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# Pest & Crop Newsletter

Purdue Cooperative Extension Service

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Issue 24, September 7, 2017 • USDA-NIFA Extension IPM Grant

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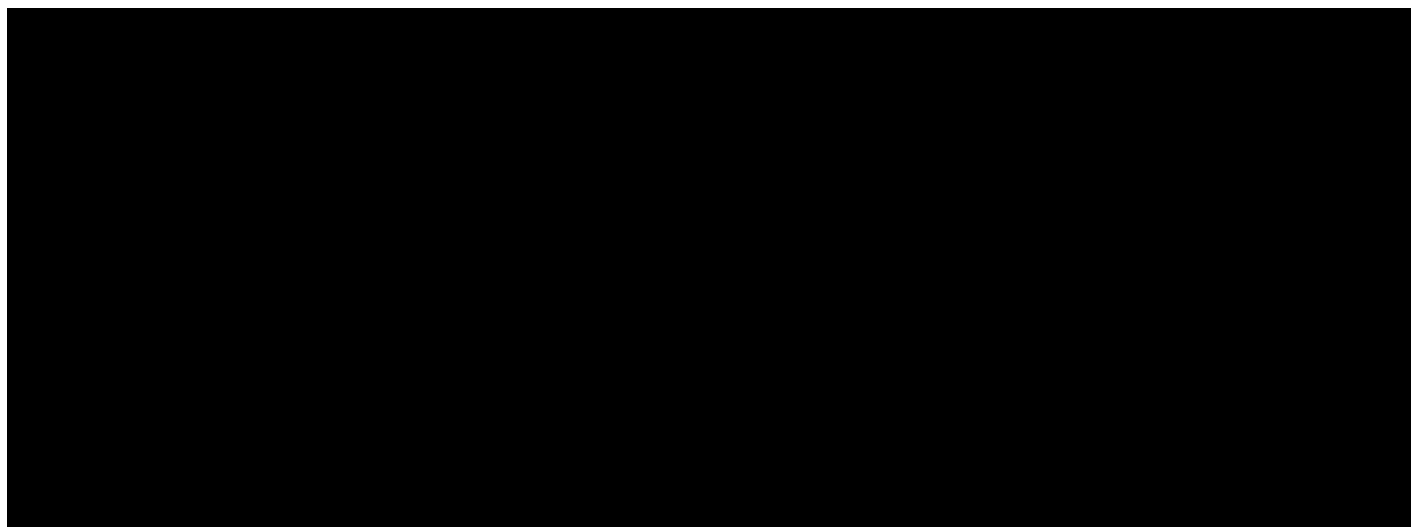


### **Bt Crops, Resistance, and IPM Video Released – (*Christian Krupke*) -**

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- Video outlines how Bt crops are developed and how and why resistance will always be a part of the deal.
- Resistance management in Bt crops is more than just planting a refuge!

Recent reports of resistance to Bt crops in the western corn rootworm, western bean cutworm and other pests have raised fears of “superbugs” that cannot be killed using our established arsenal of Bt hybrids and traits. In fact, resistance is a completely expected (but not unavoidable) outcome of using the Bt crops we have at our disposal. But all is not lost! While it is true that resistance is a growing concern, there are still steps growers and consultants can take to limit the risk of resistance evolving in their fields. This 5-minute video covers a lot of ground, outlining how and why Bt crops are safe and valuable tools and the main factors causing resistance to develop. Watch it!





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## Western Bean Cutworm: Resistance Confirmed – (*Christian Krupke and John Obermeyer*)

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- Recent publication confirms that Western bean cutworm larvae not controlled by most Bt hybrids.
- Assess fields now to understand your risks for 2018.

Although we have written about the topic in the past, it's worth re-focusing on the Western bean cutworm (WBC) story for 2 reasons: 1) ear damage is still evident and some larvae are still present and 2) a recent publication in the Journal of Economic Entomology by Dr. Jocelyn Smith and co-authors used a combination of lab and field assays to demonstrate that WBC larvae are not controlled by Bt hybrids expressing the Cry1F toxin, providing evidence that resistance has evolved in this pest

(<https://tinyurl.com/ycaa5esx>).

