Delayed Planting, Tar Spot, Drought and Colder Than Normal August Have Corn Struggling to Mature in Southwest Michigan

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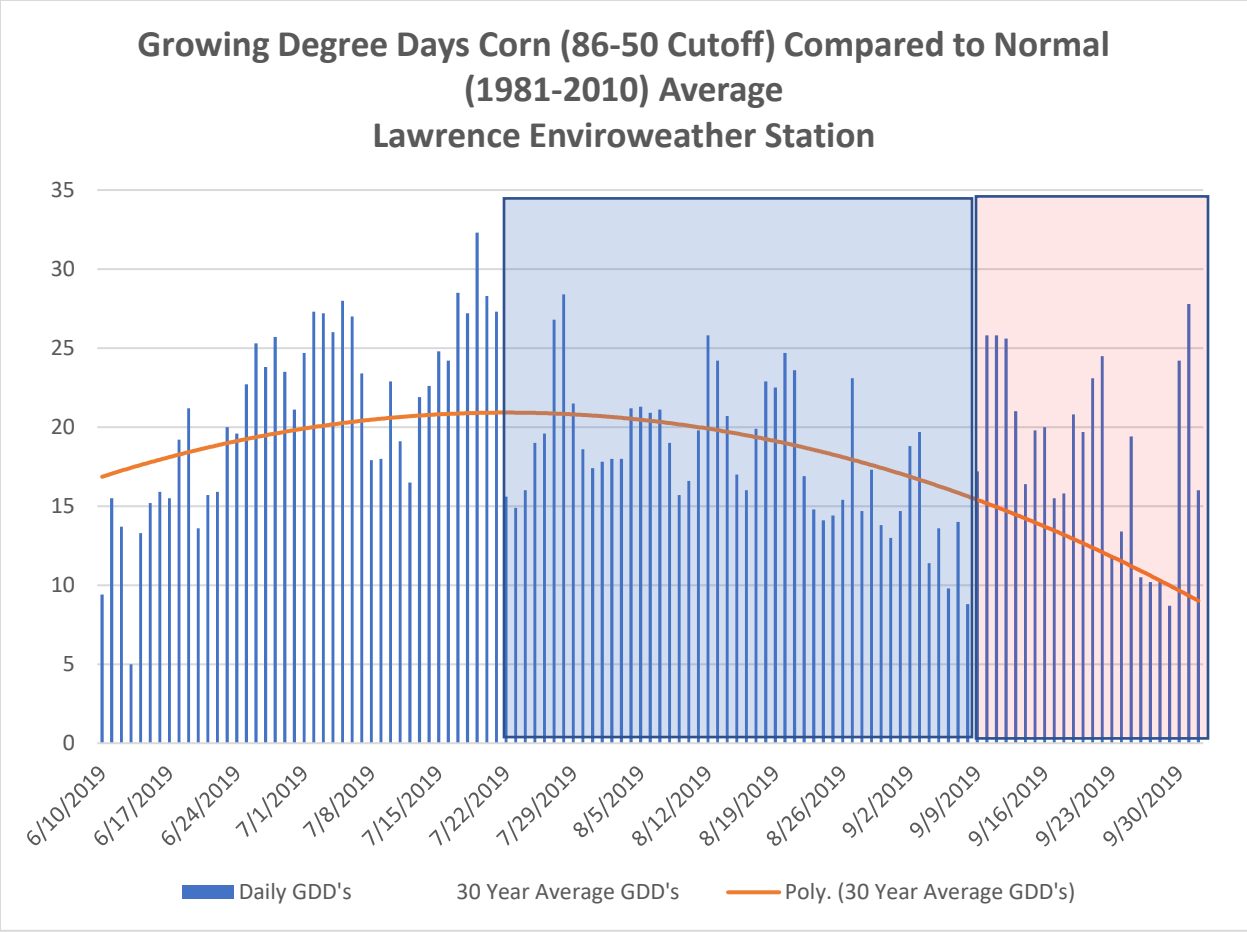
The 2019 growing season has been a struggle for Southwest Michigan corn producers. While the region has less prevented planting acres than most of Michigan, we have a lot of acres of delayed planted corn. The latter part of the growing season has not been kind for much of the areas corn crop. Drought conditions impacted significant areas of Southwest Michigan during some portion of July or August. Irrigated corn was heavily impacted by tar spot, particularly in Cass and Van Buren Counties this growing season. When more widespread rainfall returned to the region, it set the stage for dryland corn fields to be impacted by tar spot. On top of all of this, a colder than normal late July and August delayed corn development on already late planted crops. Thankfully, a return to much warmer than normal temperatures in September has helped the crops to catch up substantially.

