

# Pest & Crop newsletter

**Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant**

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## Worms in Corn Ears Still Being Found, Even Bt Traited

(John Obermeyer)

Samples to the Purdue Plant and Pest Diagnostic Lab, emailed pictures, and field visit observations confirm that corn ear caterpillars are still active in occasional fields throughout the state. With late, and staggered, planting of corn fields and the various hybrid maturities, some fields have become a "trap crop" for late-flying, egg laying moths. Western bean cutworm larvae are still being found in corn, mostly on sandy soils, in northern counties. Whereas, corn earworm and fall armyworm, are still munching away in specific fields (or areas of a field) throughout the state.



Missing silks may indicate ear feeding inside



Top to bottom: corn earworm, fall armyworm, western bean cutworm



Corn earworm and damage, September 11, 2019

Often, infested/damaged ears, from milk to dent corn stage, are those with missing silks. You may notice this first on the end rows. Further investigation into the fields may reveal hot-spots, often related to differing soil types or poor drainage, where corn maturity is out-of-sync with the rest of the field. Pulling back the husks will reveal worms and/or ear tip feeding. Earworm and fall armyworm tend to damage near the ear tip, whereas western bean cutworm wander and feed throughout the ear. No matter the species, you can have multiple worms per ear.





Multiple color variations of corn earworm from the same field



Corn earworm damage to dent corn



Fall armyworm and damage, September 11, 2019

The majority of Bt-traited corn (e.g., VT Double Pro, AcreMax), that claims control of these ear feeders, generally aren't put to the test as they are this season. Currently, there is a known resistant population of corn earworm to VT Double Pro in North Carolina sweet corn. It is not out of the realm of possibility that some of those moths have been pushed here from previous year's tropical storms. As we found out the last couple of years in the Midwest, western bean cutworm and fall armyworm population are resistant to Bt-traits commonly used in Indiana. Personally, I think the industry would be better served if suppression were used on labeling/marketing for all ear feeders. The only exception may be those hybrids expressing the Vip3A protein, those still seem to be controlling these pests.

## Don't Let Thin Livestock Happen – Sample, Test, Allocate and Balance

(Keith Johnson)

What a year it has been so far! Was there mud as livestock were fed this past winter? Did winter-damaged alfalfa fields occur and did pastures where livestock spent the winter look like a mud volleyball tournament had been played? What about delayed seedings or fields where Prevent Planted acres were declared? And what about harvesting hay for the first time in late June or as Independence Day was being celebrated? One thing in common about all of these matters is that there was little control over them.

What about the first time harvested cool-season grasses and legumes in late June or early July? **Forage quality is going to be impacted in a big way.** Protein levels will be lower and fiber levels will be higher. Forage intake and digestibility will be compromised. If livestock producers don't take control of the matter, there will be livestock losing body condition as the winter progresses. Severe loss of body condition will impact offspring and reproduction. It doesn't need to be this way. What should be done? Sample, test, allocate and balance.

**Sample** – Detailed information about sampling hay and silage can be found at the website [www.foragetesting.org](http://www.foragetesting.org). A sample will be from a field of similar forages and harvested within a day having similar environmental conditions. Collecting a representative hay sample will require use of a hay probe. Many Purdue Extension offices have a hay probe that can be loaned for collecting a sample. At least twenty probings will comprise a sample. For large round bales, take a probing on each side of the circumference of the bale from each of ten bales. From each of twenty small rectangular bales, take one probing on a butt end. If large rectangular bales are being used, take a probing on each butt end from ten bales. If baleage is being sampled, tape the hole made by the probe with repair tape from a plastic wrap provider. Do not use duct tape. Immediately, place the probings in a ziplock plastic bag and identify the forage types, date of harvest, and identification words (example: alfalfa-orchardgrass, 30 percent alfalfa, 6/28/19, 20 acres north of barn). As you sample the bales, do a sensory analysis of each hay type and record this information for later referral, too (examples: musty, moldy, trace of Canada thistle, poor leaf retention).

**Test** – Send the samples, preferably, to a certified testing laboratory. These laboratories are listed at [www.foragetesting.org](http://www.foragetesting.org). A basic test would include moisture, protein, adjusted crude protein, acid detergent fiber, neutral detergent fiber, and minerals. Each laboratory will have their own submission sheets that need to be filled out and included with the samples when shipped or delivered. A reasonable fee will be assessed. Analyses will likely be completed and results received within ten days.

**Allocate** – When results from all hay and silage samples are returned, arrange results from low to high forage quality. Use Relative Feed Value or Relative Forage Quality terms as a starting point to arrange the results. Higher quality hay or silage would be best allocated for use when livestock are lactating and need higher forage quality as compared to mid-gestation when nutritional requirements are less.

