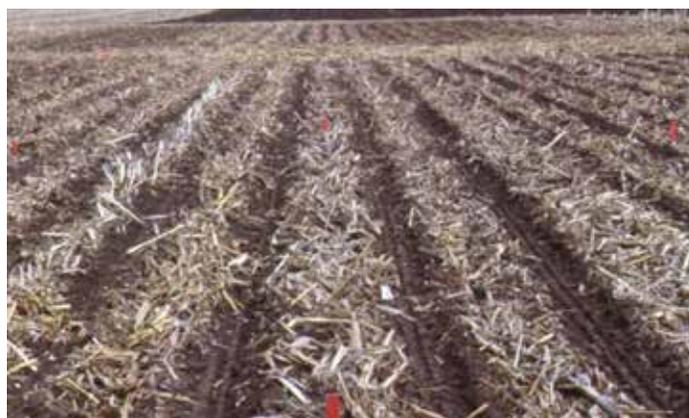


Wisconsin Crop Manager

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Strip-till is considered a variation of no-till. The Conservation Technology Information Center's definition of no-till includes strip-till, provided less than one-third of the total row area is tilled. In strip-till, an 8-inch band in a 30-inch row spacing is aggressively tilled and fertilized using fluted coulters, knives and berm-forming baskets in either the fall or spring. The objective is to dry out and warm up soil in the seed placement zone before spring planting to encourage more uniform stand emergence and plant density.

In the fall of 2000, we initiated a tillage trial to evaluate the impact of strip-tillage on corn yield. The most aggressive tillage operation in the trial was chisel plow followed by two field cultivator operations, while the least aggressive tillage operation was no-till which used a single 13-wave fluted coulters and trash whippers on the planter. Four strip tillage treatments based on tool aggressiveness were applied. Treatment ST4 was the most aggressive strip tillage treatment (9-inch knife, 3 13-wave coulters and berm forming baskets). The strip-tillage treatments varied through the early years of the trial, however, from 2007 to 2015 the treatments were consistent. For Figure 1, we considered 2007 a "set-up" year and deleted it from the analysis. We analyzed 8 years of data (four 2-year cycles for the corn-soybean rotation)

Strip-Tillage: How does it affect yield in Wisconsin?

Joe Lauer, Wisconsin Corn Agronomist

Farmers in Wisconsin are often challenged by cool, wet soils in the spring. Many farmers will chisel plow and field cultivate (2x) to prepare a seedbed to overcome these typical soil condition challenges. Over the last 40-50 years some farmers have sought ways to be less aggressive with tillage leaving more residue on the soil surface to protect it from erosion. Often though there is a "yield penalty" for growing corn in reduced tillage and no-till, especially for continuous corn.

Grain yield (bu/A)

