IN THIS ISSUE

Issue 22, August 24, 2017 • USDA-NIFA Extension IPM Grant

Insects, Mites, and Nematodes

Agronomy Tips

Plant Diseases

Weather Update

INSECTS, MITES, & NEMATODES

Hover Flier, "Sweat Bees," Annoying Hoosiers – *(Christian Krupke and John Obermeyer)* -

- These annoying flies do NOT sting.
- Their larvae, syrphid maggots, primarily feed on old corn pollen in leaf axils.

We have received, and experienced first-hand, reports of large numbers of hover flies in and around cornfields. Hover flies are bee and wasp mimics and are often orange, black or yellow with banding patterns – this helps protect them from predators (and people) that confuse them with more hostile and hazardous insects. The species we are talking about here, ***Toxomerus***, looks like a tiny yellowjacket wasp. They cannot sting and are harmless. Sweat bees, on the other hand, are actually bees and have stingers. They are smaller and are typically dark or metallic in color. Both hover flies and sweat bees can be a minor nuisance. They are attracted to us by moisture and salts they get by lapping up our sweat. Sweat bees will sting if we accidentally squish/swat them on our skin while they are feeding and sometimes will sting for no apparent reason at all.

These hover flies are the adult form of maggots that have been feeding on excess and old pollen in cornfields. They tend to feed in leaf axils and other areas where pollen collects. They are not pests, and are really only feeding on “surplus” pollen that does not land on silks and pollinate corn. Pollination is now largely complete in Indiana corn, and each corn plant produces many thousands of pollen grains more than it needs, so these maggots are taking advantage of a normally wasted protein source. Massive

numbers of these maggots have been reported collected on machinery, e.g., highboy sprayers, moving through cornfields after pollination.

The maggots in corn are not a concern. They are not really a pest, nor are they beneficial in any major way. Like the vast majority of insects, they are neutral for most of us – they're just out doing their thing. The recent spike in numbers over the last couple of seasons is a bit of a mystery, but nothing to be concerned about.

To sum up, the maggots in corn are not a concern. They are not really a pest, nor are they beneficial. Like the vast majority of insects, they are neutral for us humans – they're just out doing their thing. The recent spike in numbers over the last couple of seasons is a bit of a mystery, but nothing to be concerned about.

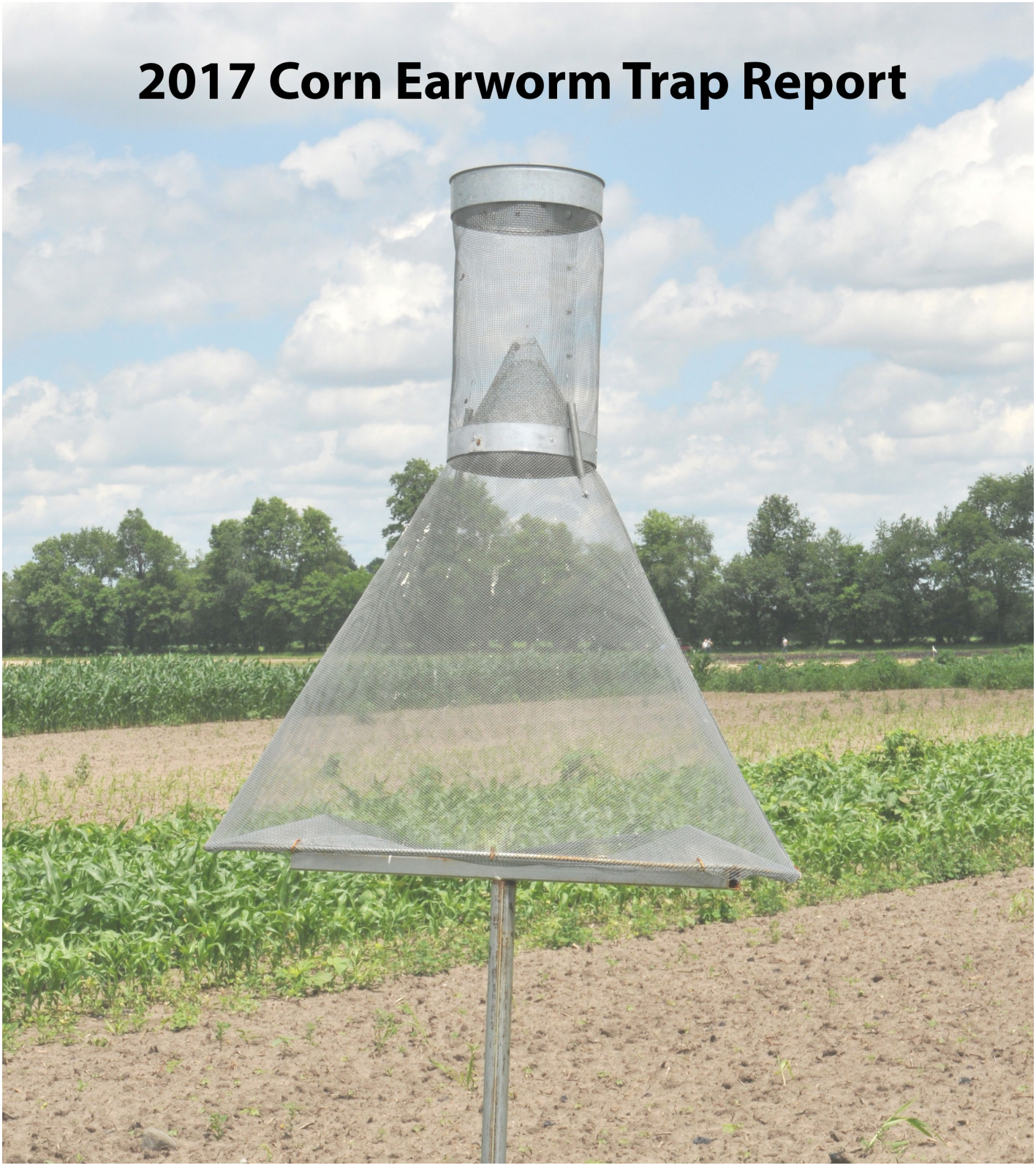
Hover flies gathered on expended anthers of the tassel.

