

# Pest & Crop Newsletter

Purdue Cooperative Extension Service  
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## In This Issue

- [Beauties And The Beasts](#)
- [Top "Dieback" And Senescence Patterns In Corn](#)
- [Cool Weather Has Arrived, But Will It Last?](#)

## Beauties And The Beasts

(Christian Krupke) & (John Obermeyer)

This is a wonderful time of the year in the Hoosier state, as we drive through the countryside, we are greeted with the pleasing sight of several colorful butterfly species gliding across and roads, near puddles of water, or on fall flowering plants. Many of these beauties originated from larvae that likely fed on soybean or alfalfa. However, it is rare for any of these species to cause significant yield losses from defoliation. Below is a listing, with pictures, of some of the common butterflies and their caterpillars this time of year. Although you will find some of these feeding in crops, none are pests.

The painted lady butterfly, *Vanessa cardui*, is mostly orange mottled with black and white markings. This is a migratory species flying from and to Mexico and the Southwestern United States in the spring and fall. Adults arrive in Indiana in the spring and lay their eggs on several species of plants. Although they feed on many weed species, their preferred host is Canada thistle. Several generations occur in Indiana before they begin their migration southwestward in the fall. The larvae, known as thistle caterpillars, are generally dark in color, with conspicuous yellowish markings on their bodies. The larvae are covered with many branching spines. Larvae reach a length of about 1-1/4 inches. The larvae feed within webbed enclosures on the upper leaves and may defoliate entire patches of weeds and feed in a similar manner on soybean - you may have seen a few leaves webbed together to form a "tent", and you will find the spiky caterpillars inside.



The painted lady butterfly can commonly be seen on many late flowering plants.  
(Photo Credit: John Obermeyer)



During the growing season, these prickly looking caterpillars can be found in netted up soybean leaves. They do not sting. (Photo Credit: John Obermeyer)

The yellow alfalfa butterfly, *Colias eurytheme*, is a member of the "sulfurs." These butterflies congregate in large numbers near sources of moisture, including puddles and wheel ruts. They are most active during mid-day, their peak mating time. The larvae of these butterflies are the alfalfa caterpillar. This caterpillar is up to 1-1/2 inches long, has a velvety-smooth lime-green body with a white stripe on each of its sides. This caterpillar is common in legumes like alfalfa, clover, and vetch, but it can be occasionally found defoliating soybean leaves. Though the numbers of butterflies may be numerous, this does not indicate an outbreak of caterpillars is soon to follow. These caterpillars are very susceptible to insect diseases that can rapidly bring their numbers down to very low levels.





Sulfur butterfly feeding on nectar from the alfalfa flowers. (Photo Credit: John Obermeyer)



Silver-spotted skipper butterfly feeding on sweet clover nectar. (Photo Credit: John Obermeyer)



Alfalfa caterpillar soybean leaf damage and frass. (Photo Credit: John Obermeyer)



Silver-spotted skipper caterpillar revealed from the netted up leaves. (Photo Credit: John Obermeyer)

The creepiest-looking caterpillar award goes to the silver-spotted skipper, *Epargyreus clarus*. These larvae are up to 2 inches in length, have brownish-red heads with two orange spots and a yellowish-green body. This is a common subject of the “what the heck is this bug” emails and text messages we receive. Larvae can often be found in leaves that have been rolled together and held by the caterpillars’ silken threads. Feeding damage is generally localized to a few surrounding plants. Adult skippers, which are commonly seen feeding on flowers late in the summer, have an obvious silver-white splotch on each wing.

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## Top “Dieback” And Senescence Patterns In Corn

(Dan Quinn)

As corn plants progress through grain fill and approach maturity, plant leaves naturally begin to senesce or die. Leaf senescence is a naturally occurring, whole-plant process where corn leaves lose their greenness due to a reduction in chlorophyll and is a function of degradation and the movement of nutrients and assimilates to the ear and kernels so that grain fill can be sustained and completed. In addition, corn leaf senescence typically begins before all leaf area has been developed (i.e., before pollination) and increases during the grain fill period. Previous research has associated both an extended grain fill period and sustained leaf greenness (e.g., delayed senescence) as two contributing factors to improvements in grain yield. Therefore, stressful conditions during grain fill which cause accelerations in grain fill, leaf senescence, and plant maturity have been attributed to reductions in yield.