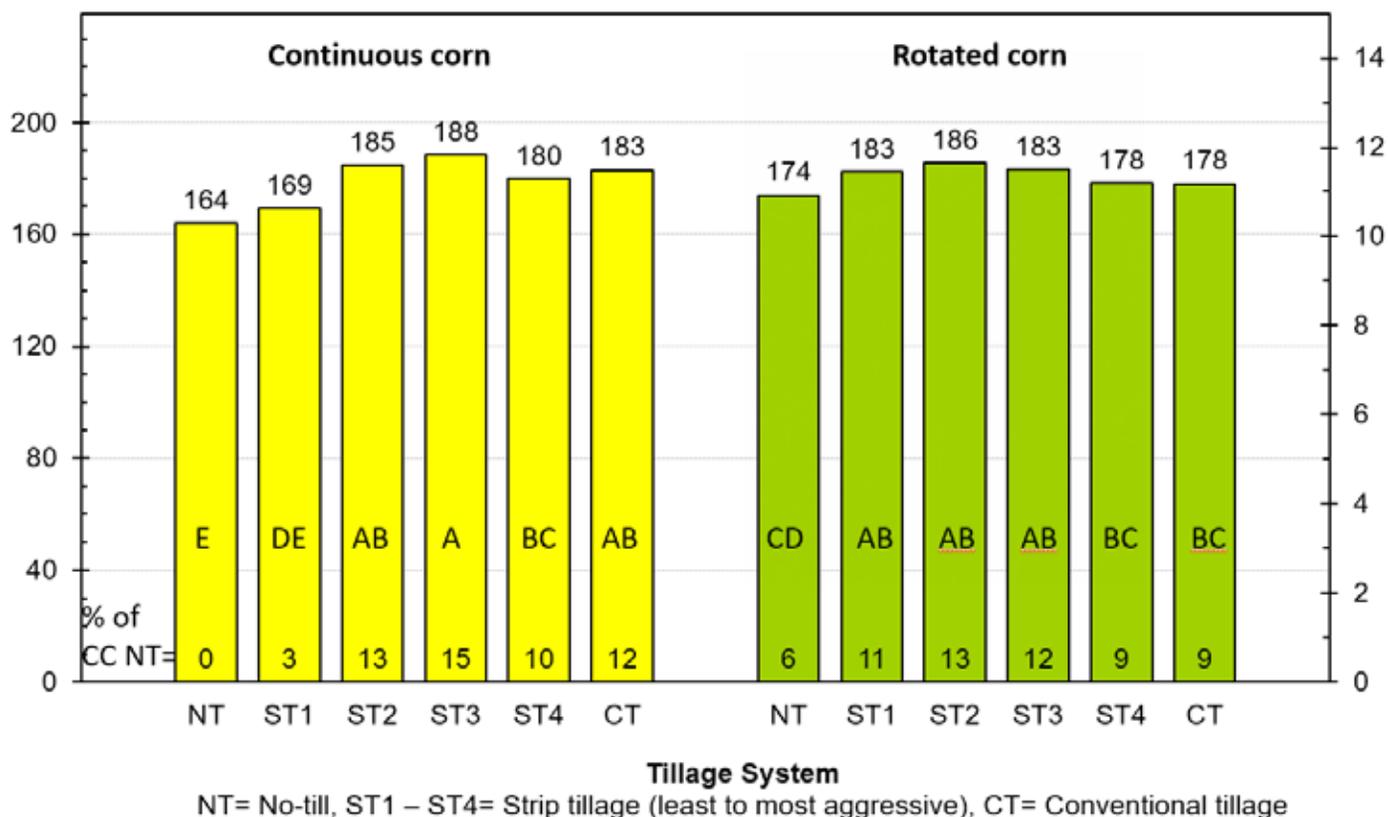
Grain yield (Mg ha⁻¹)

Figure 1. Corn grain yield response to no-till, strip-till and conventional tillage systems. Data are derived from 2008-2015 at Arlington, WI. Values are means of all split-split-plot treatments. (click to enlarge)

No-till continuous corn yielded the least among the treatments at 164 bu/A. This treatment was used to compare all other treatments as a relative percentage. No-till in rotated corn yielded 6% more than no-till continuous corn (NT CC). Chisel plowing yielded 9-12% more than NT CC. Treatment ST4, yielded 9-10% more than NT CC. All of the strip-tillage treatments, except ST1 (the least aggressive tillage treatment) in continuous corn, yielded more than NT CC and were comparable to conventional tillage. These data are some long-term evidence that strip-tillage can overcome cool, wet soils in the spring and have the potential to protect soil from erosion with little impact on grain yield.

Insects That Affect Corn Emergence

Bryan Jensen, IPM and UW Extension

A lot of corn has, or will soon start to emerge. Over the next few weeks crop advisors will be evaluating stands for emergence. While there are many causes for poor emergence, seed corn maggots and wireworms may be

possibilities. Below are some troubleshooting observations for each species.

Seedcorn maggot: There are several generations of seedcorn maggots/year. The first generation peak adult flight occurs at approximately 360 degree days (Base 39 o F) and usually causes most of the damage to corn planted during the "normal" Wisconsin planting season. That peak adult flight, for southern WI, occurred in late April. The second generation peak (1080 dd) is likely to occur within the next 1 ½ – 2 weeks. Late planted corn, sweet corn and especially soybean will likely be affected by the second generation.

The seedcorn maggot adult is a fly and about ½ the size of a common housefly. However, it is the maggot which causes crop damage and they are a cream-colored, legless maggot. Adults will be attracted to recently tilled fields and green/livestock manure to lay eggs. Maggots will feed on the seed and the unemerged shoot. They will not feed on emerged foliage. The cooler weather we had after the first generation peak will likely increase the amount of damage because of longer exposure during the susceptible (below ground) stage.