Syrpid larvae (maggots) on corn anthers.

Syrphid pupa hidden among anthers of the tassel.

back to top

2017 Corn Earworm Pheromone Trap Report – *(John Obermeyer)* -



Corn Earworm Trap Report

back to top

Agronomy Tips

Stress During Grain Fill: A Harbinger of Stalk Health Problems – *(Bob Nielsen)* -

Harbinger. [hahr-bin-jer] noun

Anything that foreshadows a future event; omen; sign: ***Frost is a harbinger of winter.***

Collins English Dictionary - Complete & Unabridged 2012 Digital Edition. at Dictionary.com, LLC.

http://dictionary.reference.com/browse/harbinger (accessed: Aug 2017).

Serious crop stress during the grain filling period of corn increases the risk of **stalk rots and stalk lodging** (breakage) prior to grain harvest. Among the more common serious stresses that can occur during grain fill are nitrogen deficiency, foliar diseases (e.g., gray leaf spot, northern corn leaf blight), defoliation by hail, excessively wet soils due to heavy rains, excessively dry soils due to drought, excessive heat, and lengthy periods of cloudy conditions.

What these crop stresses share in common is that they can significantly reduce **photosynthesis** and the resulting carbohydrates necessary for kernel development. During the grain filling period of corn, the developing kernels become a significant **photosynthetic "sink"** for the products of photosynthesis and respiration. Corn plants prioritize the movement of these photosynthates to the kernels, even at the expense of not maintaining the cellular health of the stalk, leaves, and roots.

When **photosynthetic capacity** decreases significantly during grain fill as a result of **serious photosynthetic stress**, plants often respond by **remobilizing stored carbohydrates** from stalk and leaf tissues to supply the intense physiological demand by the developing grain on the ears. In addition to **physically weakening the stalks** of plants, remobilization of stored carbohydrates and/or the consequent lower cellular maintenance of root and stalk tissues **increases the susceptibility of the plant to root and stalk rot diseases**.

NOTE: Even if significant stalk rot does not develop in severely stressed plants, the loss of structural stalk integrity itself greatly increases the risk of stalk lodging prior to grain harvest.