**Balance** – To get the most from the time taken to sample and test the forages, it is important to enlist the help of a trained livestock nutritionist that can fine tune rations with the addition of protein, energy and/or mineral supplements along with the hay and silage being fed. Purdue Extension Specialists and Educators trained in animal nutrition as their specialty, feed company personnel, and livestock nutrition consultants can be helpful in balancing rations for different classes of livestock.



Forage testing is a “Best Management Practice every year”. But, with the very common late first-harvest of hay and silage in 2019, it is a **necessity to analyze forages this fall** so proper supplementation can occur. Being proactive and wise will keep livestock in good condition.



Proper sampling of hay with a forage probe is the first step in using test results to develop rations that will keep livestock in excellent body condition during the winter.

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## Late Planted Crops May Need Irrigation into October in 2019

(Lyndon Kelley)



Early September often brings an end to crops irrigation needs, but late planting and a cool growing season has resulted in delays of crop development of a month (or more) in some fields in 2019. The factors commonly considered when making the decision of when to stop irrigating include fuel costs, which have been sliding higher, and grain and forage values that have had recent lows. Turning off the irrigation water too soon could lower yields or reduce test weight. Irrigating beyond the crop's water need wastes time, energy, and money.

September weather conditions usually help us to make this decision.

Typical crop water usage drops just as the average rainfall increases. In most years, late season irrigation is not needed. However, many of the area's later planted crops this year will have substantial water needs well into late September, signaling the need for some type of fall irrigation scheduling or crop monitoring.

This fall might seem a little bit surreal for irrigated producers. “Some irrigators will be harvesting crops in one field and running irrigation in the next, all at the same time” says Lyndon Kelley, MSU/Purdue Irrigation Educator. We have seen irrigation running during other falls, but that was on second crop soybeans, which can extend the growing season to as late as the first week of October. The fall of 2019 may have crops needing water right up to frost, if rainfall is scarce.

Late season water use, termed evapotranspiration (E.T.), is reduced significantly as the plants move toward maturity and the weather cools. Soybean plants showing their first yellow pod will have an E.T. of one tenth of an inch per day during days with daytime highs that reach into the mid 70's. Corn at dent stage will have an E.T. of 0.11"/day for a day that daytime highs reach the mid 80's. Daily temperatures that are in the mid 80's will have an E.T. of 0.13" and daily temperatures that are in the mid 60's will have an E.T. of 0.09".

The goal of the soybean irrigator should be to maintain at least 50% of the available soil water holding capacity for soybeans until most pods yellow. Corn producers trying to maintain test weight in dry late summer conditions should maintain at least 50% of the available soil water holding capacity until the crop reaches black layer. In most situations, minimal amounts of water are needed to achieve these goals. In the last few weeks before maturity, corn and soybeans will use about 0.05" per day, allowing a half inch of rain or irrigation to last a week or more.

Avoid relying on what the neighboring irrigators are doing as a guide to when your crop will no longer need irrigation. The huge variability in planting dates and the relative maturity or variety of crops planted under irrigation can result in mature fields no longer in need of irrigation, and neighboring fields that are just entering their peak need for water at any given time. Each crop and field will differ with respect to rainfall/irrigation history and crop water removal, which can change the need for irrigation at the end of the season greatly.

One simple irrigation scheduling method used to aid in late season decisions is to monitor soil moisture. A soil auger probe from 12 inches below the surface in the root zone should still have moisture present as indicated by a loose ball formed from the sandy loam soil. Soils that form a tight ball show an even higher soil moisture level, one that could carry a crops water needs for a few more days. Factsheets and bulletins on how to estimate soil moisture by feel and irrigation scheduling are available from the following website:

[https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs144p2\\_051845.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_051845.pdf)

Avoid waiting for physical signs of crop stress as an indicator of when to add water. Corn and soybean plants earlier in their development will cut their water use by rolling leaves in corn or tipping/cupping soybean leaves, which are telltale signs they need more water. As the plants near maturity, these signs will be less prevalent. Waiting for them to appear will not allow producers to avoid low test weight corn and smaller bean size in soybeans.

Disease problems such as white mold in soybeans and tar spot in corn can be aggravated by increased periods of free moisture on the leaves of the plant caused by irrigation and the foggy mornings that often occur later in the season. Make sure additional irrigation is justified and will benefit beyond the increase disease risk.