Seedcorn maggot injury is usually random within the field. Symptoms will include poor emergence and holes in the cotyledon (first leaf) and perhaps the second true leaf. Once the shoot is emerged, that plant is unlikely to have economic yield loss. Dig up the seed if you have poor emergence. You may, or may not, find the maggot depending on your response time when compared to their short generation time. Finding maggots in sound seed is a good sign of seedcorn maggot feeding because saprophytic maggots (non-pest) will not infest sound seed. Conversely, if the corn seed is rotten and maggots are found there is a greater likelihood that something else killed the seed and the saprophytic maggots are only feeding on a rotten seed. When in doubt, navigate to the UW Extension Ag Weather Site, http://agwx.soils.wisc.edu/uwex_agwx/thermal_models/index and click on the **Generic Degree Day Calculator**. You can print daily and accumulated degree day information for seed corn maggot to see if the planting date may have coincided with the adult flight for your area.



Seedcorn maggot injury symptoms

Wireworms: Like seedcorn maggots, wireworms will feed on the ungerminated seed. However, unlike seedcorn maggot, their damage is usually clumped within a field and will have different above ground symptoms. Above ground symptoms can be either holes in the newest emerging leaves and/or wilted whorl leaves. Wireworms have an extended life cycle depending on the species and may last for several years. Timely scouting will usually result in finding wireworm larvae near some of the damaged plants. Wireworms are hard-shelled, copper colored and have three sets of jointed legs. Don't confuse wireworms with millipedes which are a non-pest. Millipedes are dark-gray and have a fringe hair-like legs the length of their body. Wireworm will move deeper within the soil profile during warmer weather. Millipedes will not. Millipedes typically feed on organic matter and are more common during wet growing seasons.

There are no rescue treatments available for seedcorn maggot and wireworms.



Wireworm larvae. Photo Credit: Frank Peairs, Colorado State University, Bugwood.org

Wisconsin Winter Wheat Disease Update – May 24

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

Brian D. Mueller, Graduate Research Assistant, University of Wisconsin-Madison

The Wisconsin Field Crops Pathology Crew scouted winter wheat near Sharon, Wisconsin and Arlington Wisconsin yesterday. Wheat in these locations ranges from emerging flag leaf (Feekes 8) to boot stage (Feekes 10). Stripe rust (Figure 1) is increasing in incidence in the Sharon location while the overall severity (area of leaf covered by yellow spore-producing pustules) remains low. At the Arlington location, susceptible varieties in the uniform variety trial have high incidence and high severity with damage already reaching flag leaves. Wheat in surrounding fields is also beginning to show higher levels of stripe rust incidence. As previously mentioned in my [May 11 post](#), stripe rust can be very yield limiting when it advances to the flag leaves before head emergence. Humid conditions and rainy weather will provide conditions favorable for stripe rust increase over the next week. Now is the time to scout winter wheat fields in the state and determine the incidence and severity of stripe rust in the lower canopy. By scouting the lower canopy, you can get an idea of how much risk there will be for stripe rust moving up to the flag leaf. Fungicides will be most effective when applied to wheat before stripe rust advances to the flag leaf. While scouting also note the growth stage of the wheat crop. This will be helpful in making fungicide application decisions.



Figure 1. Stripe rust in a “striped pattern” on winter wheat leaves.

To add fuel to the fire, we also need to start thinking about [Fusarium head blight \(FHB\) or scab](#). Within a week or so, there will likely be fully emerged heads with anthers present on some wheat varieties in the southern and south-central region of Wisconsin. This will be a critical time to make a decision about fungicide application to control FHB. Currently, the [Wheat Scab Advisor](#) is showing little risk for FHB (Figure 2). I would urge you to pay attention to the weather over the next week. We are about to enter a warm rainy period, which will be conducive for the FHB fungus, should heads emerge and anthesis begin during this time. The Wheat Scab Advisor will likely change quickly during this period. 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 is much reduced.