Fields at high risk for weakened stalks and stalk rot development are those whose plants have "set" fairly decent ears (e.g., ears with a lot of kernels), but then experience

severe stress during grain fill. Common photosynthetic stresses that occur during grain filling in Indiana include drought stress, nitrogen deficiency, defoliation by hail, and foliar leaf diseases. The effects of dry weather during August on corn stalk health are accentuated in fields where root development and depth were restricted earlier in the season or, obviously, in fields with sandy soils and minimal water-holding capacity. Early-season root restriction can occur in response to saturated soils and/or shallow layers of compacted soil.

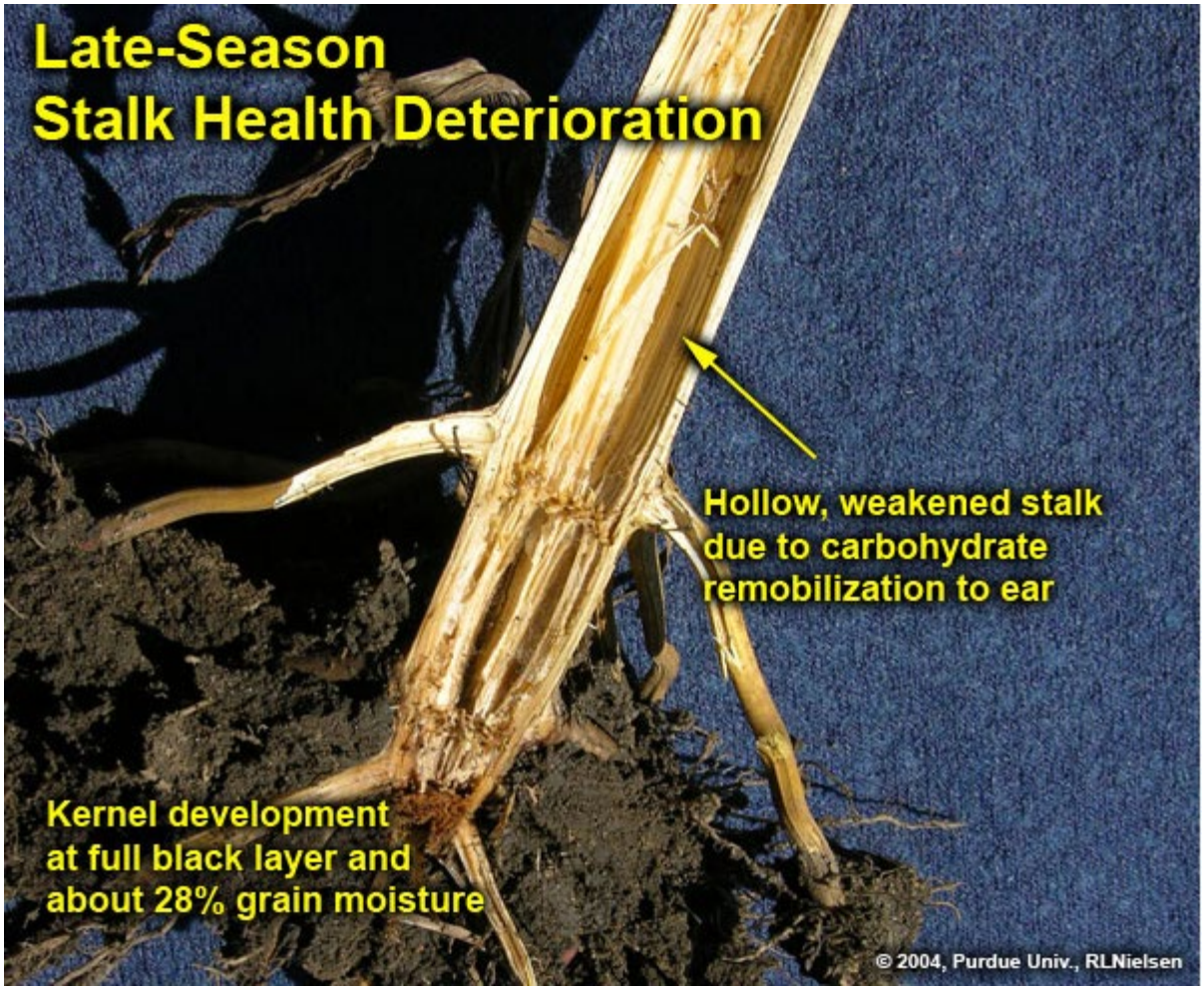
Severely stressed fields should be scouted in late August through early September for compromised stalk strength or the development of severe stalk rots. In years where crop development is delayed, stalk quality problems may not appear until mid- to late September. Recognize that hybrids can vary greatly for late-season stalk quality even if grown in the same field due to inherent differences for late-season plant health or resistance against carbohydrate remobilization when stressed during grain fill.