To review, the Cry1F toxin is present in the **vast** majority of Bt hybrids controlling above-ground (caterpillar) pests of corn. This includes SmartStax varieties and Optimum AcreMax hybrids, among others. Many of those will no longer include WBC on the label, whereas it previously appeared under the "suppression" category. There is no more suppression, and in terms of Bt hybrids, only those expressing the *Vip* protein will offer control of this pest – this is something to keep in mind when ordering seed for 2018.

Other than that, field scouting and well-timed insecticide applications are your only options for WBC management.

Many of you have been aware of these performance problems through field observations for quite some time and took some steps this year to scout and treat for the pest using ground or air-applied foliar insecticides – it's a good time to assess effectiveness of those approaches now, before the combines roll. Look for evidence of ear feeding and/or larvae that have not yet dropped and burrowed into the ground for overwintering. This is especially true for those that decided to wait on the correct timing for corn fungicide applications and then included insecticide for WBC. Sadly, some will realize that growth stage and peak moth flight/egg deposition don't intersect. Fortunately, for those fields sustaining damage, the cool weather this year has not been overly favorable for ear rot development. Although the direct damage the caterpillar causes by feeding is not insignificant, the real problems start because the damaged ear is predisposed to Gibberella and other ear rots. These fungal diseases produce toxins that are highly toxic to livestock (particularly swine) and high levels of the toxins can result in dockage at grain elevators.

Though this pest has only been in Indiana since 2006, it has certainly impressed us with its spread throughout the Eastern corn belt, the amount of field damage they are



capable of like the last two years, and now how quickly they evolved resistance to a Bt toxin. Pest managers throughout northern Indiana can no longer rely on traited corn to keep this pest at bay. Better understanding of the biology of this pest, how to scout for it, and pest management practices are going to be needed for years to come.



*Check now to see if your spray program for western bean cutworm worked.*

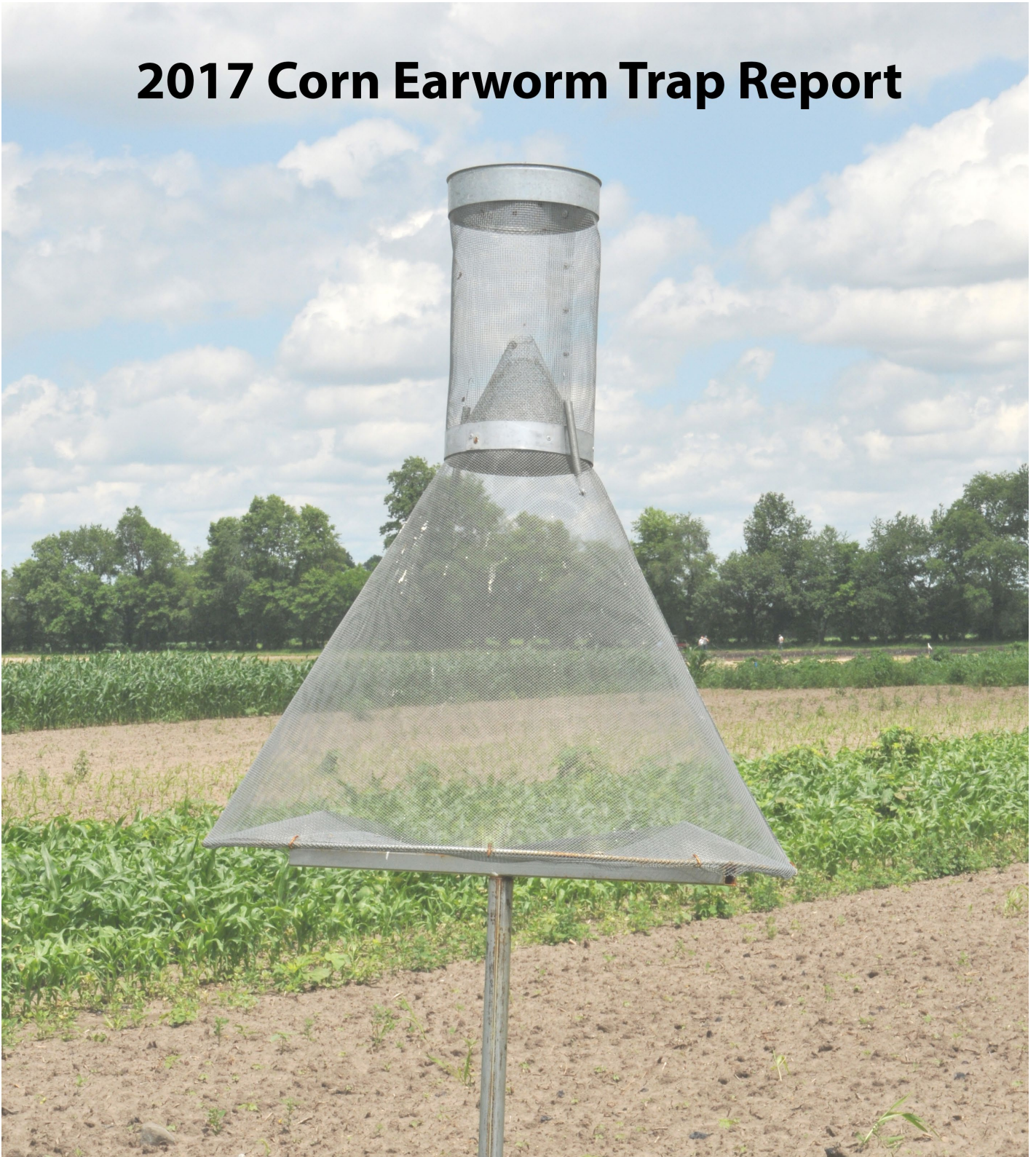
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## **2017 Corn Earworm Pheromone Trap Report – (John Obermeyer) -**