## 2019 Corn Earworm Trap Report

(Laura Ingwell)



### 2019 Corn Earworm Trap Report

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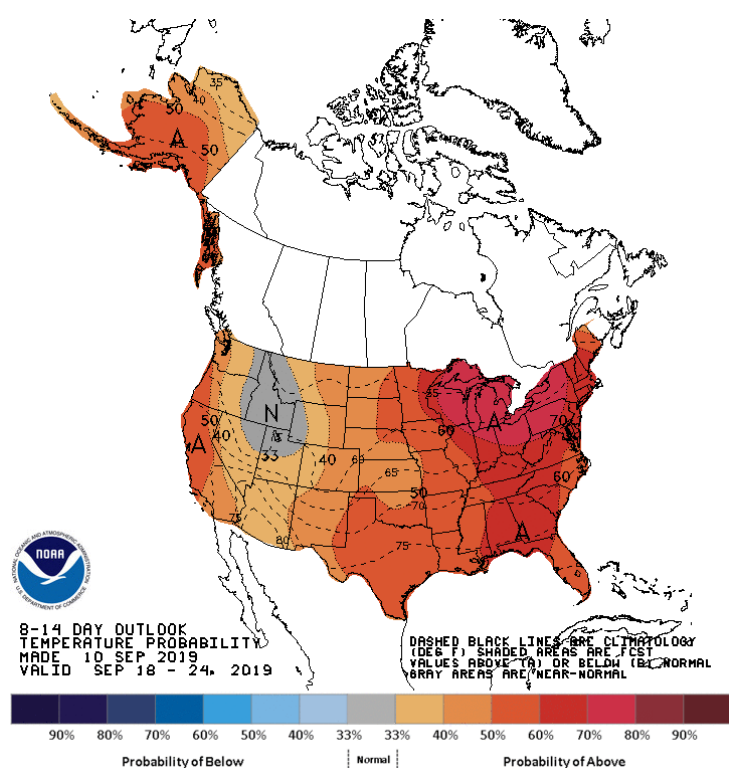


Figure 1: 8-14 Day Outlook (Sep 18-24 2019)

The 3-month (September-November) climate outlook is indicating significant probabilities for above-normal temperatures (Figure 2). This will hopefully discourage any cold waves passing through from causing an earlier-than-desired hard freeze event. However, keep in mind that predictions are still too far in the future to provide any certainty and climate outlooks are unable to account for a brief (1-to-3-day) event from passing through with temperatures low enough to cause a frost. Primary message: still too soon to predict when the first fall frost will occur.

## Indiana Climate and Weather Report - 09/13/2019

(Beth Hall)

The initial cool wave of September is likely over as we welcome warmer temperatures for the next several weeks. The Climate Prediction Center is showing strong confidence for above-normal temperatures through September 24th, which should help accumulate growing degree days and move agricultural production further along (Figure 1). Outlooks are showing significant probabilities for above-normal precipitation over the next few weeks, but it is uncertain how much and when that precipitation will occur.

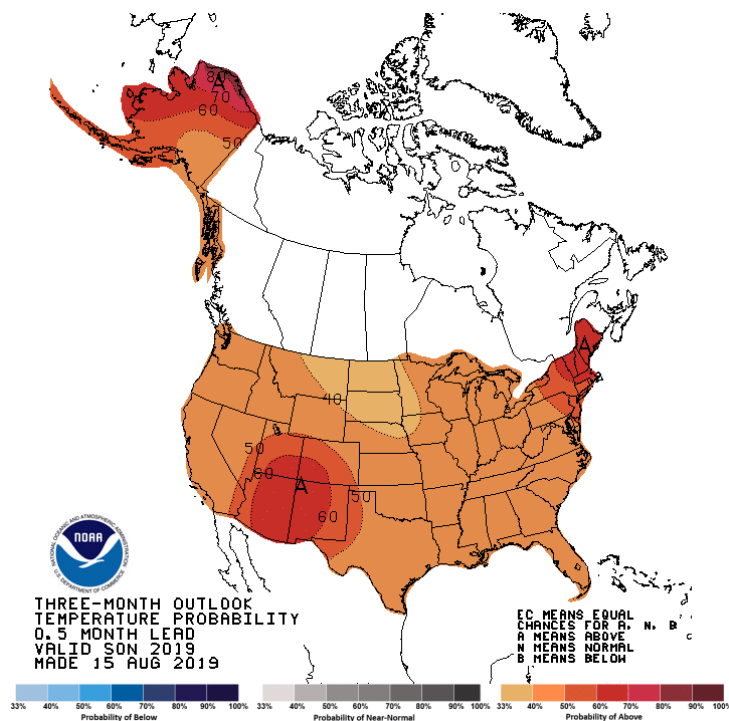


Figure 2: Three Month Outlook (Sep-Nov 2019)

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