Stalk breakage itself is obviously easy to spot when scouting a field. However, compromised stalks may stand unnoticed until that October storm front passes through and brings them to their proverbial knees. The simplest techniques for assessing stalk integrity involve either pushing on stalks to see whether they will collapse or bending down and pinching the lower stalk internodes to see whether they collapse easily between your fingers. Sometimes the mere act of pushing stalks out of your way as you walk from one row of corn to another is enough force to collapse weakened stalks.

TIP: Bending down repeatedly to pinch lower stalk internodes may qualify as an aerobic exercise, if that is important to you.

If possible, fields at high risk for stalk lodging should be harvested earlier than fields with lower risk of stalk lodging. This will minimize the risk of significant mechanical harvest losses resulting from downed corn.

Another side-effect of late-season stress during grain fill is the fact that plants may begin to simply "shut down" and mature prematurely, eventually evidenced by premature formation of kernel black layer (i.e., the visual indication of physiological maturity). The consequences of premature kernel black layer include not only lower grain yield, but also the likelihood of lower test weight grain.



Late-season stalk health deterioration.

Hollow, weakened stalk due to carbonhydrate remobilization to ear.

Pinch lower internode to assess stalk quality.

Late-season stalk health deterioration.

Stalk easily broken at lower internode by simply pushing on stalk.

Related Reading

Butzen, Steve and Bill Dolezal. Managing Stalk Rots in Corn - Anthracnose, Gibberella and Diplodia. Crop Insights, DuPont Pioneer. https://www.pioneer.com/home/site/us/agronomy/library/managing-corn-stalk-rots/. [URL accessed 2017].

Freije, Anna, Kiersten Wise, and Bob Nielsen. 2016. Diseases of Corn: Stalk Rots. Purdue Univ. Extension Bulletin #BP-89-W. https://www.extension.purdue.edu/extmedia/BP/BP-89-W.pdf. [URL accessed Aug 2017].

Jackson, Tamra, Jennifer Rees, and Robert Harveson. Common Stalk Rot Diseases of Corn. Univ. of Nebraska Extension Pub. #EC1898. http://extensionpublications.unl.edu/assets/pdf/ec1898.pdf. [URL accessed Aug 2017].

Jardine, Doug. 2006. Stalk Rots of Corn and Sorghum. Kansas State Univ. Extension Pub. L-741. http://www.plantpath.k-state.edu/extension/publications/L741.pdf. [URL accessed Aug 2017].

Kleczewski, Nathan. 2014. Stalk Rots on Corn. Univ. of Delaware Extension. http://extension.udel.edu/factsheets/stalk-rots-on-corn. [URL accessed Aug 2017].

Nielsen, R.L. (Bob) 2013. Effects of Stress During Grain Filling in Corn. Corny News Network, Purdue Univ. http://www.kingcorn.org/news/timeless/GrainFillStress.html [URL accessed Aug 2017].

Nielsen, R.L. (Bob). 2016. Grain Fill Stages in Corn. Corny News Network, Purdue Univ. http://www.kingcorn.org/news/timeless/GrainFill.html [URL accessed Aug 2017].

