The Recent PDDC Wisconsin Disease Almanacs (i.e., weekly disease summaries) are now available at:

- [November 2-November 9, 2018](#)
- [October 27-November 2, 2018](#)
- [October 20-October 26, 2018](#)
- [October 12-October 19, 2018](#)
Natto Soybean Production in Wisconsin

Shawn Conley, State Soybean and Small Grains Specialist

Natto is a traditional Japanese food made from soybean fermented with a particular bacteria spp. Natto-type soybeans are usually less than 5.8 mm (no. 14.5 screen) in diameter and have a clear hilum and thin seed coat. Smaller beans are preferred, as the fermentation process is able to reach the center of the bean easier. Opportunities exist for Wisconsin growers to access markets for identify preserved soybean and thereby gain premiums in the market above the current commodity price (S. Sinner, personal communication, SB&B Foods, 2018). Natto soybean production is similar to conventional production, although seed size and quality issues are more important. The objectives of this study were:

- To evaluate the effect of soybean seeding rate coupled with fungicide and insecticide seed treatments on natto soybean stand establishment, growth, and seed yield
- To evaluate foliar fungicide use for disease control on several natto soybean varieties
- To evaluate various seeding rates on four varieties of food grade soybean for seed yield, growth characteristics and seed quality

To see the rest of this study, click here.

Understanding Buffer Requirements for Dicamba Applications in Xtend

Rodrigo Werle (UW-Madison Extension Cropping Systems Weed Scientist)

On October 31, 2018 the United States Environmental Protection Agency (EPA) announced their decision to extend the registration of the dicamba products Engenia, Fexapan, and Xtendimax for use in dicamba-tolerant crops (Xtend technology) through December 20, 2020; however, additional label changes were made.

A particular change that has led to some questioning is the new 57-foot omnidirectional buffer requirement to protect federally listed threatened and endangered species and critical habitat in specific US counties. On November 19, 2018, EPA posted the list of US counties where threatened and endangered species and critical habitat may exist (thus locations where the new 57-foot buffer must be incorporated).

To read the rest of this article, click here.
The first confirmed case of glyphosate (an EPSP synthase inhibitor) resistance in Wisconsin was a non-rapid response phenotype of giant ragweed in 2011 (Figure 2). Glyphosate resistance has subsequently been confirmed in horseweed, waterhemp, Palmer amaranth, and most recently, common ragweed in 2018. To see the rest of this article, click here.

Assessing the Influence of Row Spacing

In a bean pod…

We developed an approach to evaluate the influence of row spacing on U.S. soybean yield using both producer and experimental data.

Experimental data showed a consistent yield advantage of narrow versus wide row spacing.

However, data from producer fields indicate no yield difference between narrow and wide rows.

This complementary approach can help evaluate yield increase derived from a management practice.

To read the summary research paper, click this link.

Contributors include: José F. Andradea, Juan I. Rattalino Edreira, Spyridon Mourtzinis, Shawn P. Conley, Ignacio A. Ciampitti, James E. Dunphy, John M. Gaska, Keith Glewen, David L. Holshouser, Herman J. Kandel, Peter Kyveryga, Chad D. Lee, Mark A. Licht, Laura E. Lindsey, M. Angela McClure, Seth Naeve, Emerson D. Nafziger, John M. Orlovski, Jeremy Ross, Michael J. Staton, Laura Thompson, James E. Specht, Patricio Grassini

20 Unique Cases of Herbicide Resistance in Wisconsin

- 20 unique cases (weed species by herbicide site of action) of herbicide resistance have been confirmed in Wisconsin, including 13 weed species with evolved resistance to one or more herbicide sites of action (Figure 1, Table 1).

- The first confirmed case of herbicide resistance in Wisconsin was PSII inhibitor resistance in common lambsquarters in 1979.

- Since then, ALS-inhibitor resistance has been confirmed in more weed species than other type of herbicide resistance, totaling eight weed species including common ragweed, giant ragweed, Palmer amaranth, and waterhemp.

- In comparison, PSII inhibitor resistance has been confirmed in four species, whereas ACCase inhibitor resistance has been confirmed in only two species (giant foxtail and large crabgrass).

2018 Wisconsin Corn Hybrid Performance Trials- Grain, Silage, Specialty, Organic

Kent Kohn, Thierno Diallo, and Joe Lauer

Every year, the University of Wisconsin Extension-Madison and College of Agricultural and Life Sciences conduct a corn evaluation program. The purpose of this program is to provide unbiased performance comparisons of hybrid seed corn available in Wisconsin. These results are a “Consumer Report” for commercial corn hybrids. The trials evaluate grain, silage, and systems including...
organic, transgenic and refugia systems. A one bushel per acre increase by Wisconsin corn farmers increases farm income $8 to $32 million dollars.

