

Mother Nature slammed corn this year!



Breeder's Journal

By DAVE NANDA

DATELINE

DROUGHT

JUST when we think we've seen everything, Mother Nature pulls out new surprises. This year started with promise. Record-high temperatures in March got farmers excited. Some planted corn, hoping to maximize yields.

There was sufficient moisture for germination and early growth, but you know the rest. Corn plants responded to increasingly dry conditions by expanding root mass and digging deeper for water. Some plants rolled their leaves to reduce transpiration. What's really going on when this happens?

Corn plants constantly adjust to the environment. There are five distinct stages when the plant makes internal decisions that contribute to final yield.

5 critical stages

1. Knee-high. If the plant sees competition from weeds or other corn plants, it may produce just one ear.

2. Waist-high. The corn plant is ready to determine number of kernel rows. Genetics plays a big part, but environment can vary this by two to four rows, plus or minus, on average.

3. Pollination. Individual plants can increase the number of kernels at the ear tip if all signals are go. This year they were

often flashing caution lights instead. If it's too hot and dry, expect to find aborted kernels at the tip.

4. Grain-fill. Depth of kernels is set. If a disease like gray leaf spot was rampant, for example, the plant might pull back on kernel size. There is little disease this year, but other stresses have caused kernels to drop back.

5. August tweak. Test weight is somewhat determined at this time. It's tied to

genetics, but if the signal is still warm and dry, test weight could be lower.

These are the times when plants decide how many viable kernels to produce. The decision per plant depends upon whether it's in luxury, optimum or survival mode.

Corn chooses mode

If corn is in luxury mode — reserved for only a few lucky fields this year — that means the environment is better than normal. Plants go into overdrive.

At the optimum setting, environmental conditions are normal, and there's an absence of stress.

If there's stress, the plant reverts to survival mode. This is when kernels on ear tips abort.

Many fields went into survival mode weeks ago and will likely have less-than-normal yields. In survival mode, plants try to produce enough kernels to survive. That's why you saw 3- and 4-foot-tall corn trying to tassel, while there was still some moisture left.

Plants in survival mode may also cannibalize lower leaves and stalks to find enough nutrients to finish kernels. Watch those fields for potential early harvest. We'll take a closer look at that reality next month.

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HEAT STRESS: Even early stress at waist-high tells plants to cut back, this time on rows of kernels.