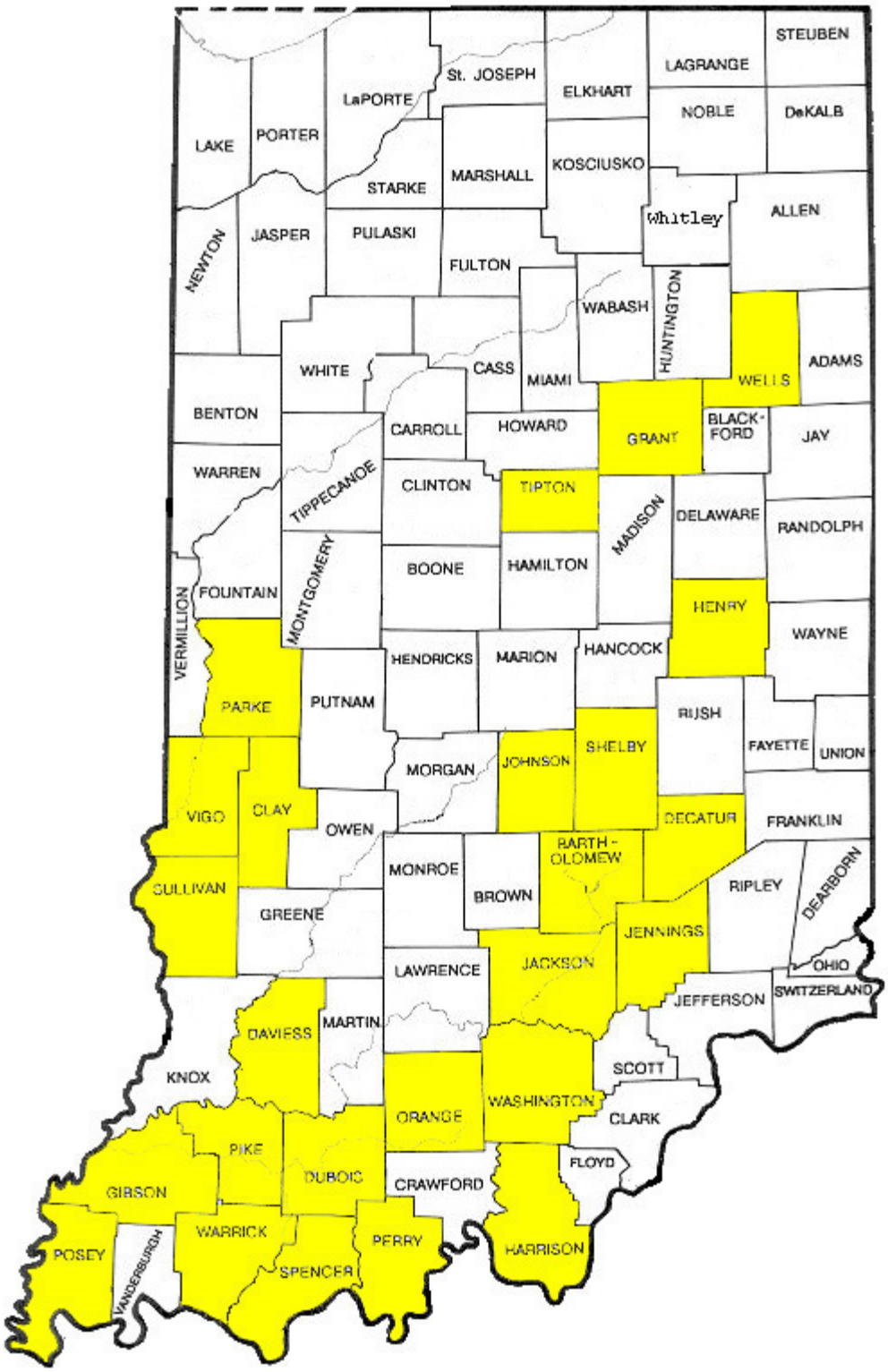
Nielsen, R.L. (Bob). 2017. Kernel Set Scuttlebutt. Corny News Network, Purdue Univ. http://www.kingcorn.org/news/timeless/KernelSet.html [URL accessed Aug 2017].

Sweets, Laura. 2013. Corn Stalk Rots. Integrated Pest & Crop Management, Univ. of Missouri. http://extension.udel.edu/factsheets/stalk-rots-on-corn. [URL accessed Aug 2017].

back to top

Updated Map of Confirmed Indiana Counties with Southern Rust – *(Gail Ruhl and Tom Creswell) -*

The following map is continually being updated as samples are received and analyzed by Purdue's Plant and Pest Diagnostic Lab. See the links below for sample submission and more information on southern rust.