PDF format (60 pages, 1.5mb) – http://corn.agronomy.wisc.edu/HT/2018/A3653.pdf


Publication layout and photo credit: Mimi Broeske, Nutrient and Pest Management Program, University of Wisconsin-Madison

**UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update November 30**

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 November 24, 2018 through November 30, 2018.

The 11/30/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at: https://pddc.wisc.edu/wp-content/uploads/sites/39/2018/12/FullTable113018.pdf

**Wisconsin Pest Bulletin, Issue No. 18, November 27**

Krista Hamilton, Entomologist, Bureau of Plant Industry/Division of Agricultural Resource Management, Wisconsin Department of Agriculture, Trade and Consumer Protection


PLEASE NOTE: This final Wisconsin Pest Bulletin of 2018 provides a post-growing season summary of prevailing insect and plant disease conditions and related weather.

Once again, our sincerest thanks to the many cooperators, farmers, county agents and consultants who contributed their time and valuable information to the survey program this year.

**INSIDE THIS ISSUE:**

**LOOKING AHEAD:** Fall European corn borer population decreases to 77-year low

**FORAGES & GRAINS:** Potato leafhopper counts remain below-threshold this season

**CORN:** Corn rootworm beetle survey finds historically low crw pressure again in 2018

**SOYBEAN:** Phytophthora root rot a common problem in soybean fields last spring

**FRUITS:** Brown marmorated stink bug spreading into western Wisconsin

**VEGETABLES:** Late blight less prevalent this year than in 2017

**NURSERY & FOREST:** New state record for boxwood blight in Wisconsin

**DEGREE DAYS:** Growing degree day accumulations as of November 14, 2018

**2019 Wisconsin Agronomy Update Meetings**

The Department of Agronomy will offer Crop Production and Management Meetings at eight locations during January of 2019. Joe Lauer and Shawn Conley will present the latest information on hybrid/variety performance, an analysis and discussion of last year’s growing season, and updated recommendations for field crop production.

The registration fee includes a meal and materials. Please pre-register with the Host Agent. A “walk-in” fee will be charged to those who have not preregistered. Additional information packets will be available for $21.00 each.

Certified Crop Advisor CEU credits have been requested (3.0 hours in Crop Management). Below is a list of topics, meeting sites, dates and times. Please join us at meeting in your area.

We hope to see you there.
Announcing the  
2019 Wisconsin Agronomy Update Meetings  
University of Wisconsin – Madison  
Department of Agronomy

The Department of Agronomy will offer Crop Production and Management Meetings at eight locations during 2019. Joe Lauer and Shawn Conley will present the latest information on hybrid/variety performance, an analysis and discussion of last year's growing season, and updated recommendations for field crop production.

The registration fee includes a meal and materials. Please pre-register with the Host Agent. A “walk-in” (Late) fee will be charged to those who have not preregistered. Additional information packets will be available for $21.00 each. Certified Crop Advisor CEU credits have been requested (3.0 hours in Crop Management). Below is a list of topics, meeting sites, dates and times. Please join us at meeting in your area.

**Packet Materials**

2018 Wisconsin Corn Hybrid Performance Trials: Grain - Silage - Specialty - Organic (A3653)
2018 Wisconsin Soybean Variety Performance Trials (A3654)
2018 Wisconsin Winter Wheat Performance Trials (A3868)
2018 Wisconsin Oat and Barley Variety Performance Tests (A3874)
Extension publications
Agronomy Advice articles
Wisconsin Crop Improvement Association updates

**Discussion Topics**

**Corn**
- Corn hybrid grain response to banded (pop-up and starter) fertilizer at planting
- Biological nitrogen fixation of corn
- How does corn respond to “kitchen sink” grain management?

**Soybeans and Small Grains**
- 2018 soybean and small grains highlights and lowlights
- What we thought we knew about soybean but really didn’t! #fakenews
- Understanding small grains growth and development to better manage the crop

**Forages**
- Hybrid winter rye forage and grain trial results
- Corn silage:grain ratio changes over the last 20 years
2019 Wisconsin Agronomy Update Meetings

The Department of Agronomy will offer Crop Production and Management Meetings at eight locations during 2019. Joe Lauer and Shawn Conley will present the latest information on hybrid/variety performance, an analysis and discussion of last year's growing season, and updated recommendations for field crop production. The registration fee includes a meal and information materials. Certified Crop Advisor CEU credits have been requested (3.0 CEU hours-Crop Management). Below is a list of meeting sites, dates and times. A $45.00 registration fee (which includes the meal) will be charged for the meeting. A “walk-in” fee will be charged to those who have not preregistered. Extra information packets are available for $21.00 each. Make your reservations with the host agent one week prior to the scheduled meeting date.

