

Pest & Crop newsletter

Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant

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VIDEO: Corn Lodging - When Is It Caused by Rootworm Feeding?

(Christian Krupke) & (John Obermeyer)

With the recent heavy rains and winds in many parts of the state, it seems like a good time to talk about corn lodging. Corn lodging, during rapid vegetative growth and often just before pollination, is not a welcome sight. Unsurprisingly, it generally follows a storm front that has moved through the area...leading to spotty but striking damage on some farms. There are a variety of potential factors that can lead to lodging, and corn rootworm feeding is certainly one of them.



What caused the leaning of these corn plants?

Shallow roots (e.g., compaction) and soggy soils coupled with high winds, rootworm feeding or any other issues that compromise roots can lead to lodging. If lodging is noted, it is typically easy to assess whether rootworms are to blame. To properly assess lodged plants, go to a damaged area, dig up roots with a shovel, clean off soil, and

carefully examine the roots. Rootworm feeding is still happening now and not much regrowth will have occurred, so feeding scars and damage will be visible to the naked eye. You may even be lucky enough to see the larvae in action! Rootworm feeding is relatively easy to diagnose and not likely to be confused with other insect damage at this time of year - rootworm feeding scars are characterized by brown, often longitudinal, discolorations anywhere on the root system, but often is more serious towards the root tips. Scarring damage alone is not likely to reduce the root's anchoring ability, however. Root pruning, especially with entire nodes (i.e. the "rings" of roots around the circumference of the stem) missing, would likely implicate rootworms as the cause of root lodging. Pruned roots will look ragged and necrotic at the tips. The video below will contrast two root systems with rootworm damage, representing heavy and minor feeding.

Another giveaway, usually later in season, will be the density of rootworm beetles flying about as you enter the field, as they will be emerging soon. In recent years, economic levels of rootworm feeding have been fairly uncommon in Indiana. If you are finding abundant western corn rootworm beetles in lodged fields, and Bt-RW corn was planted (most current Bt corn hybrids do express proteins targeting rootworm larvae), please contact your seed company personnel. Plants should be tested for the presence of the appropriate Bt protein. If the protein is being expressed by plants, and heavy feeding is noted, it may indicate a resistance issue that requires further follow-up.

2020 Western Bean Cutworm Pheromone Trap Report

(John Obermeyer)

County	Cooperator	WBC Trapped		Wk 3 7/2/20- 7/8/20	Wk 4 7/9/20- 7/15/20	Wk 5 7/16/20- 7/22/20	Wk 6 7/23/20- 7/29/20	Wk 7 7/30/20- 8/5/20
		Wk 1 6/18/20- 6/24/20	Wk 2 6/25/20- 7/1/20					
Adams	Roe/Mercer Landmark	0	0					
Allen	Anderson/WICK	0	0					
Allen	Gynn/Southwind Farms	0	0					
Allen	Kneubuhler/G&K Concepts	0	0					
Bartholomew	Bush/Pioneer Hybrids	0	1					
Boone	Emanuel/Boone Co. CES	2	1					
Clay	Mace/Ceres Solutions/Brazil	0	0					
Clay	Fritz/Ceres Solutions/Clay City	0	1					
Clinton	Emanuel/Boone Co. CES	0	3					
Dubois	Eck/Dubois Co. CES	0	0					
Elkhart	Kauffman/Crop Tech Inc.	0						
Fayette	Schelle/Falmouth Farm Supply Inc.	0	0					
Fountain	Mroczkiewicz/Syngenta	0						
Fulton	Jenkins/Ceres Solutions/Talma	0						
Hamilton	Campbell/Beck's Hybrids	0	0					
Hendricks	Nicholson/Nicholson Consulting	0						
Hendricks	Tucker/Bayer	1	0					
Howard	Shanks/Clinton Co. CES	0	0					
Jasper	Overset/Jasper Co. CES	0						
Jasper	Ritter/Dairyland Seeds	3	7					
Jay	Boyer/Davis PAC	0	0					
Jay	Shrack/Ran-Del Agri Services	0						
Jennings	Bauerle/SEPAC	0	0					
Knox	Clinkenbeard/Ceres Solutions/Freelandville	0	0					
Knox	Butler/Ceres Solutions/Vincennes	0						
Lake	Kleine/Rose Acre Farms	0	0					
Lake	Moyer/Dekalb Hybrids/Shelby	0	8					
Lake	Moyer/Dekalb Hybrids/Scheider	0	8					
LaPorte	Rocke/Agri-Mgmt. Solutions	0						
Marshall	Harrell/Harrell Ag Services	0	0					
Miami	Early/Pioneer Hybrids	0	0					
Montgomery	Deja/Nicholson Consulting	0	0					
Newton	Moyer/Dekalb Hybrids/Lake Village	0	1					
Porter	Tragesser/PPAC	1	0					
Posey	Schmitz/Posey Co. CES	0						
Pulaski	Capouch/M&R Ag Services	1	4					
Pulaski	Leman/Ceres Solutions	0	0					
Putnam	Nicholson/Nicholson Consulting	0	0					
Randolph	Boyer/DPAK	0	0					
Rush	Schelle/Falmouth Farm Supply Inc.	2	4					
Shelby	Simpson/Simpson Farms	0	0					
Starke	Capouch/M&R Ag Services	1	0					
St. Joseph	Battles/Mishawaka	0	0					
St. Joseph	Carbiener/Breman	0	1					

