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Pest&Crop newsletter

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Seedcorn Maggots Likely Ending 2021 Run

(Christian Krupke) & *(John Obermeyer)*

As we discussed here last week, there have been an unprecedented number of calls and samples regarding seedcorn maggot damage, particularly in soybeans. The name of this pest leads you to believe that it is a corn specialist, but that's not the case. Seedcorn maggots are generalist feeders, and will feed on a wide range of decaying or live organic material. This year, we actually had more reports of heavy feeding and stand loss in soybeans than corn.

Seedcorn maggot extracted from damaged hypocotyl. (*Photo Credit: John Obermeyer*)

Seedcorn maggot pupa, when you find these, damage is done! (*Photo Credit: John Obermeyer*)

Seedcorn maggot fly on hand. (*Photo Credit: John Obermeyer*)

At this point, two factors spell the end of the risk of further damage: 1) the vast majority of maggots are completing development and no longer feeding, and 2) warmer temperatures will mean that corn and soybeans planted now or in the near future won't be at risk. Seedcorn maggots are only problematic when the seed or young plant is sitting in cold, wet soils for prolonged periods, not able to outgrow damage. Having said that, a trend towards earlier planting of soybeans may mean we will see this again in future years. So, what can we learn from 2021 experiences?

1. If planting early, plant into "clean" seedbeds – this means no dead/dying winter annual weeds, animal manure, or excessive crop residue. This isn't always easy to achieve, especially early

in the spring. But remember that adult females are attracted to rotting organic material and although they are not targeting young corn and bean seedlings, they will feed on them if they encounter them.

2. Don't count on seed-applied insecticides: neonicotinoids including imidacloprid, thiamethoxam and clothianidin. Many of the reports we received included damage to treated seeds, and producers reported that the seed treatments didn't seem to be doing much of anything. Admittedly, this is not a replicated study and it's anecdotal information and we don't have a strong historical dataset on efficacy for these pests, because they are so infrequent. But there's a good chance that there was not much insecticide protecting these seedlings when the maggots showed up – insecticidal seed treatments are water soluble and rapidly move off the seed and move with water. Some of that movement is into the crop, but the vast majority goes elsewhere. A study in corn demonstrated that less than 2% of the neonicotinoid applied to the seed ended up in the plant. Soybeans are likely a similar story. In other words wet, saturated soils are the perfect recipe for the insecticide to leach away, just when you need it the most.

The bottom line is that we don't have the tools to reliably combat this pest if plants are compromised by prolonged cool weather. Beyond hoping for good early growing conditions and planting into "clean" and well-prepared soils, there are few remedies. This year (early planting followed by prolonged cool period) presented a perfect set of conditions for seedcorn maggot infestations.

Armyworm Pheromone Trap Report – 2021

(John Obermeyer)

County/Cooperator	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11
Dubois/SIPAC Ag Center	0	13	3	65	51	12	0				
Jennings/SEPAC Ag Center	0	1	0	7	7	2	2				
Knox/SWPAC Ag Center	0	6	1	10	35	1	12				
LaPorte/Pinney Ag Center	27	50	12	393	189	42	231				
Lawrence/Feldun Ag Center	14	62	7	434	717	83	79				
Randolph/Davis Ag Center	0	0	0	0	0	0	53				
Tippecanoe/Meigs	1	0	0	16	31	12	13				
Whitley/NEPAC Ag Center	0	0	0	18	20	8					

Wk 1 = 4/1/21-4/7/21; Wk 2 = 4/8/21-4/14/21; Wk 3 = 4/15/21-4/21/21; Wk 4 = 4/22/21-4/28/21; Wk 5 = 4/29/21-5/5/21; Wk 6 = 5/6/21-5/12/21; Wk 7 = 5/13/21-5/19/21; Wk 8 = 5/20/21 – 5/26/21; Wk 9 = 5/27/21-6/2/21; Wk 10 = 6/3/21-6/9/21; Wk 11 = 6/10/21-6/16/21

Keeping An Eye On Foliar Diseases Of Wheat And Fusarium Head Blight Risk

(Darcy Telenko)

Wheat in Indiana is starting to head out in central Indiana and flowering will probably start this weekend. During flowering (anthesis) **warm, wet weather** with high relative humidity will favor the development of Fusarium head blight (scab). Due to the **recent cooler conditions,** the **risk remains low** for the next 72 hours based on the Fusarium Risk Tool (Fig 1.) If you do choose to spray, aim for this early flowering period.