<table>
<thead>
<tr>
<th>Location, date and time</th>
<th>Address</th>
<th>Host Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Janesville</strong>&lt;br&gt;Monday, Jan. 7 at 12:00</td>
<td>Holiday Inn Express&lt;br&gt;3100 Wellington Dr.</td>
<td>Nick Baker&lt;br&gt;Rock Co. Extension Office&lt;br&gt;51 S. Main St.&lt;br&gt;Janesville, WI 53545-3978&lt;br&gt;(608) 757-5696 <a href="mailto:nick.baker@ces.uwex.edu">nick.baker@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Madison</strong>&lt;br&gt;Tuesday, Jan. 8 at 7:30 am</td>
<td>Comfort Inn&lt;br&gt;5025 County Hwy. V, De Forest, WI (Hwy V exit off of 90/94)</td>
<td>Heidi Johnson&lt;br&gt;Dane Co. Extension Office&lt;br&gt;5201 Fen Oak Drive, Rm. 138&lt;br&gt;Madison, WI 53718 <a href="http://fyi.uwex.edu/danecountyag">http://fyi.uwex.edu/danecountyag</a>&lt;br&gt;(608) 224-3716 <a href="mailto:Heidi.johnson@ces.uwex.edu">Heidi.johnson@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Fond du Lac</strong>&lt;br&gt;Tuesday, Jan. 8 at 12:00</td>
<td>UW Fond du Lac&lt;br&gt;Rm. 114 University Center&lt;br&gt;400 University Drive</td>
<td>Tina Kohlman&lt;br&gt;Fond du Lac Co. Extension Office&lt;br&gt;400 University Drive&lt;br&gt;Fond du Lac, WI 54935-2998&lt;br&gt;(920) 929-3171 <a href="mailto:tina.kohlman@ces.uwex.edu">tina.kohlman@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Kimberly</strong>&lt;br&gt;Wednesday, Jan. 9 at 7:30 am</td>
<td>Liberty Hall&lt;br&gt;800 Eisenhower Drive (Hwy. 441, College Avenue Exit, East 1 block)</td>
<td>Kevin Jarek&lt;br&gt;Outagamie County&lt;br&gt;3365 W Brewster St.&lt;br&gt;Appleton, WI 54914&lt;br&gt;(920) 832-5121 <a href="mailto:kevin.jarek@ces.uwex.edu">kevin.jarek@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Wausau</strong>&lt;br&gt;Wednesday, Jan. 9 at 12:00</td>
<td>Marathon County UWEX Office, Room 5&lt;br&gt;212 River Drive</td>
<td>Heather Schlesser&lt;br&gt;Marathon County UW-Extension Office&lt;br&gt;212 River Drive&lt;br&gt;Wausau, WI 54403&lt;br&gt;(715) 261-1230 <a href="mailto:heather.schlesser@ces.uwex.edu">heather.schlesser@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Eau Claire</strong>&lt;br&gt;Thursday, Jan. 10 at 7:30 am</td>
<td>Green Mill Conference &amp; Banquet Facilities (Campus area)&lt;br&gt;2703 Craig Road</td>
<td>Mark Hagedorn&lt;br&gt;Eau Claire Co. Extension Office&lt;br&gt;227 1st Street West&lt;br&gt;Altoona, WI 54720-1601&lt;br&gt;(715) 839-4712 <a href="mailto:mark.hagedorn@ces.uwex.edu">mark.hagedorn@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Sparta</strong>&lt;br&gt;Thursday, Jan. 10 at 12:00</td>
<td>Jakes Northwoods&lt;br&gt;Hwy 21 (NE side of town)&lt;br&gt;1132 Angelo Rd.</td>
<td>Bill Halfman&lt;br&gt;Monroe County - UW Extension&lt;br&gt;14345 County Highway B, Room 1&lt;br&gt;Sparta, WI 54656-0309&lt;br&gt;(608) 269-8722 <a href="mailto:bill.halfman@ces.uwex.edu">bill.halfman@ces.uwex.edu</a></td>
</tr>
<tr>
<td><strong>Belmont</strong>&lt;br&gt;Friday, Jan. 11 at 12:00</td>
<td>Belmont Inn &amp; Suites Convention Center103 W Mound View Ave. (North of Hwy 151 at Belmont)</td>
<td>Gene Schriefer&lt;br&gt;Lafayette County – UW Extension Agriculture Center&lt;br&gt;627 Washington Street&lt;br&gt;Darlington, WI 53530-1396&lt;br&gt;(608) 776-4820 <a href="mailto:gene.schriefer@ces.uwex.edu">gene.schriefer@ces.uwex.edu</a></td>
</tr>
</tbody>
</table>

**Wisconsin Agribusiness Classic**<br>January 15-17, 2019<br>Alliant Energy Center, Madison

**Midwest Forage Association Forage Production and Use Symposium**<br>February 18-20, 2019<br>Chula Vista, Wisconsin Dells

**Wisconsin Corn Growers Association**<br>CORN / SOY EXPO<br>January 31-February 1, 2019<br>Kalahari Resort, Wisconsin Dells
20 Unique Cases of Herbicide Resistance in Wisconsin

- 20 unique cases (weed species by herbicide site of action) of herbicide resistance have been confirmed in Wisconsin, including 13 weed species with evolved resistance to one or more herbicide sites of action (Figure 1, Table 1).

