

July 6, 2012

WEATHER EFFECTS ON OUR CORN CROP

Everyone has commented how much shorter the corn is this year. Then the heat wave ridge that set in has been unrelenting, right at the critical stage of development. Bob Nielsen, extension corn specialist at Purdue University, and Tom Hoegemeyer, professor of practice in the UNL Department of Agronomy and Horticulture Department, indicated a variety of interacting factors can lead to shorter than normal corn.

We planted most of the 2012 crop much earlier than normal, which led to corn plants developing during a period when in most years, the seed would still be in the bag. After planting, we experienced warm daytime growing conditions and cool, almost cold nighttime temperatures. Mature corn height depends mainly on three factors; solar radiation, water and temperature. Solar radiation is not the issue here. This year water and temperature were more of a factor. Much of the young corn plant's development was in drier than normal growing conditions. There was adequate moisture for growth but nothing like we have experienced in recent years.

Slower cell expansion leads to shorter internodes and smaller leaves, and this leads to less water uptake and light interception, CO₂ uptake, further impacting growth. Because of these changes, we have less internode elongation and thus early planted corn tends to be shorter than later planted corn.

Will conditions leading to shorter corn impact yield? Not necessarily. More important to the final yield of this year's crop is the heat and moisture stress that the crop is now experiencing as it moves into pollination. The pollination window is normally an 8-10 day period with corn. According to UNL research on effects of drought, just four days of severe stress or what I call the pineapple stage for the greatest share of the day (i.e. corn wilted for four consecutive days) at the 12th-14th leaf stage has the potential of reducing yields by 5 to 10 percent. The potential for yield losses to soil moisture deficits increases dramatically when plants begin to flower. During tassel emergence, those four days of severe moisture stress has the potential to reduce yields 10 to 25%. Silk emergence is the most critical period in terms of moisture use by the plant. During this stage, leaves and tassels are fully emerged and the cobs and silks are growing rapidly. Four days of severe moisture stress during silk emergence has the potential to reduce yields 40 to 50 percent.

If we wait until the kernels appear as watery blisters on the ear, it answers the question about pollination about 10 days after fertilization. Another method is if the silks detach normally within the ear. Unfertilized ovules will still have attached silks. Silks then turn brown and dry up after the fertilization.

The bulls are active in the grain markets with the fears of how short this crop is going to be. I guess it can always be worse. A farmer I know near Falls City said he had a triple whammy occur to him in June. He married for the second time with a reception at his home farm, started building a new home AND is in a drought. If he survives that stress, he can survive anything.

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