One noticeable symptom of plant stress during grain fill is the earlier-than-expected senescence of the upper portion of the plant, or top “dieback” in corn (Figures 1 and 2). The pattern of leaf senescence in

corn is often thought of as starting from the bottom of the plant and slowly progresses toward the upper portion of the canopy. However, this may not always be the case and can vary or change based on hybrid chosen and environmental conditions. When these symptoms are noticed across many different hybrids, across entire fields, show up much earlier than expected during grain fill, and are occurring simultaneously with stressful conditions, this can be an indication that grain fill and yield may have been impacted. Especially if the top 4 – 5 leaves are senescing. Common environmental stressors that can cause these symptoms include both excessive heat and dry conditions during grain fill. Excessive heat and drought stress can promote or accelerate leaf senescence and plant maturation and highlight the difficulty of plants attempting to maintain green leaf area with high transpiration demands.

These symptoms were most noticeable throughout various Indiana corn fields following excessive heat and dry conditions in the later portion of August 2023 (Figures 1 and 2). During the week of August 21 in West Lafayette, IN, air temperature highs averaged 91 degrees F, with a couple days reaching much higher temperatures. Fields that had indications of stress (e.g., nitrogen deficiency) heading into these conditions showed the most rapid changes in leaf senescence and visual symptoms of top dieback, and were likely impacted the most. Therefore, assessing plant health, leaf senescence timing, and leaf senescence patterns during grain fill can be important when determining how well (or how not so well) your crops yield ended up.

**Additional Resources:**

Nielsen, R.L. 2011. Top Leaf Death or “Dieback” in Corn. Corny News Network. Purdue Univ. Extension.

<https://www.agry.purdue.edu/ext/corn/news/timeless/topleafdeath.html#:~:text=Death%20of%20top%20leaves%20can,during%20the%20grain%20fill%20period.>



Figure 1. Top leaf senescence observed in early R5 growth stage corn. West Lafayette, IN, August 2023.





Figure 2. Top leaf senescence observed in early R5 growth stage corn. West Lafayette, IN, August 2023.

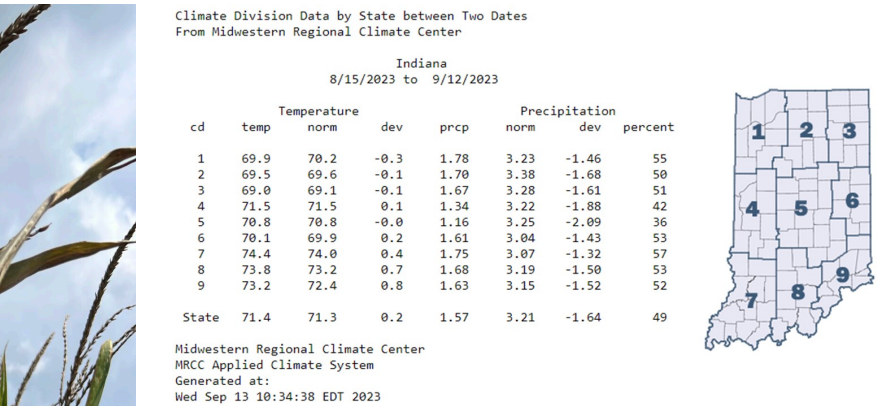


Figure 1: Climate Division data by state, between August 15 and September 12, 2023, which includes observed temperature and precipitation, normal temperature and precipitation, temperature deviation from normal and percent of normal precipitation.

