

News Column
by Greg McClure, KSU-Riley County Extension Agriculture Agent
110 Courthouse Plaza
Manhattan, KS 66502

For Release 08/02/21
Phone: 785/537-6350
Fax: 785/537-6353

HEAT AND CORN YIELDS

“It may look like this is my first year, but it’s not!”

This year’s classic line from the Riley County Fair occurred during the premium auction on the last night of the fair. You can ask the editor whose grandchild spewed this one....

What you need to know to understand a bit better how this works is that the 4-Her isn’t really selling the animal. Instead, buyers are just bidding for the opportunity to give each livestock exhibitor a gift – sort of a reward for being responsible, and taking good care of their animals.

To lighten things up and in an attempt to loosen up the crowd to encourage even more bidding, the auctioneer looked down at the young man who had just entered the ring with his black and white belted pig and started a conversation with him.

Noting the 4-Hers smallish stature, the auctioneer looked down and said, “So, is this your first year in 4-H?” The 4-Her replied that it was his second year,... and then his father’s genetics kicked in and he added, “It may look like this is my first year, but it’s not!”

I know the feeling.

When I delve into the world of agronomy and start trying to figure things out, you and I sometimes both wonder if this is my first year doing this. Today I decided to try to make sense out of the affect heat has on pollination, specifically corn.

If you talk to a corn grower, you’ll likely hear him or her say it isn’t so much the heat

during the day they are concerned about, but the nighttime temperature. Therefore, I went on a search to find the temperature we'd like to be below at night, to still get good corn yields.

Google is my friend, so that's where I went.

I easily found 86 degrees Fahrenheit repeated again and again as an optimal daytime temperature for corn growth. And, several sources noted that daytime temperatures above 100 aren't a problem if there is adequate moisture. Not ideal, but not a big problem.

Still having not found what I was really looking for, I learned that moisture stress that causes leaf rolling will cause a diminished yield of about 1% for every 12 hours of leaf rolling. During silking, the yield loss will reach 1% for every four hours of leaf rolling.

That magical number I was looking for – the one that says you're in trouble if the nighttime temperature is above this point – never really jumped out at me. Research has clearly shown that corn grown at night temperatures in the mid-60s out-yields corn grown when night temperatures are in the mid-80s.

You might at first think that night temperature during pollination is what agronomists are concerned about, but night temperatures actually affect dry matter accumulation in plants. High night temperatures after pollination still reduce yields. Pollination isn't the only issue.

During pollination, soil moisture is important, as is temperature. Temperatures above 95 degrees Fahrenheit can desiccate silks, resulting in poor pollination. However, most pollen shed usually occurs during early to mid-morning hours when temperatures are lower. Thus, 100 degree days don't necessarily mean poor pollination.

So, what's the bottom line this year? It looks like earlier planted corn will beat later planted corn in Riley County this year, based on when rains occurred relative to the growth stage of the corn. Timely rain is still the key.

There's my prediction. Let me know how it turns out at harvest time.

If you have questions, you can reach me at the Riley County Extension Office at 785/537-6350. Or, you can send e-mail to gmcclure@ksu.edu.

K-State Research and Extension is an equal opportunity provider and employer.