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# 2017 Corn Earworm Trap Report



*Corn Earworm Trap Report*

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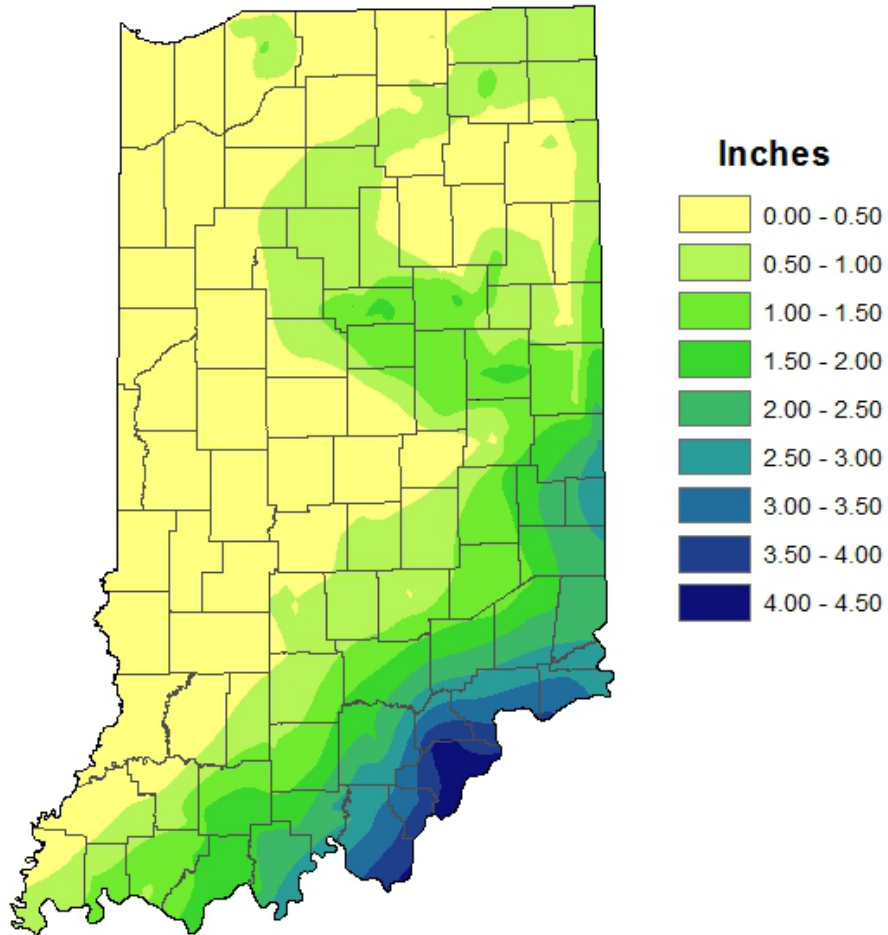
# WEATHER UPDATE