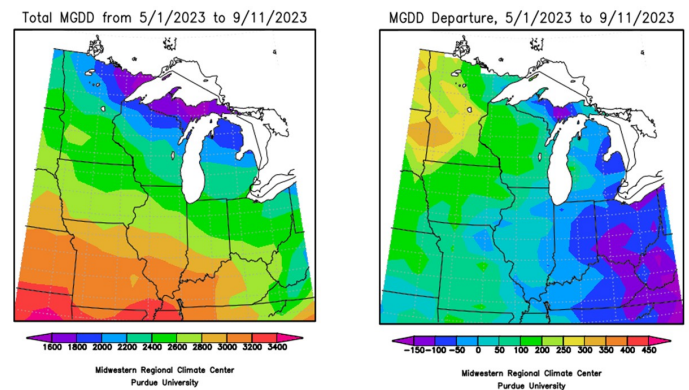


Figure 2: Total Accumulated Midwest Modified Growing Degree Days (MGDDs) May 1-September 11, 2023 (left) and Total Accumulated MGDDs represented as the departure from the 1991-2020 climatological normal (right).

## Cool Weather Has Arrived, But Will It Last?

(Austin Pearson)

The fall crisp was in the air this morning (9/13), so cool that I had to grab that sweatshirt I bought in mid-August while getting my kiddo on the bus. It was actually refreshing, in a sense. Minimum temperatures in Crawfordsville (Montgomery County) and Rensselaer (Jasper County) dropped to 44F this morning, which were the coolest in the state. Family traveling in northern Minnesota called this morning to report a low temperature of 28F. That is just downright cold, and they can keep that up north for the time being. Over the last 30 days (8/15-9/12) though, temperatures have been normal (Figure 1). This is misleading, however, especially as we have experienced oppressively hot and milder temperatures over the past 30 days. Since May 1, modified growing degree days (MGDDs) have accumulated between 2200 and 3200 MGDDs (Figure 2, left), which was near normal to 150 units below normal across the state (Figure 2, right).

The bigger story continues to be the dry conditions that are creeping back into the state. This is not at all surprising as nearly the entire state saw less than 75 percent of normal precipitation over the last 30 days (Figure 3). Central Indiana measured between 1 and 1.5 inches of rain since August 15, which was between 25 and 50 percent of normal. Vegetation is dormant in most locations, agricultural crops are rapidly maturing, and water levels have dropped dramatically as a result. The release of the September 12 US Drought Monitor depicts 63.52% of the state in at least abnormally dry conditions with 4.14% in Moderate Drought (Figure 4).

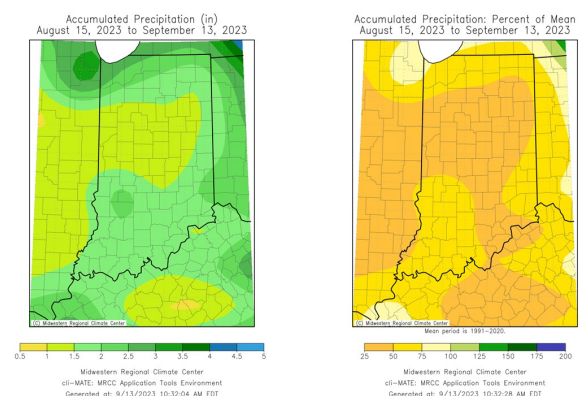
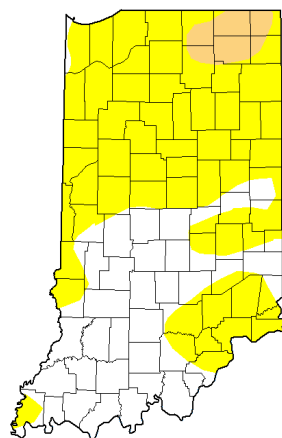


Figure 3: Observed precipitation (left) and percent of mean precipitation (right) for August 15-September 13, 2023.