Our southern neighbors have started reporting multiple diseases in wheat, such as strip rust and Septoria leaf spot. We have yet to see many samples or reports here in Indiana. There are a number of resources are available to help distinguish wheat leaf diseases, they include the Purdue Wheat Field Guide (https://ag.purdue.edu/agry/dtc/Pages/WheatFG.aspx) and "*Identifying Rust Diseases of Wheat and Barley.*" https://www.ars.usda.gov/ARSUserFiles/50620500/Cerealrusts/Rust_Diseases_National.pdf

Samples can always be submitted to the Purdue Plant Pest Diagnostic Lab for disease identification and confirmation. https://ag.purdue.edu/btny/ppdl/Pages/default.aspx

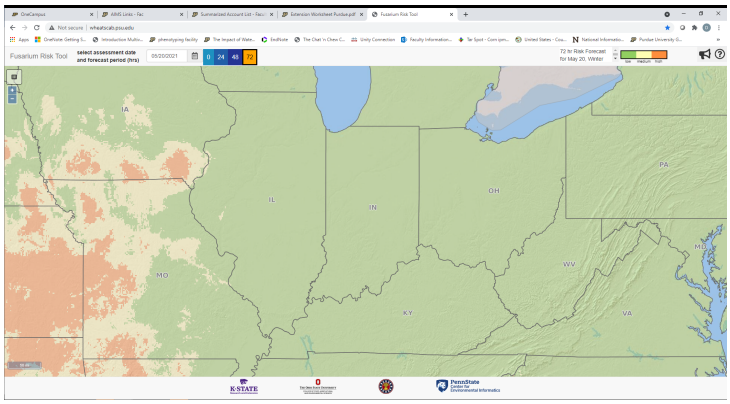

Figure 1. The 72 hour Risk Forecast for Fusarium, the map was generated on 20 May 2021. Orange = high risk, Yellow = medium risk, and Green = low risk for Fusarium head blight on wheat just prior to flowering or the early stages of grain development. Image credit: http://www.wheatscab.psu.edu/.

Fusarium head blight (FHB) is caused by the fungus *Fusarium graminearium*. It infects wheat during flowering, beginning at Feekes 10.5.1. Symptoms of FHB will appear as bleached spiklets on the head later in the season. Infection can lead to small or shriveled grain kernels referred to as "tombstones." In addition to shriveled grain, this fungus can produce mycotoxins such as deoxynivalenol (DON), which can accumulated in the infected grain.

Figure 2. Wheat beginning to flower and Fusarium head blight infection. (*Photo Credit: Darcy Telenko*)

A number of resources are available to help you make disease management decisions in wheat.

1) **The Fusarium Risk Assessment Tool** is available at the following website. http://www.wheatscab.psu.edu/. This tool estimates the risk of a Fusarium head blight epidemic (> than 10% field severity) using weather conditions (temperature, rainfall, and relative humidity) measured 15 days prior to flowering. See above for the current risk map – Indiana is still green (low risk for scab development).

Keep in mind that actual disease risk depends heavily on the growth stage of wheat in your area. We are moving into flowering; the estimate is most relevant just prior to flowering (Feekes 10.5.1) or the early stages of grain development. Fusarium head blight risk is highest when there are three or more days with extended periods of high relative humidity and moderate temperatures (65 to 80°F) during the early stages of kernel development.