- The first confirmed case of herbicide resistance in Wisconsin was PSII inhibitor resistance in common lambsquarters in 1979.

- Since then, ALS-inhibitor resistance has been confirmed in more weed species than other type of herbicide resistance, totaling eight weed species including common ragweed, giant ragweed, Palmer amaranth, and waterhemp.

- In comparison, PSII inhibitor resistance has been confirmed in four species, whereas ACCase inhibitor resistance has been confirmed in only two species (giant foxtail and large crabgrass).

- The first confirmed case of glyphosate (an EPSP synthase inhibitor) resistance in Wisconsin was a non-rapid response phenotype of giant ragweed in 2011 (Figure 2). Glyphosate resistance has subsequently been confirmed in horseweed, waterhemp, Palmer amaranth, and most recently, common ragweed in 2018.

Table 1. Unique cases of herbicide resistance in Wisconsin.

<table>
<thead>
<tr>
<th>Herbicide group</th>
<th>Herbicide site of action</th>
<th>Weed species</th>
<th>Year confirmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ACCase inhibitors</td>
<td>Giant foxtail</td>
<td>1991</td>
<td></td>
</tr>
<tr>
<td>2 ALS inhibitors</td>
<td>Kochia</td>
<td>1995</td>
<td></td>
</tr>
<tr>
<td>(acetolactate synthase)</td>
<td>Eastern black nightshade</td>
<td>1999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Giant foxtail</td>
<td>1999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Green foxtail</td>
<td>1999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waterhemp</td>
<td>1999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Giant ragweed</td>
<td>1999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Common ragweed</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Palmer amaranth†</td>
<td>2014</td>
<td></td>
</tr>
<tr>
<td>5 PS II inhibitors</td>
<td>Smooth pigweed</td>
<td>1979</td>
<td></td>
</tr>
<tr>
<td>(photosystem II)</td>
<td>Kochia</td>
<td>1981</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smooth pigweed</td>
<td>1985</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kochia</td>
<td>1987</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Velvetleaf</td>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>9 EPSP synthase inhibitors</td>
<td>Giant ragweed</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>(enolpyruvyl-shikimate-phosphate)</td>
<td>Horseweed</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Palmer amaranth</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waterhemp</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Common ragweed</td>
<td>2018</td>
<td></td>
</tr>
<tr>
<td>14 PPO inhibitors</td>
<td>Palmar amaranth†</td>
<td>2014</td>
<td></td>
</tr>
<tr>
<td>(protoporphyrinogen oxidase)</td>
<td>Waterhemp</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>27 HPPD inhibitors</td>
<td>Waterhemp</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>(hydroxyphenyl-pyruvate dioxygenase)</td>
<td>Palmer amaranth†</td>
<td>2014</td>
<td></td>
</tr>
</tbody>
</table>

†Multiple resistance to ALS inhibitors and HPPD inhibitors.
‡Multiple resistance to EPSP synthase inhibitors and PPO inhibitors in some populations.

Herbicide Resistance in Wisconsin

- Waterhemp presence has increased rapidly in Wisconsin to include over 400 locations in 61 of 72 counties in the state (Figure 3).

- In recent years, glyphosate resistance concerns have focused on waterhemp which has also increased rapidly to include confirmed cases in 28 counties (Figure 4). Among these, multiple resistance to glyphosate and PPO inhibitors has been confirmed in 10 counties.

- Palmer amaranth was first identified in Wisconsin in 2011. Since then, 12 populations have been found among nine counties (Figure 5).

- Herbicide resistance in Palmer amaranth has been limited to two cases of confirmed glyphosate resistance and one case of confirmed multiple resistance to ALS inhibitors and the HPPD inhibitor tembotrione (Figure 5).

Grower Concerns

- Glyphosate resistance in waterhemp, and multiple resistance to glyphosate and PPO inhibitors, have increased rapidly in Wisconsin indicating that effective waterhemp management will continue to be a top concern of Wisconsin growers.

- Herbicide resistance in Palmer amaranth is currently limited to three counties in southern Wisconsin, but glyphosate resistance in two populations, and multiple resistance to ALS and HPPD inhibitors in another population, also have serious management implications for Wisconsin growers.