## U.S. Drought Monitor Indiana



September 12, 2023  
(Released Thursday, Sep. 14, 2023)  
Valid 8 a.m. EDT

|   | Drought Conditions (Percent Area) |        |       |       |       |      |
|---|-----------------------------------|--------|-------|-------|-------|------|
|   | None                              | D0-D1  | D1-D2 | D2-D3 | D3-D4 | D4   |
| Current                                 | 36.48                             | 63.52  | 4.14  | 0.00  | 0.00  | 0.00 |
| Last Week<br>(8-26-2023)                | 56.85                             | 43.15  | 0.03  | 0.00  | 0.00  | 0.00 |
| 3 Months Ago<br>(6-12-2023)             | 0.00                              | 100.00 | 49.65 | 5.35  | 0.00  | 0.00 |
| Start of<br>Calendar Year<br>(1-1-2023) | 6.84                              | 93.16  | 58.37 | 1.34  | 0.00  | 0.00 |
| Start of<br>Water Year<br>(9-1-2022)    | 80.92                             | 19.08  | 0.00  | 0.00  | 0.00  | 0.00 |
| One Year Ago<br>(9-12-2022)             | 79.17                             | 20.83  | 0.00  | 0.00  | 0.00  | 0.00 |

**Intensity:**  
None D0 Abnormally Dry D1 Moderate Drought D2 Severe Drought D3 Extreme Drought D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:  
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[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Figure 4: September 12, 2023, US Drought Monitor. The US Drought Monitor is released every Thursday morning by 8:30 AM.

The national Climate Prediction Center (CPC) still expects drought to linger and expand in Indiana throughout the fall. People are asking about the expected El Niño and continued drought through the winter already. We've got a bit of time before we can truly answer that question, especially as there is a lot of uncertainty with the outlook for this fall (September, October, and November). That being said, the forecast is not conducive for rain through September 20 (Figure 5). Areas north of I-70 could see less than a tenth of an inch, which will not help ongoing drought concerns. The reprieve in warm temperatures has certainly helped with moisture loss, but they are not expected to last as a warmup is on the way. The CPC has increased confidence in above-normal temperatures through the end of September (Figure 6). Coupled with this are elevated chances for below-normal precipitation

for much of the state. The good news: harvest conditions should be great (typing this as I knock on wood).

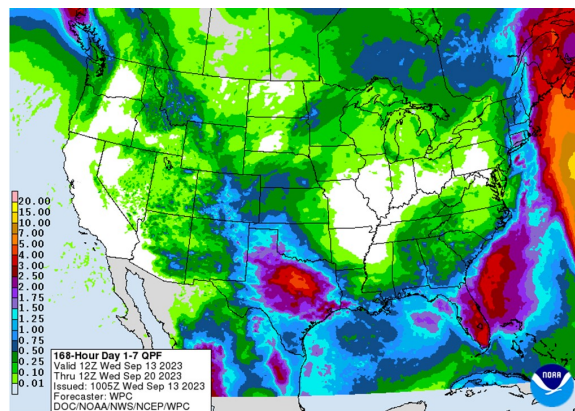


Figure 5: NWS Weather Prediction Center 7-day quantitative precipitation forecast for the continental United States, valid September 13-20, 2023.

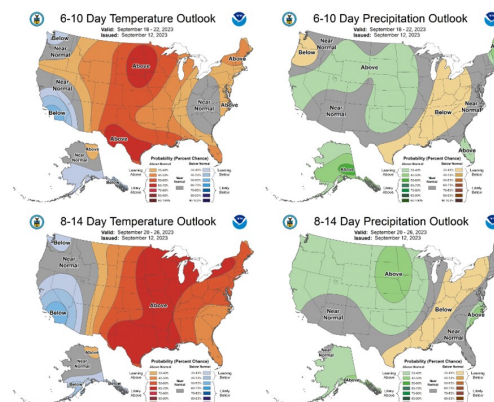


Figure 6: CPC 6-10 day temperature and precipitation outlooks for the United States, valid September 18-22, 2023 (top). CPC 8-14 day temperature and precipitation outlooks for the United States, valid September 20-26, 2023 (bottom).

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