I wanted to remind you that this tool is available. Farmers and crop advisors can sign up for alerts from the U.S. Wheat and Barley Scab Initiative; these can be sent to a cell phone as a text or email. To sign up visit https://scabusa.org/fhb_alerts.

2) **Fungicide Application:** A fungicide application might be considered if a Fusarium head blight (FHB) susceptible variety is planted, or if you are worried about scab on your farm. These applications should be made at Feekes 10.5.1, or early flowering to suppress FHB. Fungicides recommended for FHB and DON include Prosaro, Caramba, Proline, and Miravis Ace. The use of products containing strobilurin fungicides may result in higher levels of DON accumulation in grain when damaged by FHB. These are not labelled for FHB management.

Fungicide Efficacy Tables for wheat were just updated and are available from the Crop Protection Network publications. https://crop-protection-network.s3.amazonaws.com/publications/fungicide-efficacy-for-control-of-wheat-diseases-filename-2021-04-21-154024.pdf

These tables can help you identify products to use based on your targeted disease. As a reminder follow the label on harvest restriction as some products may have 30 to 45 days required between last fungicide application and harvest. Once the full head has emerged flowering will likely occur in 3-5 days, depending on weather and variety. It is time to keep an eye on your fields. Those most at risk would be fields that were planted to a Fusarium head blight susceptible variety or those with limited rotation that follow a previous crop of wheat or corn.

Improving Hay Drying Rates With Mower-Conditioner Adjustments

(Keith Johnson)

Harvest of cool-season perennial grasses and perennial legumes is beginning. Getting a standing forage crop that measures 75 percent moisture or more to a safe baling moisture of 18 to 20 percent moisture is “easier said than done”. Changing weather fronts pass through every third or fourth day making it a challenge to quickly dry hay. Research has shown that properly conditioning forage crops is the single most effective way to reduce curing time. Making the proper settings on your mower-conditioner will ensure the best economic return.

Mechanical conditioning the crop with rubber rollers (shown in picture) or steel rollers reduces hay drying time. (Photo Credit: Keith Johnson)

When conditioning a forage crop, the goal should be to have 90 percent of the crop’s stems show some signs of a cracking or limpness. No more than 5 percent of the leaves should show signs of bruising or blackening from the conditioning process — this is especially important with legumes.

Remember, over conditioning forage crops will cause excessive leaf loss during the drying process and reduce the crop’s overall yield and quality. At the same time, under conditioning the crop will make it more susceptible to rainfall as it will take longer to dry the crop and requires more mechanical manipulation to dry the hay.

When making the settings to your mower-conditioner, make sure to:

- Alter the conditioning roll gap properly by using the shims located on the roll stops. Refer to your owner’s manual.
- Adjust the conditioning roll pressure to ensure proper conditioning.
- Check conditioning with **every** cutting or crop change. Variables such as yield, relative forage species composition, and stem diameter change from one crop to the next, or one field to the next.
- Keep the sickle bar and disk mower blades in good cutting.
- Adjust the reel position and speed for adverse conditions, such as a lodged or tangled crop.
- Alter the swath width for drying conditions. Set it wide if the soil is dry and good drying conditions are expected. Create a narrow windrow if the soil is wet. This allows the soil to dry between the windrows. Then, ted the narrow windrows onto the dry parts of the field.

Measuring Conditioning Roll Clearance

Generally, the mower-condition’s roll clearance should range from 1/16 inch to 3/32 inch. If the clearance is less than this range, excessive leaf loss and roll wear can occur. If the clearance is significantly more than this range, then the crop will not be conditioned as effectively, and slower drying rates can be expected. Most mower-conditioner owner’s manuals will indicate the proper clearance level and the correct procedure for making adjustments.

