K-STATE Research and Extension | Meadowlark District

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Stressing the Corn Crop

Fortunately for us, corn originated from a tropical grass and has been observed to withstand temperatures upwards of 112 degrees F – for short periods. Even as we hope to avoid 112, we unfortunately may see multiple days of triple digits.

Withstanding high temperatures and *thriving* during them are two different things. Plant growth typically decreases as temperatures exceed 95 degrees F. If moisture is adequate, we don't see a lot of decline in plant photosynthetic capacity from 'normal' summer temperatures. Plants continue to grow and yield isn't greatly affected. Ninety-five degrees and above, is a different story.

While heat and drought stress don't *always* occur simultaneously, drought stress typically closely follows heat stress periods – especially when they last for a time. Leaf rolling will be the obvious first sign as the plant attempts to limit leaf moisture loss (transpiration). As it does so, photosynthesis is reduced. If that occurs only for a few hours in the heat of the afternoon, there's little concern. The earlier it starts in the day and the longer it persists, the greater the potential for yield losses to occur.

Multiple studies over time have attempted to quantify the yield loss resulting from stresses. One study found losses of three to nine percent per day possible when the crop experienced drought stress and leaf rolling for *four or more consecutive days*. Milk and dough stage losses can reach six percent. With any luck, recent moisture will help mitigate this to a degree (daily water use requirements from early tassel until blister stages average almost a third of an inch). Soil moisture levels that rebounded with moisture since mid- July are trending downward again. With close to 10 inches of water needed from early tassel to the end of the blister stage (and another nine plus inches until maturity…), rains are needed. A 'missed forecast' with temperatures lower than expected would be helpful as well.

It is that time of year – but it's still never pleasant to see the crop 'tested'. For more information on crop growth stage to see where you're at, check out KSU's *Corn Growth and Development* reference at: https://bookstore.ksre.ksu.edu/pubs/MF3305.pdf .