So now if you are still reading this, you are probably asking yourself “Well Damon, when should I spray fungicide now that I have two diseases to worry about and wheat is only worth \$4/bu?” My advice here will involve some

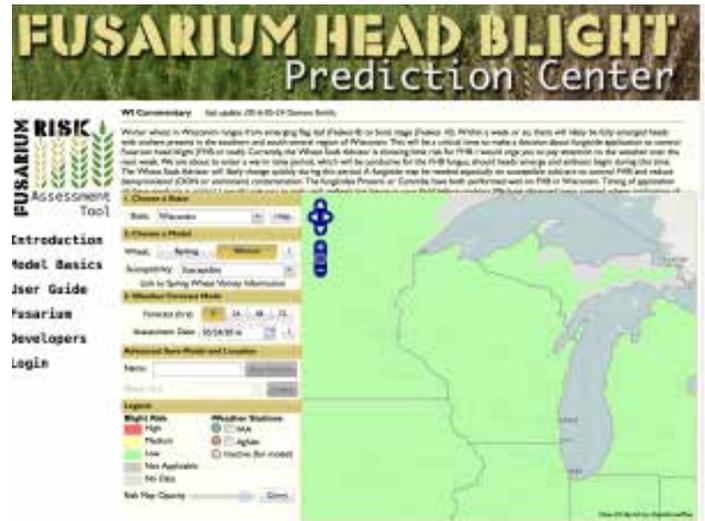


Figure 2. Wheat Scab Advisor Risk for Wisconsin (5.24.16)

leg work. I think folks need to see how much stripe rust is present this week and what growth stage the crop is at. If there is little rust present and the crop will be heading and going through anthesis in the next week or so, I would say to wait and target your fungicide application for FHB control. Both Prosaro and Caramba are rated “Excellent” in the [University Small Grains Fungicide Efficacy Table](#). Therefore, if you wait to spray, you are still applying a product that can protect flag leaves should stripe rust move in later. Also consider the level of resistance to stripe rust in your wheat variety. If the variety has a decent level of resistance, then the rate of spread of stripe rust up the canopy will be slow relative to susceptible varieties.

If the crop is only at the emerging flag leaf stage and you find active stripe rust in the crop, I would not wait to spray at anthesis. This could result in significant levels of stripe rust on flag leaves on susceptible or moderately susceptible varieties considering the conducive weather pattern that is forecast for Wisconsin. A strobilurin fungicide such as Headline or Aproach might be useful as a preventative application for stripe rust and these products are in a different class as Prosaro or Caramba. You should be aware that solo strobilurin fungicides do not perform well on stripe rust once the disease is established. A triazole or mixed-mode-of-action fungicide might be needed in this case, but be aware that could limit your use of Prosaro or Caramba for FHB management later in the season. Consult the fungicide labels carefully.

We have also had a couple reports of low levels of powdery mildew in a handful of fields and Septoria leaf blotch continues to cook along in the lower canopy in most fields. Stay diligent with scouting over the next

couple of weeks and keep an eye on the weather. Hopefully we get enough rain to keep the crop moving along nicely and not enough to make disease worse. SCOUT, SCOUT, SCOUT!!!

New video about Winter Wheat In-Season Disease Management

Damon Smith, UW-Madison, Extension Field Crops Plant Pathologist

Stripe rust is increasing in incidence in some Wisconsin locations, while the overall severity (area of leaf covered by yellow spore-producing pustules) remains low. At the Arlington Research Station location, susceptible varieties in a uniform variety trial have high incidence and high severity with damage already reaching flag leaves. Wheat in surrounding fields is also beginning to show higher levels of stripe rust incidence.

Here is a new 2 minute video update about stripe rust and scouting winter wheat at this growth stage.



Stripe rust can be very yield limiting when it advances to the flag leaves before head emergence. Humid conditions and rainy weather will provide conditions favorable for stripe rust increase over the next week. Now is the time to scout winter wheat fields in the state and determine the incidence and severity of stripe rust in the lower canopy. By scouting the lower canopy, you can get an idea of how much risk there will be for stripe rust moving up to the flag leaf. Fungicides will be most effective when applied to wheat before stripe rust advances to the

flag leaf. While scouting also note the growth stage of the wheat crop. This will be helpful in making fungicide application decisions.

<http://fyi.uwex.edu/fieldcroppathology/>

Wisconsin CCA Exam Resources

Bryan Jensen
UW Extension and IPM Program

Registration for the August CCA exams is now open, however, the June 24 exam registration deadline is less than a month away. The first step in preparation for either the international and/or state exam is to review the Performance Objective for each exam. These performance objectives will provide a subject matter list for their respective exam and may be downloaded from the CCA website <https://www.certifiedcropadviser.org/> by clicking on the "exams" tab located at the top of the screen. Study materials for the International Exam are available at the above website by click on "CCA Exam Study Materials".