County	Cooperator	WBC Trapped						
		Wk 1 6/18/20- 6/24/20	Wk 2 6/25/20- 7/1/20	Wk 3 7/2/20- 7/8/20	Wk 4 7/9/20- 7/15/20	Wk 5 7/16/20- 7/22/20	Wk 6 7/23/20- 7/29/20	Wk 7 7/30/20- 8/5/20
St. Joseph	Deutscher/Helena Agri-Enterprises, Trap 1	0	0					
St. Joseph	Deutscher/Helena Agri-Enterprises, Trap 2	0	0					
Sullivan	Baxley/Ceres Solutions/New Lebanon	0	0					
Sullivan	McCullough/Ceres Solutions/Farmersburg	0	1					
Tippecanoe	Bower/Ceres Solutions	0	32					
Tippecanoe	Nagel/Ceres Solutions	0	0					
Tippecanoe	Obermeyer/Purdue Entomology	0	0					
Tippecanoe	Westerfield/Monsanto Research Farm	0	0					
Tipton	Campbell/Beck's Hybrids	0	0					
Vermillion	Lynch/Ceres Solutions/Clinton	0	0					
White	Foley/CornAg	0	0					
Whitley	Boyer, Richards/NEPAC/Schrader	0	0					
Whitley	Boyer, Richards/NEPAC/Kyler							

* = Intensive Capture...this occurs when 9 or more moths are caught over a 2-night period

Low Soil Moisture And Compaction Promote Potassium Deficiency

(Jim Camberato)

Low soil moisture and compaction slow crop uptake of potassium (K), often resulting in K deficiency. Potassium deficiency will be worse under these conditions at marginal to sub-optimal soil test K levels. Symptoms are yellowing and browning along the edges of older plant tissues during vegetative growth in corn and soybean. After flowering, [symptoms may appear on upper leaves](#) of soybean. Tissue sampling and analysis can be used to confirm K deficiency, with levels below 1.75-2.0% K likely deficient. Although, the recent rains will enable greater K uptake, symptoms that are present now will not disappear. Foliar K applications can be effective at increasing yield with severe deficiency, but are generally expensive and have risk of tissue burn. Areas showing deficiency should be soil sampled to determine if low soil test and/or compaction were responsible for inadequate K uptake. Soil test levels less than 100-125 parts per million or 200-250 pounds per acre are considered marginal to sub-optimal for most soils. Fertilizer applications and/or tillage should alleviate or at least lessen the potential for K deficiency next season.



K deficiency corn



K deficiency soybean

Take Time To Self Evaluate Your Pasture Management

(Keith Johnson)

This information is in honor of Dave Forgey and Dave Nuhring, producers who taught a young forage specialist (me) and thousands of others the value of rotational stocking.



Managing pasture properly requires much skill, just like any agronomic crop. I think it requires more skill to do it in an "A" grade fashion than row crops because there is a livestock component to the agricultural system, too. Proper pasture management is more than opening the gate to the pasture and letting livestock graze season long.

The following table includes several statements that I consider essential for a very successful pasture program. Take the time to do a self evaluation of how good a job **you** are doing with each statement given. Rankings "Strongly Disagree" or "Disagree" require some attention to have topnotch pasture for your livestock.