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## Precipitation

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# Total Precipitation Aug 31 - Sep 6, 2017 CoCoRaHS Network (368 Stations)



Analysis by Indiana State Climate Office  
Web: <http://www.iclimat.org>

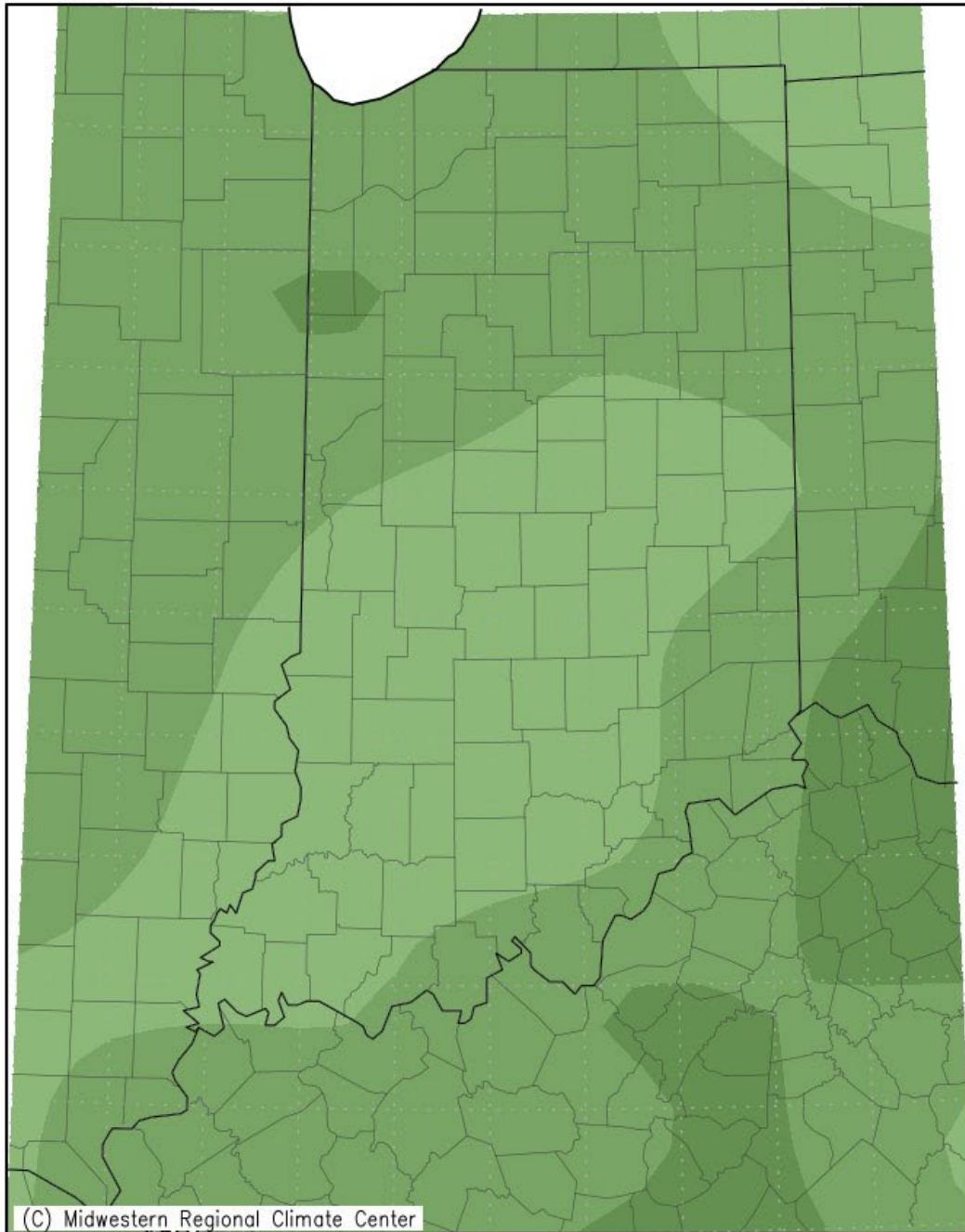
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## Temperature

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# Average Temperature (°F): Departure from Mean August 29, 2017 to September 4, 2017



Mean period is 1981–2010.



Indiana State Climate Office [www.iclimate.org](http://www.iclimate.org)

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## THANKS FOR READING

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