- It is critical that diversified management tactics be implemented to reduce the spread, persistence, and impact of these and other herbicide-resistant species.
Poor Soybean Seed Quality and Preparing for the 2019 Field Season

Damon Smith, Associate Professor and Extension Specialist, Department of Plant Pathology, University of Wisconsin-Madison, Shawn Conley, Professor and Extension Specialist, Department of Agronomy, University of Wisconsin-Madison

As we finish off 2018 and look ahead to the 2019 planting season, soybean farmers need to be prepared for some potential seed quality issues. The 2018 crop was plagued by several problems, but one of the most substantial was a large amount of white, chalky, or black, and damaged seed (Figure 1). This damaged seed is impacting germination rates of soybean seed slated for the 2019 crop.

What caused this issue?

Most of this damage is a result of infection and colonization by a group of fungal species called Diaporthe. This group is implicated in diseases such as stem canker, pod and stem blight (Figure 2), and Phomopsis seed decay (Figure 3) (next page). Excessive rains at the end of August and throughout September and October resulted in a large amount of pod infection by Diaporthe. These infections combined with delayed harvest allowed for extensive seed colonization by these fungi. This resulted in Phomopsis seed decay which has led to visually damaged seed and the germination issues we are now seeing. To learn more about this group of fungi and the diseases they cause, visit the Crop Protection Network (CPN) website on pod and stem blight and Phomopsis seed decay by clicking here. You can also download a PDF version of the CPN fact sheet on the same subject by clicking here.

How Do I manage this Problem at Planting in 2019?

Soybean seed producers should try to clean seed to achieve less than 20% damaged seed in a seed lot. Multiple cleaning steps might be needed to achieve this level. While testing germination now is recommended, remember that testing germination again next spring
We also recommend that as a farmer, you double check the percent germination on every seed lot prior to planting and adjust your seeding rates accordingly. Here are our recommendations for soybean seeding rate based on yield potential and white mold risk: The Soybean Seeding Rate Conundrum.

If I’m a Seed Producer, What Should I Do to Prevent this Problem Next Year?

Foliar fungicide applications during the growing season could reduce the damage from Diaporthe. Some work has demonstrated that fungicide applications between the R3 to the R5 growth stages might be useful in reducing damage. This might help improve seed quality, but not necessarily improve yield. For a list of fungicide products with efficacy ratings for soybean, take a look at this additional publication from the CPN by clicking here.

The Effect of Tar Spot on Corn Hybrids in Wisconsin in 2018

Damon Smith, Department of Plant Pathology, University of Wisconsin-Madison, Brian Mueller, Department of Plant Pathology, University of Wisconsin-Madison, Joe Lauer, Department of Agronomy, University of Wisconsin-Madison, Kent Kohn, Department of Agronomy, University of Wisconsin-Madison, Thierno Diallo, Department of Agronomy, University of Wisconsin-Madison

and potentially just prior to delivery will also help you to understand the germination rate and determine if other management strategies need to be employed such as fungicidal seed treatments.

Seed treatments can help improve the germination rate of seed damaged by Diaporthe. However, you will need more than metalaxyl or mefonoxam active ingredients in your seed treatment. Metalaxyl and mefonoxam are good against Phytophthora and Pythium, but not effective against other organisms, like Diaporthe. Seed treatments with Phomopsis on the label have an additional fungicide (either a DMI or SDHI). Page 157 of the publication A3646 – Pest Management in Wisconsin Field Crops has a table of some of the seed treatments with Phomopsis on the label. Also available is the seed treatment efficacy table from the Crop Protection Network (CPN). You can download that publication by clicking here.

Tar Spot signs and symptoms on a corn leaf

It was a challenging year for farmers, practitioners, and extension personnel. This fall and winter has been consumed with questions and meetings trying to evaluate all of the disease issues of 2018, especially on corn. The topic of main concern has been tar spot and what the data are telling us in terms of managing this problem moving forward.
If you want to know more about the disease, you can read my previous post on the subject or watch my short video.

This full report is attached at the end of the newsletter. Or you can view it on at >> https://badgercropdoc.com/2018/12/19/effect-tar-spot-corn-hybrids-wisconsin-2018/

**Glyphosate Resistance Confirmed in Common Ragweed from Columbia County, Wisconsin**

Joe Zimbric (Graduate Research Assistant) and Dave Stoltenberg (Professor), Department of Agronomy, University of Wisconsin-Madison

Common ragweed (Ambrosia artemisiifolia) is a widely distributed weed species in Wisconsin. In a survey of 64 soybean fields located in 10 counties from southwest to east-central Wisconsin, we found that common ragweed was among the most abundant broadleaf weed species, present in 53% of all fields (Fickett et al. 2013). Globally, occurrence of herbicide resistance in common ragweed currently totals 37 unique cases of resistance to one or more herbicide sites of action (Heap 2018) including acetolactate synthase (ALS) inhibitor resistance in Wisconsin (Butts et al. 2015).