If you have not developed a team of resource people that can help you with your questions about forage management, a good starting point is

to contact your county's Purdue Extension Agriculture and Natural Resources Educator and Natural Resources Conservation Service personnel. These individuals have a network within their own organizations and know local-regional agribusinesses and producers that will be able to help you with your questions.

Developing excellent pasture management skills require much effort, but the well being of your livestock will improve because you do.

Statement	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I soil test at least every third year and apply lime and fertilize based on the test results.					
I know the major soil types on my farm by name and know their strengths and weaknesses.					
I can identify the major forages growing in my pasture and know their strengths and weaknesses.					
I remove livestock from a paddock when cool-season grass/legume forage growth is around 4 inches in height.					
I stockpile perennial pasture in the late summer and early fall.					
I evaluate pasture growth and potential concerns (overgrazing, weeds, insects, diseases) in the pasture weekly and take action if needed.					
I document when livestock are moved from paddock to paddock.					
Where possible and applicable, I graze crop residues and double crop forages to full potential on my farm.					
I analyze nutrient composition of my hay and use the information to balance rations.					
I have an agronomist on my list of professionals that has a passion for forage crops.					

Hemp Update

(Marguerite Bolt, mbolt@purdue.edu)

The majority of hemp is in the ground and growers are now actively managing their plants. This could mean regularly scouting for diseases and pests (every grower should be out there scouting), managing weeds, and monitoring plant health. While there is a lot of feedback from growers on how the crop looks, there are a few key observations that I would like to bring up.

Be on the lookout for diseases. With the recent rain, heat, and humidity,

we may have the perfect storm for diseases in hemp. Growers should scout after dew or rainfall has evaporated. Having a few paper bags is helpful to collect symptomatic leaves for disposal. Growers can also send plant tissue to [Purdue Plant and Diagnostic Lab](#).

Insect pressure is variable across the state, but I am getting reports of minor feeding damage from Japanese beetle. While the extent of damage is not concerning yet, growers should be making notes of any damage they are observing. Eurasian hemp borer is abundant in feral hemp populations. The majority of hemp is not being grown where I am scouting, but there are feral populations around the state that may have borers. Growers still need to check plants for signs of borer damage because it can be very destructive.



Any easy way to look for Eurasian hemp borer is to check for bulges in the stem and frass on the outside. If you are willing to sacrifice the branch or stem, you can cut it open to find the larvae.



Mold growth in early flowering hemp.

Weed pressure may be high in some fields, especially for those that direct seeded within the last two weeks or started out with weedy fields. Cannabinoid growers do have two herbicide options for between row applications, which can be at

https://www.oisc.purdue.edu/pesticide/pdf/pest_hemp_product_list.pdf.

Office of Indiana State Chemist has made the 2019 Research Report available at https://www.oisc.purdue.edu/hemp/annual_reports.html.

There is a lot of useful information that we will build upon after the 2020 season is over. Be sure to check it out.

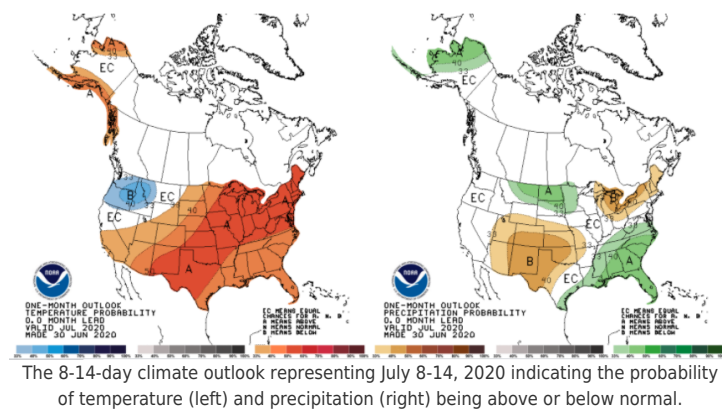
I hope everyone has a wonderful holiday weekend!

Outlooks Showing Confidence For Below-Normal Precipitation

(Beth Hall)

The roller coaster ride of Indiana weather continues. Things were drying out across the state with signs of browning lawns, rolling

vegetation leaves, and lowering pond and stream levels. Then the rains came. Most of the state received between 2 and 3 inches of precipitation from June 20 through 29th – with wetter areas to the south and drier areas to the northeast. While this may seem good enough to relieve any concerns about drought developing, the temperatures have been high to encourage the evaporation of those wet surfaces. As a result, the [US Drought Monitor](#) has kept most of the state at “Abnormally Dry”. The climate outlook for July 8-14 shows increased confidence of below-normal precipitation with the possibility of this dryness continuing into mid-July. Additionally, probabilities are significant that temperatures will be above normal – further exacerbating any dryness due to lack of rainfall. The climate outlook for July – provided by the national Climate Prediction Center – is showing strong confidence for above normal temperatures, but uncertainty regarding precipitation (Figure 1).