Although UW-Extension does not offer a training session specific for the state exam, we have prepared a list of 50 YouTube videos with over 18 hours of instruction available for you to use. Although these videos were designed specifically for the Wisconsin exam, they also serve as a general resource for field crops. The play list for each of the categories is:

- [Soil Science Fundamentals for Field Crops](#)
- [Field and Forage Crop Fundamentals](#)
- [Weed, Insect and Disease IPM for Field Crops](#)

An additional set of electronic resources is available [here](#) with links provided to over 100 UW Extension resources. Furthermore, a list of UW-Madison websites is also available to supplement your studies.

UW-Madison/Extension Plant Disease Diagnostic Clinic (PDDC) Update

Brian Hudelson, Sean Toporek, 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 14, 2016 through May 20, 2016.

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

Fruit Crops

Apple, Dormant Oil Leaf Burn, None, Grant

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

Wisconsin Pest Bulletin for 5-26-16

Krista Hamilton, Entomologist, WI Dept of Agriculture, Trade and Consumer Protection

Volume 61 Issue No. 5 of the Wisconsin Pest Bulletin is now available at:

<https://datcpservices.wisconsin.gov/pb/pdf/05-26-16.pdf>

INSIDE THIS ISSUE

LOOKING AHEAD: Risk of black cutworm damage to corn remains HIGH

FORAGES & GRAINS: Alfalfa weevil larvae counts on the increase

CORN: Spring flight of European corn borer now starting

SOYBEAN: Bean leaf beetles appearing in soybean fields

FRUITS: First codling moth flight now underway, biofix set in several orchards

VEGETABLES: Striped cucumber beetles observed in southern Wisconsin

NURSERY & FOREST: Plant viruses and leaf spot found during recent inspections

DEGREE DAYS: Growing degree day accumulations as of May 25, 2016

Vegetable Crop Update May 20, 2016

Amanda J. Gevens, Associate Professor & Extension Vegetable Plant Pathologist

The 8th issue of the Vegetable Crop Update is now available. In this newsletter we address the following topics:

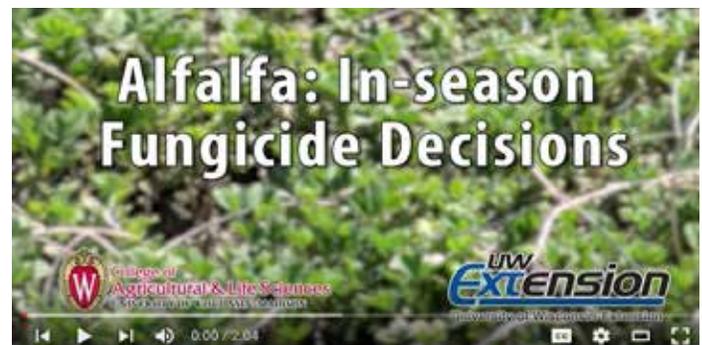
- late blight and cucurbit downy mildew updates (national scope)
- potato plant nutrition in response to freezing stress
- special pesticide registration considerations for Wisconsin
- evaluating fungicide programs for early blight control and economic return in potato

[Click here to view this update.](#)

What about Fungicide on Alfalfa for Dairy Production in Wisconsin?

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

Thinking about fungicide for your alfalfa crop in Wisconsin? Typically in a 30-day cutting interval on alfalfa, like that used in dairy production in Wisconsin, foliar diseases cause minimal damage. Coupled with the heightened risk of fungicide resistance development toward these modern fungicides, application of fungicide on alfalfa for dairy production is not recommended unless heavy disease pressure is observed. [CHECK OUT THIS VIDEO TO LEARN MORE!](#) You can also [CLICK HERE](#) to download an informational fact sheet on the return on investment potential when using fungicide on alfalfa in Wisconsin.



Wisconsin Corn Disease Management Update Video

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

Now that the corn crop has been planted, you are probably thinking about disease and pest management once the crop emerges. After the 2015 field season, disease management is on everyone's mind. To complicate this issue, corn prices are low. Is a fungicide application going to be worthwhile in this market? [Watch this video](#) to learn about potential corn disease issues in Wisconsin and what we have learned about using fungicide on field corn in the state.

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