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Estimated Corn Silk Dates and Yield Potential, Iowa 2008

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Abstract

Silk dates mark a milestone in growth and development of corn. This year in particular estimates of silk date are of interest since they provide an idea on timing of fungicide application as well as providing a look forward for conditions that might occur during this time critical for corn development. Crop simulation models are useful tools to project silk dates based on season-to-date weather conditions. Models also provide estimates of yield potential.

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Estimated Corn Silk Dates and Yield Potential, Iowa 2008

Roger Elmore, Department of Agronomy

Silk dates mark a milestone in growth and development of corn. This year in particular estimates of silk date are of interest since they provide an idea on timing of fungicide application as well as providing a look forward for conditions that might occur during this time critical for corn development. Crop simulation models are useful tools to project silk dates based on season-to-date weather conditions. Models also provide estimates of yield potential.

With this in mind, I used [Hybrid-Maize](#) to predict silk dates for different areas of Iowa. In each area, the approximate date when half of the corn was planted in 2008 (based on [USDA](#) reports) was included in the model. Planting dates for the western third of the state were thus set at May 10; May 15 was used for the remainder of the state. Different hybrid maturities represented the different locations as well. Hybrid maturities were 105, 110, and 115 days in the Northern, Central, and Southern thirds of the state, respectively. Given those inputs and weather data up through July 7, 2008, the model estimated the silk dates. Silk date ranges are shown in Figure 1.



Estimated corn silk date ranges based on Hybrid-Maize simulations. The simulations used weather data from automated stations through July 7, 2008.

To compare these estimated silk dates with those of previous years, I again used Hybrid-Maize estimates for Ames with May 15 as the planting date with a 110 day hybrid. These comparisons are shown in Table 1. Silk dates for the different yield possibilities range from 1 to 12 days behind those of previous years. The least difference occurs in the years with the best yields. The largest difference in silk dates occurs in the worst-yielding years. Days to maturity (R6) are also shown. Best yields are associated with the latest maturity date.

Delayed silk dates will be the norm across Iowa in 2008. If fungicide

applications are necessary, schedule them based on crop growth stage rather than on calendar date. Although silking will be delayed this year, weather forecasts for the next month are for normal precipitation and below normal to normal temperatures. These are both promising forecasts for corn development.

Ames IA 110 day hybrid 15 May planting date	Hybrid-Maize Simulations for Years with different potential yields					
	Best Yield	75% percentile	Median	25% percentile	Worst Yield	Mean
2008						
Days to silk (R1)	18-Jul	18-Jul	20-Jul	22-Jul	17-Jul	
Maturity date (R6)	23-Oct	25-Sep	9-Oct	14-Sep	25-Sep	4-Oct
Yield prediction (Percent of Maximum, 1986- 2007)	96	79	75	66	45	77
1986-2007						
Days to silk (R1)	17-Jul	9-Jul	14-Jul	16-Jul	5-Jul	17-Jul

Table 1. Estimated silk dates and estimated yield potential for an array of years from Hybrid-Maize for Ames, Iowa. Compare these with days to silk estimated for all other years in the weather data base. Weather data included: January 1986 to 7 July 2008.

The model also estimates maximum potential yields. Included in Table 1 is an estimate of yield as a percent of the best possible yield estimated from May 15 plantings from 1986-2007. In the best of years, yield is only 4 percent less than maximum potential yield. However, in the worst yielding year, yields are only 45 percent of maximum. We might expect an average yield of 77 percent of normal.

Crop model simulations provide an idea of crop development rates and yield potential. But, please remember, as the Hybrid-Maize developers state, "As with all simulation models, Hybrid-Maize still represents a simplification of the 'real-world' system and, as such, model predictions may differ from actual outcomes. Therefore, the results of model simulations should be considered approximations and not taken as fact."

Summary:

- 2008 estimated silk dates could range up to 12 days later than in previous years.
- A longer growing season and a delayed frost may help maximize yield.
- Excellent yields are still possible.

Roger Elmore is a professor of agronomy with research and extension responsibilities in corn production.

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