Among these 37 unique cases for common ragweed, resistance to glyphosate (Group 9 EPSP synthase inhibitors) or ALS inhibitors (Group 2) have been the most common (Heap 2018). However, the most recent reports have been cases of multiple resistance to glyphosate, ALS inhibitors, and protoporphyrinogen oxidase (PPO) inhibitors (Group 14). In 2010, multiple resistance to glyphosate and the ALS-inhibitor cloransulam was confirmed in a population found in a Minnesota soybean production system. In 2016, multiple resistance to cloransulam and the PPO-inhibitor fomesafen was confirmed in a population from Michigan. More concerning is three-way resistance (glyphosate, ALS- and PPO-inhibitors) which has been found in populations from a number of eastern states.

To our knowledge, the sole instance of confirmed herbicide resistance in Wisconsin common ragweed is a population from Brown County resistant to cloransulam (Butts et al. 2015). However, a common ragweed population located in Columbia County was reported in 2017 that was suspected of being resistant to glyphosate.

Field histories suggested that this population had survived repeated exposure to glyphosate over several years in a long-term corn-soybean rotation.

We conducted research during 2018 to confirm and quantify suspected glyphosate resistance in this common ragweed population and also determine if the population showed multiple resistance to the ALS-inhibitor cloransulam and PPO-inhibitor fomesafen.

Seeds were collected in September 2017 from suspected glyphosate-resistant (R) and -sensitive (S) plants. We conducted dose-response experiments under greenhouse conditions on the UW-Madison campus following standard methods for herbicide resistance testing.

**Glyphosate Resistance Confirmed**

The results of our experiments confirmed glyphosate resistance in the common ragweed population from Columbia County (Figures 1 and 2). The population showed a 4-fold level of glyphosate resistance based on the glyphosate rate that reduced shoot biomass 50% compared to non-treated plants, and over 20-fold level of resistance based on the rate that reduced shoot biomass 90%. Even at the 10X rate of glyphosate, many of the...
resistance plants survived although growth was severely reduced. In contrast, there was no evidence of multiple resistance to the ALS-inhibitor cloransulam or the PPO-inhibitor fomesafen (data not shown).

These results represent the first confirmed case of glyphosate resistance in common ragweed from Wisconsin. Including this case, there are now 20 unique cases (weed species by herbicide site of action) of herbicide resistance that have been confirmed in the state (Table 1). These 20 cases consist of 13 weed species with evolved resistance to one or more herbicide sites of action.

<table>
<thead>
<tr>
<th>Herbicide Group</th>
<th>Herbicide site of action</th>
<th>Weed species</th>
<th>Year confirmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACCase inhibitors (acetohydroxyacid synthase)</td>
<td>Giant foxtail, Large crabgrass</td>
<td>1991, 1992</td>
</tr>
<tr>
<td>5</td>
<td>PPO inhibitors (protoporphyrinogen oxidase)</td>
<td>Common ragweed</td>
<td>2016</td>
</tr>
<tr>
<td>6</td>
<td>HPPD inhibitors (4-hydroxyphenyl-pyruvate dioxygenase)</td>
<td>Palmer amaranth</td>
<td>2014</td>
</tr>
</tbody>
</table>

Table 1: Unique cases of herbicide resistance in Wisconsin.

Resistance management strategies are key to reduce the selection for herbicide-resistant weeds, and if present, to reduce their persistence and spread. These strategies include:

* Understanding the biology of weeds present and using a diversified approach to managing those weeds with the intent to prevent weed-seed production.

* Using weed-free crop seed and planting into weed-free fields.

* Scouting fields routinely to aid in identifying potential weed management issues.

* Using appropriate cultural practices that increase crop competitiveness with weeds.

* Using multiple herbicide sites of action at the labeled rates and at recommended weed heights.

* Cleaning equipment after use to prevent spread of weed-seed from field to field.

More information on herbicide resistance management can be found at [https://iwilltakeaction.com/weeds](https://iwilltakeaction.com/weeds) and [http://wssa.net/wssa/weed/resistance/](http://wssa.net/wssa/weed/resistance/).

References


2018 Wisconsin Field Crops Pathology Fungicide Tests Summary Now Available

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison; Brian Mueller, Assistant Field Researcher, Department of Plant Pathology, University of Wisconsin-Madison

