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Long Silks?

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Long Silks?

Abstract

Very hot days and warm night temperatures the last couple of weeks concern agronomists and corn growers. Unfortunately, this period of hot weather occurred during tasseling and silking. However, the USDA-NASS July 25th Iowa Crops & Weather report indicates that 80 percent of the crop was still in good to excellent condition. Ninety percent of the crop had tasseled and 75 percent silked – both slightly behind last year but ahead of the five-year average.

I've heard several accounts -- both in Iowa and other states -- of longer than normal silks this year. I hope these accounts are rare! Silks elongate an inch or more per day until they intercept pollen and the ovules are fertilized. Six inches of silk extending from ears -- like I've seen in photos from central Iowa -- could indicate four to six days of growth without pollination occurring. Silks remain viable for up to 10 days and turn brown and separate from ovules when ovules are fertilized.

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Long Silks?

By Roger Elmore, Department of Agronomy

Very hot days and warm night temperatures the last couple of weeks concern agronomists and corn growers. Unfortunately, this period of hot weather occurred during tasseling and silking. However, the [USDA-NASS July 25th Iowa Crops & Weather report](#) indicates that 80 percent of the crop was still in good to excellent condition. Ninety percent of the crop had tasseled and 75 percent silked – both slightly behind last year but ahead of the five-year average.

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Pollen shed and silking

In older hybrids, pollen shed usually preceded silking. Since stress affects silking more than pollen shed, high temperatures, especially when coupled with moisture stress, resulted in barren ears. Pollen shed and silking usually happen simultaneously with modern hybrids and in many cases, silks may appear before pollen shed. This is one of the mechanisms that resulted in greater stress tolerance with modern hybrids. Silks develop first from near the butt of the ear and then proceed progressively to the tip.

Pollen shed occurs first from anthers that protrude from near the tip of the main tassel stem. Subsequently, shed moves progressively down the main tassel and from the tips of tassel branches toward the main tassel stem. The last anthers to shed pollen are those on the lowest tassel branches near the main tassel stem. Incidentally, scientists record the time difference between pollen shed and silking as a measure of stress among hybrids and/or experimental treatments. We call this the anthesis-silking interval (ASI).

What do long silks suggest?

Silks stop growing and turn brown when ovules they attach to are fertilized. If all anthers on all plants have shed pollen and silks are still yellow-green and growing, kernels on the ear remain unfertilized. Harvestable kernel numbers will be reduced unless there is another source of pollen nearby. Yield potential will be compromised.

Husk gently and shake ears

Kernel set should be "easy" to determine after completion of pollen shed. As mentioned earlier, browning of silks indicates successful ovule fertilization. If yellow-green silks are obvious, gently remove husks to expose silks and kernels. Hold the ear horizontal and shake or roll it carefully. Silks will detach from fertilized ovules. Silks remaining attached to ovules indicate that those ovules were not fertilized and thus will not produce kernels. Tip kernels often

are not fertilized.

For more information on the silking process see:

- [Corn development from R1 to R6](#)
- [How high temperatures and stress affect corn pollination](#)



Figure 1: Four-inch silks on ear prior to pollen shed, July 15, 2011. The reddish color likely is a hybrid trait. Photo by R.W. Elmore.



Figure 2: Husked ear showing a few silks still attached to unfertilized ovules at tip of ear, July 29, 2011. Photo by R.W. Elmore.



Figure 3. Husked ear showing several silks still attached to unfertilized ovules in upper third of ear, July 29, 2011. Photo by R.W. Elmore.



Figure 4. Husked ear showing many silks still attached to unfertilized ovules along the entire length of ear, July 29, 2011. Photo by R.W. Elmore.

Roger Elmore is a professor of agronomy with research and extension responsibilities in corn production. He can be contacted by email at relmore@iastate.edu or 515-294-6655.

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