With temperatures continuing to be above normal, accumulated modified growing degree days continue to catch up to levels seen in previous years (Figures 2-3). Beware of elevated heat index values that can increase health risks when working outside. Learn more about how to stay safe during extreme heat and high heat index conditions from the [Centers for Disease Control and Prevention](#).

Growing Degree Day (50 F / 86 F) Accumulation

April 1 - June 30

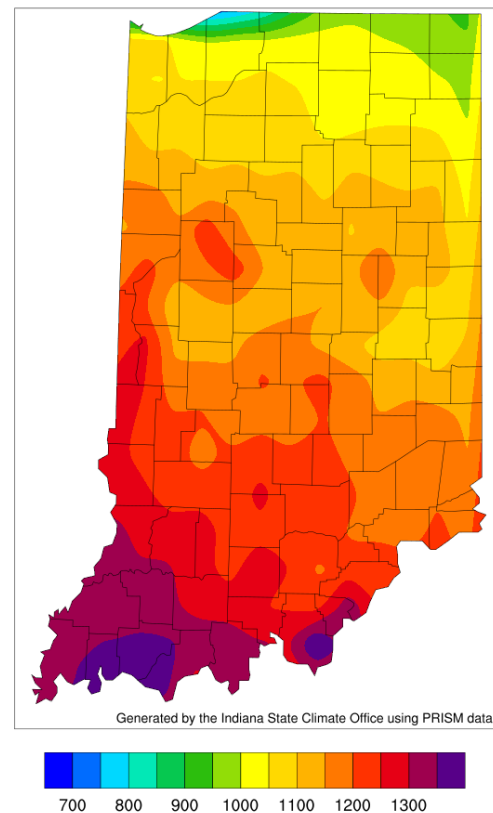


Figure 2. Modified growing degree day accumulations since April 1, 2020.

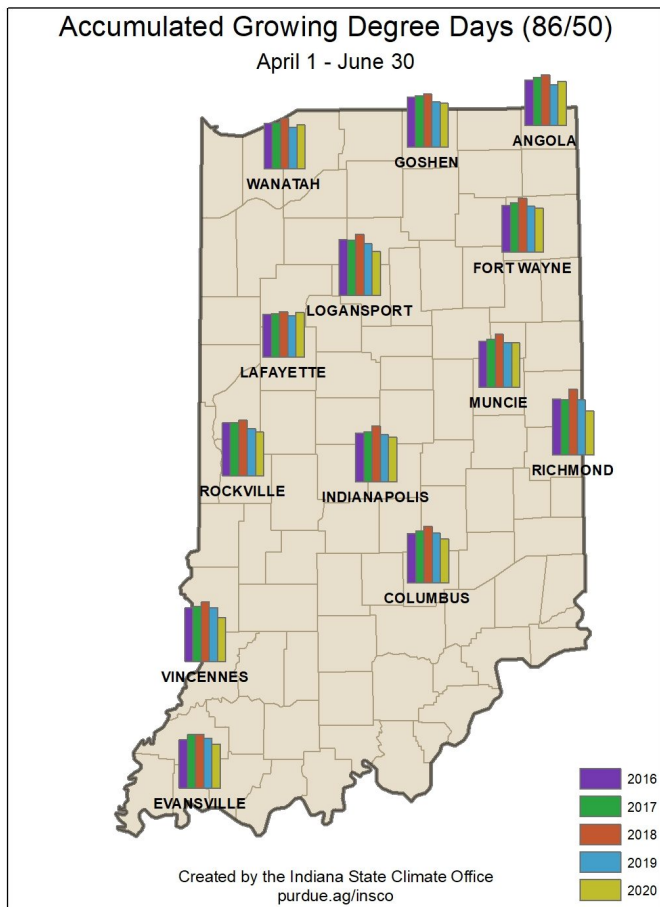


Figure 3. Comparison of the 2020 accumulated modified growing degree days since April 1st to previous years.

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