This has set the stage for substantial acres of corn across the area to currently be at growth stage R5.5 (1/2 milk line) or slightly ahead, waiting to reach physiological maturity so the grain can really begin the drying process. I recently had the chance to visit with Dr. Emerson Nafziger, University of Illinois Corn Agronomist, about the later planted corn we have in many parts of Michigan this year. He mentioned that the good news is that the crop has already packed in greater than 90-95% of the carbohydrates into the kernels by the later R5 (Dent) growth stages. The bad news is that it can take an additional 200 GDD's to pack in the last 3% of kernel dry matter to reach physiological maturity. We most certainly will be dealing with wet corn and delayed harvest on many farms across Michigan this fall.



GDD trends for southwest Michigan in 2019. The days shaded in blue have less than normal GDD accumulation, shaded in red have a much greater than normal accumulation. The date of planting and the relative maturity of the hybrid is playing a large role in how close the fields are to reaching physiological maturity this year.

Tar Spot has impacted many acres of corn in Cass, Van Buren and Allegan counties in 2019. The most significant impact has been that the disease causes the plants to begin to lose green leaf tissue right at the time when temperatures and rainfall was very favorable for completion of the crop.

Frost damage or extreme leaf loss from tar spot at the later R5.75 (¾ milk line) or later growth stages should have minimal impact on grain yields. However, tissue loss at earlier growth stages from either situation can play an increasingly important role in grain yield reduction and grain test weight. Growers should keep an eye on the corn maturation process as we move further into October and November. MSU Field Cropping System Agronomist Dr. Mani Singh has developed an excellent video "Staging Reproductive Growth Stages in Corn". It can be found at: https://www.canr.msu.edu/agronomy/extension

Far spot lesions on dryland production corn leaf, September 20, 2019 near Paw Paw Mi.

Grain impacted by tar spot should still form an abscission or black layer eventually, so the grain can be run through a grain dryer without excessive shrink. Grain moisture levels at harvest are likely to be much higher than normal this growing season for corn that was planted in June.

Tar Spot does not create mycotoxins in the corn grain. However, tar spot can reduce grain and silage feed quality. In addition, tar spot can cause affected plants to lose stalk strength. The plants often will scavenge carbohydrates from the stalk to fill the kernels if there is not enough healthy leaf tissue to serve as a source in the later grain fill stages. Growers should evaluate stalk strength in tar spot impacted fields and prioritize harvest for those fields that are likely to lodge first. I walked a couple of irrigated fields in St. Joseph county this last week where you could easily cause stalks to lodge by pinching them at about 10 to 18 inches above the ground level with your thumb and index finger. Since the plants are supporting relatively heavy ears, I fear that we will find fields that can have a tremendous amount of lodging where tar spot is severe, especially where the plants showed symptoms early. Some of the worse symptoms are found in fields produced under irrigation, where extended periods of leaf wetness may have set the stage for infection by the fungus.

Corn stalk showing reduced strength from tar spot. Commonly, severely impacted plants can be easily pinched. This process often causes the plant to quickly lodge.

Early infected plants often appear to have prematurely dried down in comparison to less infected plants. These are often good candidates to check for stalk strength integrity. I would encourage growers to get into your corn fields, check for the level of tar spot lesions on your plants leaves, and evaluate stalk strength. Luckily, the dark colored stroma often remain visible on the leaves, even after the "green" has left the plant. I know that moisture level will be very high on some of the later planted fields stricken with tar spot this year.

But based on the stalk strength decline I am seeing in some high severity tar spot fields, it will likely be better to harvest them as soon as it is feasible to avoid extreme lodging issues.

Prolonged periods of leaf wetness caused by rainfall, fog or irrigation are thought to contribute to tar spot incidence and severity.

Severe tar spot leaf infection that "blew up" in early-mid September on late planted corn near Marcellus MI. Corn is between ¼ to ½ milk line (R5.5ish). Stalk integrity remains good so far in this field.