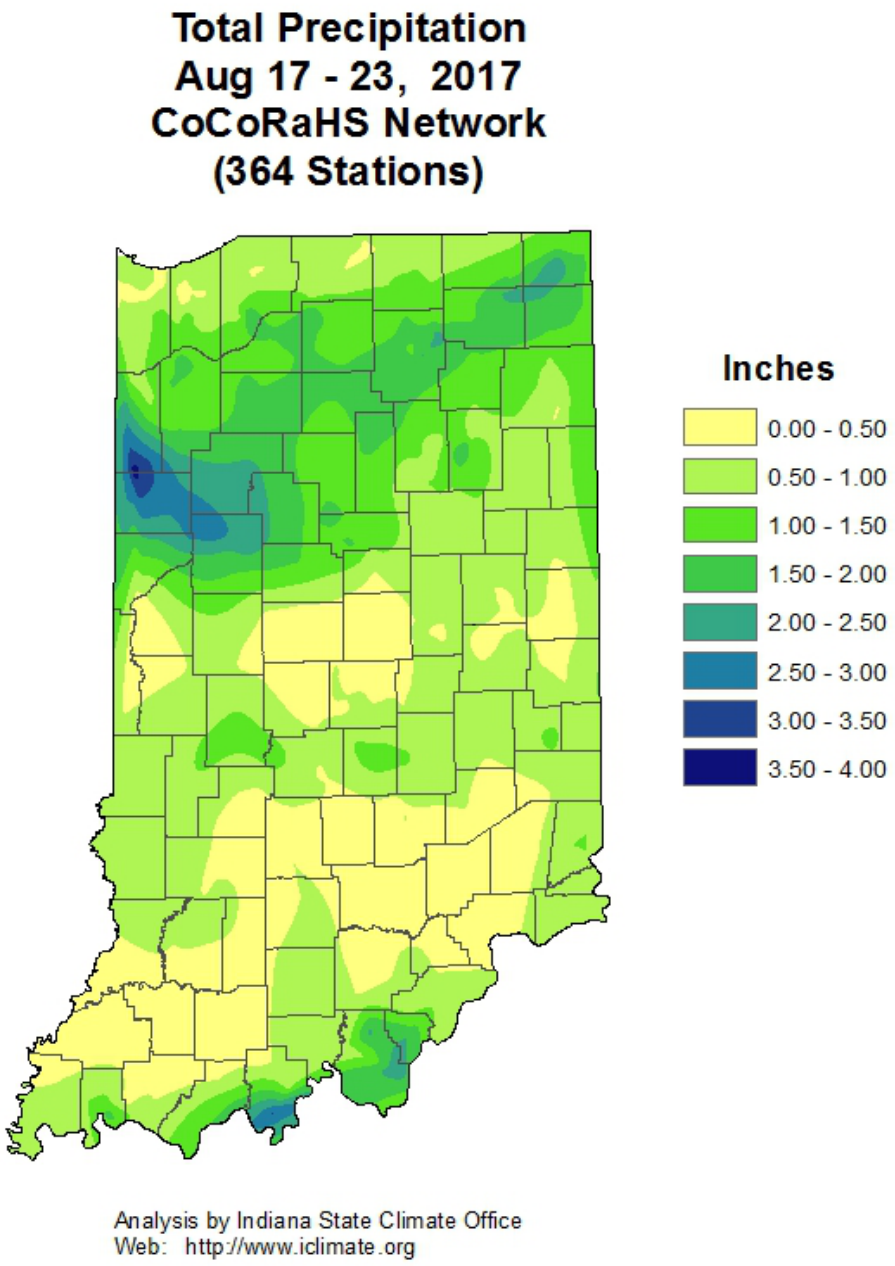


Counties confirmed for the presence of southern rust, August 24, source P&PDL and iPiPE .