The following procedure can be used to determine the average roll

clearance on most roll-type mower-conditioners. To conduct this procedure safely you must:

- Shut off the tractor engine.
- Disconnect the mower-conditioner power take-off (PTO) from the tractor on mechanically driven units.
- Disconnect the mower-conditioner PTO hydraulic pump from the tractor on hydraulically driven units.
- Lower the cutting platform.

The procedure's steps are:

1. Cut three pieces of typical household aluminum foil. Each piece should be 18 inches long and at least 12 inches wide.
2. Form three separate rolls from the foil strips by wrapping each one around a length of rod, pipe, or dowel that is 3/8 inch in diameter. Slide the foil roll off the rod, taking care not to crush the foil roll.
3. Place one foil roll in the approximate center of the conditioning rolls. Place the other foil rolls about 1 foot from each end of the conditioning rolls. Place the foil rolls so that they are perpendicular to the roll's longitudinal axis.
4. **Make sure the cutting platform is fully lowered.** This is the only safe way to make this measurement. Furthermore, raising the platform on some mower-conditioners will open and separate the rolls, preventing an accurate measure of the minimum roll clearance.
5. Turn the conditioning rolls by hand until the foil rolls come through completely.
6. The conditioning rolls will crush the foil. Use a digital or dial caliper to measure the thickness of the crushed foil roll to determine the minimum roll clearance. Take several thickness measurements along the length of each foil roll and determine an overall average. Take the measurement where the "crimp," or smallest clearance, occurs. The crimped foil thickness should range from 1/16 inch to 3/32 inch.

Doing this "measuring the gap" procedure should result in improved drying rates.

From: Purdue Forage Field Guide, Third Edition. ID-317.

Growing Degree-day Accumulations Still Lag While Dry Conditions Linger

(Beth Hall)

Abnormally dry conditions are still lingering in parts of Indiana (Figure 1) with interest growing on how much the warmer weather might exacerbate the situation. Fortunately, the climate outlooks for the next several weeks and through June are favoring above-normal precipitation (in addition to above-normal temperatures), so hopefully any dry periods will be short lived.

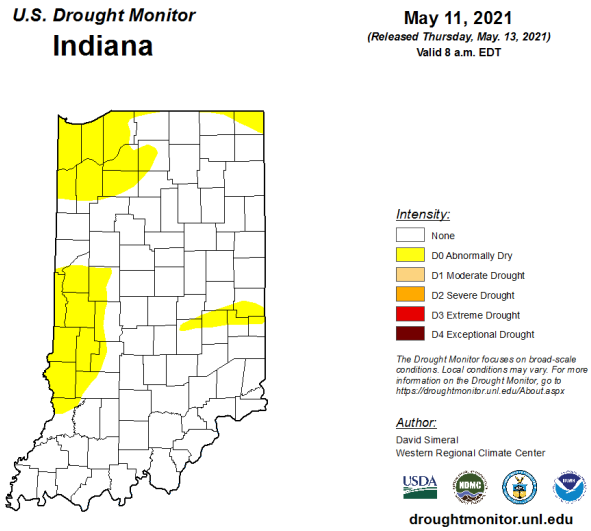

Figure 1. U.S. Drought Monitor, May 11, 2021.

The El Nino – Southern Oscillation (ENSO) pattern has finally shifted away from the La Nina phase to the Neutral phase. It is expected that this Neutral phase will continue throughout the summer. For Indiana, a Neutral phase this time of year has not correlated strongly with either above- or below-normal temperatures or precipitation, but have slightly favored higher corn yields. This may imply that temperature and precipitation patterns could still be highly variable but average toward normal conditions at the monthly or even seasonal time scales. Hopefully, the variability swings back and forth often enough to provide the necessary relief every few days!

Modified growing degree-day (MGDD) accumulations (Figure 2) are still slightly behind the climatological average with the greatest lags in the southern counties (Figure 3). However, as Figure 4 shows, for most of the state MGDD accumulations this year are slightly ahead of where they were in 2020.