Each year the Wisconsin Field Crops Pathology Program conducts a wide array of fungicide tests on alfalfa, corn, soybeans, and wheat. These tests help inform researchers, practitioners, and farmers about the efficacy of certain fungicide products on specific diseases. The [2018 Wisconsin Field Crops Fungicide Test Summary is now available](https://wssu.wisc.edu/wisconsin-fungicide-test-summary/). These tests are by no means an exhaustive evaluation of all products available, but can be used to understand the general performance of a particular fungicide in a particular environment. Keep in mind that the best data to make an informed decision, come from multiple years and environments. To find fungicide performance data from Wisconsin in other years, visit the [Wisconsin Fungicide Test Summaries page](https://wssu.wisc.edu/wisconsin-fungicide-test-summary/). You can also consult publication [A3646 – Pest Management in Wisconsin Field Crops](https://wssu.wisc.edu/wisconsin-fungicide-test-summary/) to find information on products labeled for specific crops and efficacy ratings for particular products. Additional efficacy ratings for some fungicide products for [corn foliar fungicides](https://wssu.wisc.edu/wisconsin-fungicide-test-summary/), [soybean foliar](https://wssu.wisc.edu/wisconsin-fungicide-test-summary/) and
seed-applied fungicides, and wheat foliar fungicides can be found on the Crop Protection Network website.

Mention of specific products in these publications are for your convenience and do not represent an endorsement or criticism. Remember that this is by no means a complete test of all products available. You are responsible for using pesticides according to the manufacturers current label. Some products listed in the reports referenced above may not actually have an approved Wisconsin pesticide label. Be sure to check with your local extension office or agricultural chemical supplier to be sure the product you would like to use has an approved label. Follow all label instructions when using any pesticide. Remember the label is the law!

2019 IPM Field Scout Training Class

Bryan Jensen, UW Extension and IPM Program

A friendly reminder that the Madison Field Scout Training Classes will be held on the UW Madison Campus from January 7-11, 2019. The course is designed to provide profession development including the skills necessary for proper pest identification, crop scouting techniques as well as provide complimentary baseline information for people preparing for the state CCA exam. Additional information such as crop growth and development, pest life cycle, pest damage symptoms and economic thresholds will be covered. Pest control recommendations, although discussed, will not be highlighted in detail during this course. Crops covered will include, corn, alfalfa, soybean and wheat. Click here for the course syllabus.

Non-student registration fee is $225/person but does not cover campus parking. Online registration (preferred) for the Field Crop Scout School can be made at the PAT Store. Checks should be made payable to University of Wisconsin-Madison and sent to Bryan Jensen, Dept. of Entomology, 1630 Linden Dr., Madison, WI 53706.

For more information on this course, please contact Bryan Jensen at:

Dept. of Entomology
1630 Linden Dr.
Madison, WI 53706
(608) 263-4073
bmjense1@facstaff.wisc.edu

Wondering What is in Your Bt Trait Package?

Bryan Jensen, Dept. of Entomology

Keeping up with the different Bt proteins found in both new and old trait packages does not have to be difficult. Dr. Chris DiFonzo, Extension Entomologist at Michigan State University, has updated her Handy Bt Trait Table. Kudos to Chris and contributor Dr. Pat Porter (Texas A&M University) for taking the time and effort to help us all out. This table greatly simplifies the selection process. It is on my “must read” list.

UW/UWEX Plant Disease Diagnostic Clinic (PDDC) Update December 14

Brian Hudelson, Sue Lueloff, John Lake and Ann Joy

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 December 8, 2018 through December 14, 2018.

The 12/14/18 PDDC Wisconsin Disease Almanac (i.e., weekly disease summary) is now available at:


Follow us
The Effect of Tar Spot on Corn Hybrids in Wisconsin in 2018

Damon Smith, Department of Plant Pathology, University of Wisconsin-Madison
Brian Mueller, Department of Plant Pathology, University of Wisconsin-Madison
Joe Lauer, Department of Agronomy, University of Wisconsin-Madison
Kent Kohn, Department of Agronomy, University of Wisconsin-Madison
Thierno Diallo, Department of Agronomy, University of Wisconsin-Madison

If you are like me, you are probably wishing 2018 would just go ahead and get it over with. It was a challenging year for farmers, practitioners, and extension personnel. This fall and winter has been consumed with questions and meetings trying to evaluate all of the disease issues of 2018, especially on corn. The topic of main concern has been tar spot and what the data are telling us in terms of managing this problem moving forward. I’m not going to re-hash what tar spot is and what causes it here. If you want to know more about the disease, you can read my previous post on the subject or watch my short video. I will say that the epidemic was significant and in some locations in Wisconsin, hit yields reasonably hard. I am getting a number of questions about hybrid resistance to tar spot. Is there any? What hybrids are resistant? Well, let’s take a look at a little data.