back to top

WEATHER UPDATE

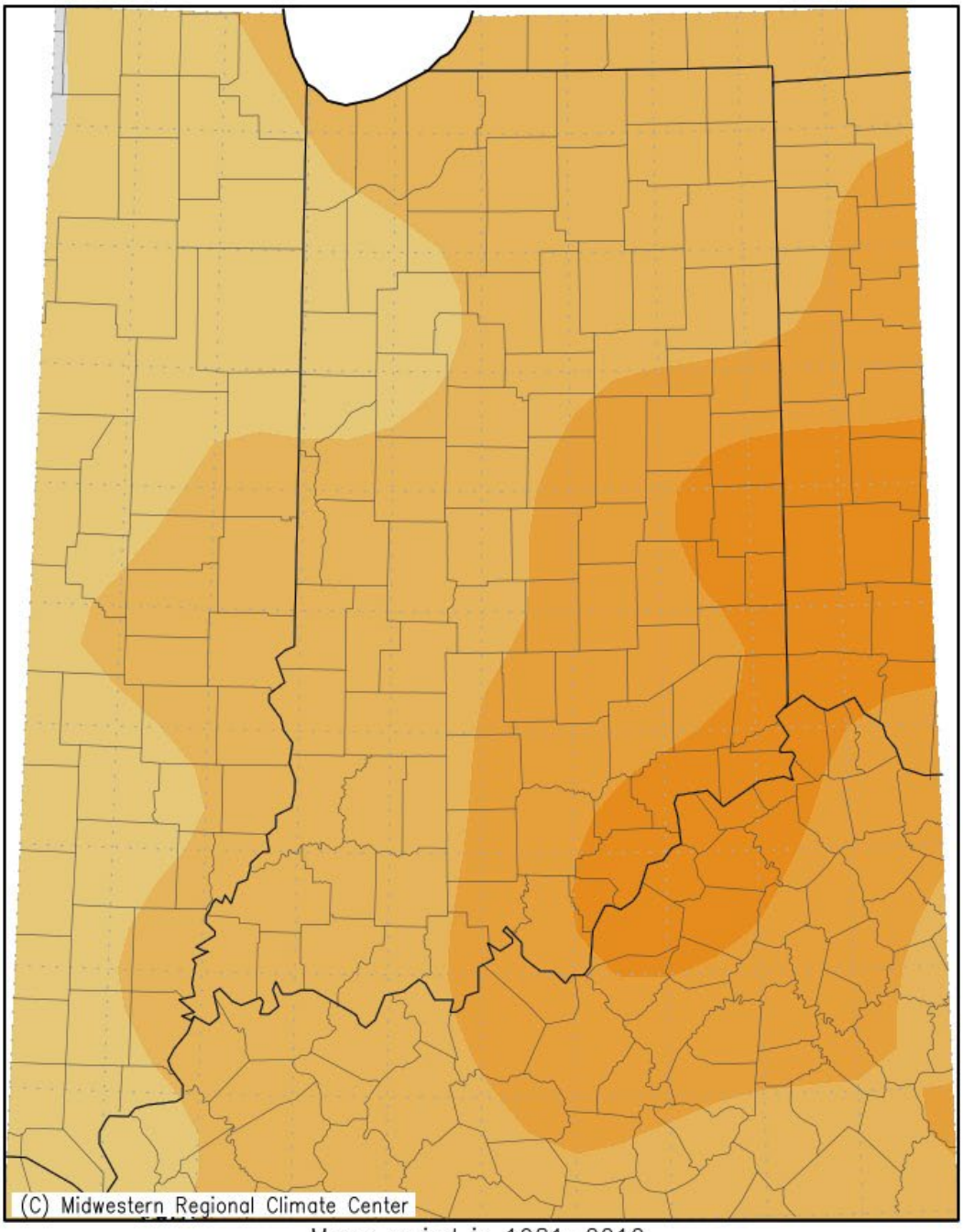
Precipitation


Total Precipitation
Aug 17 - 23, 2017
CoCoRaHS Network
(364 Stations)
Inches
0.00 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
2.50 - 3.00
3.00 - 3.50
3.50 - 4.00
Analysis by Indiana State Climate Office
Web: http://www.iclimate.org

back to top

Temperature

Average Temperature (°F): Departure from Mean
August 16, 2017 to August 22, 2017



Mean period is 1981–2010.

Indiana State Climate Office www.iclimate.org
Purdue University, West Lafayette, Indiana
email: iclimate@purdue.edu

back to top

THANKS FOR READING

Contact Information

Purdue Extension Entomology

901 W. State Street

West Lafayette, IN, 47907

(765) 494-8761

luck@purdue.edu

@PurdueExtEnt

PurdueEntomology

765-494-8491

Subscribe

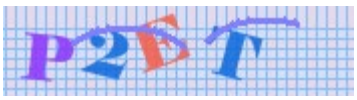
If you would like to be alerted by e-mail when the current issue of the Pest&Crop is available on-line, please enter your e-mail address and click the submit button.

Name:

Email Address:

Word Verification:

Please enter the verficiation code as seen to continue.



Reload Image | (Audio)

Submit Reset

DISCLAIMER:

It is the policy of the Purdue University Cooperative Extension Service that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue University is an Affirmative Action institution. This material may be available in alternative formats.

back to top