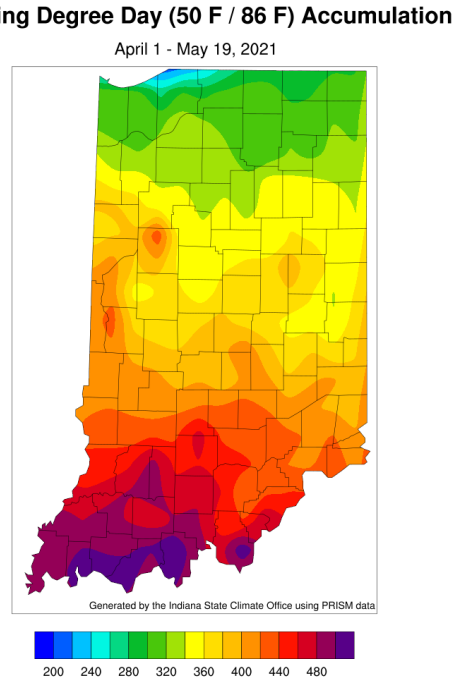

Figure 2. Modified growing degree day accumulation from April 1 to May 19, 2021.

Growing Degree Day (50 F / 86 F) Departure From Average

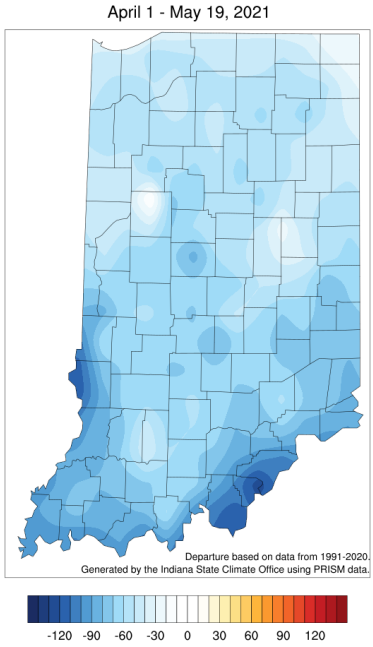

Figure 3. Modified growing degree-day accumulation departures for April 1 through May 19, 2021 compared to the 1991-2020 climatological period.

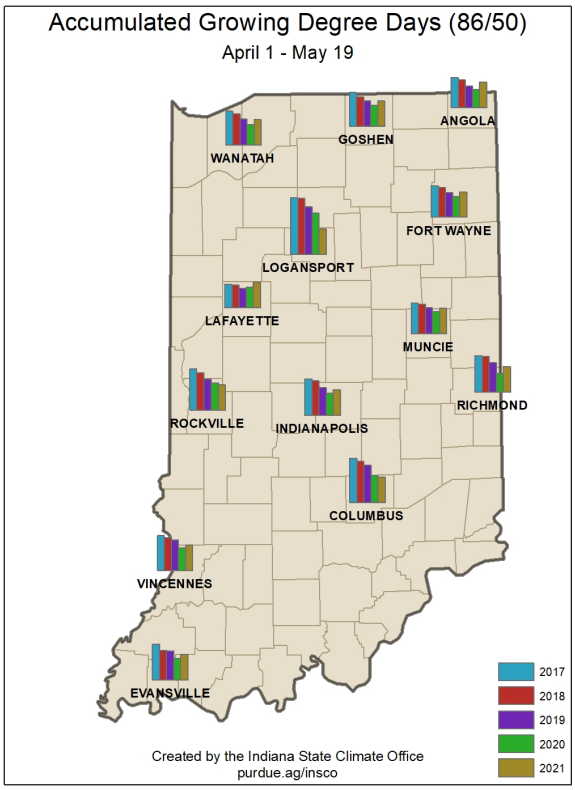

Figure 4. Accumulated growing degree days (86/50, April 1 – May 19.

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Editor: Tammy Luck | Department of Entomology, Purdue University, 901 W. State St., West Lafayette, IN 47907