The Hybrid Performance Trials

The epicenter of the 2018 epidemic in Wisconsin was definitely in the Southwestern part of the state. Areas around Cuba City to Platteville were hit hard and early. As part of the Wisconsin Hybrid Performance Trials a test plot was evaluated for tar spot near Montfort, WI. Details of the implementation, data acquisition and other information pertaining to the Wisconsin Hybrid Performance Trials can be found by clicking here. In addition to the data that was described there, we evaluated tar spot severity and canopy greenness and related that information to grain yield. Those data are below.
Acquiring the Data

Disease ratings for this location were performed on two dates. For the early (98-106 day) relative maturity (RM) trial we rated tar spot severity on the ear leaves on 8/31/2018. For the late RM trial (104-113 day) we rated tar spot severity on 9/4/2018. In addition to taking tar spot data, we also determined the canopy greenness as the relative percentage of canopy still green on that rating date. Many have observed that as tar spot severity increased, corn plants tended to dry faster. The greenness score was meant to understand the level of senescence relative to the tar spot severity level. Yield was determined as described in the details of the hybrid performance trials. We then used standard mixed-model analysis of variance to determine differences in tar spot severity, canopy greening, and yield. We also looked at the relationship of tar spot severity to yield using linear regression. This latter analysis was meant to understand the yield reductions relative to the tar spot severity across hybrids at this location.

The Results

For both the early RM trial (Figure 1) and the late RM trial (Figure 2) there were significant differences in tar spot severity among hybrids tested.
Some hybrids do appear to be relatively resistant with severity ratings averaging 10-20%. However, other hybrids seem quite susceptible with severity ratings near 50%. No particular brand had hybrids that were more resistant than the other brand. Each hybrid varied in its level of resistance within brand. Also, note that no hybrid was completely devoid of disease. There appears to be no complete resistance to tar spot, but definitely some partial resistance in some hybrids.

Canopy greenness was generally negatively correlated with increasing tar spot severity. What was interesting is that as tar spot severity (area of the ear leaf covered by tar spot, spots) increased to 50%, canopy greenness often fell almost to 0%! Indeed, tar spot does seem to induce early senescence, especially in hybrids that aren’t as resistant.

Figures 3 and 4 show yield data from both the early RM (Figure 3) and late RM (Figure 4) trials for each of the same hybrids from the figures above. Hybrids are in the same order, and in both cases, there does seem to be some general yield reduction from low tar spot severity to high tar spot severity. But how much?
Figure 3. Yield from the early RM trial at Montfort, WI in 2018.

Figure 4. Yield from the late RM trial at Montfort, WI in 2018.
Our subsequent linear regression analysis (Figure 5) shows that there was clearly a trend toward lower yield as tar spot severity increased. For the early RM trial the fit of our line is better than for the late RM trial; however, the slope of the line indicates that there was a general reduction in yield as tar spot severity increased. For the early RM trial as tar spot severity increased by 10%, yield was reduced by about 7.8 bushels/acre, however, yield potential in this trial was almost 254 bushels/acre. In the late RM trial yield potential was 262 bushels/acre, but for every 10% increase in tar spot severity, yield was reduced by 13.5 bushels/acre.

Clearly there is some error in fitting our lines here and some “noise” in the data. This is most likely due to some differences in RM rating among companies and inherent genetic differences. However, there does seem to be a trend that as tar spot increases, grain yield in corn can be reduced. At this particular location, if we extrapolated our estimates out, at high ear leaf severity (45-50%), yield was reduced by 40-60 bushels/acre.

![Yield Loss – Montfort, WI Hybrid Evaluation](image)

*High severity (45-50% ear leaf severity) led to estimated yield reductions of 40—60 bu/a

Figure 5. Yield relative to increasing tar spot severity for the early and late RM trials at Montfort, WI in 2018.

**The Take Home**

Some corn hybrids are more resistant than others to the tar spot pathogen. Resistance is not tied to a particular brand. That is to say, when it come to tar spot, every hybrid has to stand on its own. Strong resistance in corn hybrids in the trial above wasn’t common and immunity did not exist. As you make seed selections for 2019, push your seedsman to show you data from other trials for a particular hybrid where tar spot was a problem. Check other states data if you have to. For example, Dr. Martin Chilvers at Michigan State University conducted similar tar spot ratings on hybrids tested in Michigan. You can find the results of these hybrid evaluations by clicking here. Look for hybrids that gave a consistent response across multiple locations. Realize, even the best hybrid will still get some tar spot if the weather is favorable for the disease. Fungicides might be warranted to further reduce tar spot once you have chosen a resistant hybrid.

There are fungicides that do a decent job of reducing tar spot severity. The 2018 Wisconsin Field Crops Pathology Fungicide Tests Summary includes several trials where the efficacy of tar spot was evaluated. You can find those trials by clicking here. While there does seem to be some good choices in fungicide products, timing of application will be critical. It seems that fungicide applications that most closely coincided with the
onset of the tar spot epidemics in a particular location, gave the best results. Thus, the performance of a fungicide will only be as good as the application timing relative to the start of the epidemic. To assist in making recommendations to spray, we are working on a tar spot prediction tool. Look for details of this tool next summer and be sure to follow [Wisconsin Crop Manager News](http://wisconsincropmanager.com) and [Badercropdoc.com](http://badercropdoc.com) to get the latest updates and recommendations.