

Corn Hybrid Maturity Considerations for Delayed Plantings or Replantings in Southern Indiana

R.L. (Bob) Nielsen
Agronomy Department
Purdue Univ., West Lafayette, IN
Email: rnielsen@purdue.edu

What began as a growing season with great promise has turned into a literal quagmire for some corn growers in Indiana, particularly throughout the southern areas of the state. Frequent rainfall throughout May prevented timely planting for some or contributed to extended periods of soggy soils following planting that resulted in seeds rotting in the seedbed. For others, recent torrential rains and subsequent ponding or flooding of fields threaten the survival of emerged crops and may force replanting of fields that ultimately suffer significant stand loss.

Whenever corn planting is delayed or corn replanting occurs at a late date, growers often question whether they should switch to early maturity hybrids with shorter growing season requirements in order to minimize the risk of fall freeze injury to immature corn grain or to guard against excessive grain moisture at harvest. Peter Thomison (Ohio State Univ.) and I published a guide (Purdue Extension Pub. AY-312-W) that goes into greater detail than I will address in this article, but let me summarize that information specifically for southern Indiana corn growers faced with difficult planting decisions.

Corn development is strongly influenced by temperature throughout the growing season. Warmer temperatures translate to faster development, while cooler temperatures slow down development. The accumulation of temperature or heat can be measured in terms of daily “heat units” or “growing degree days” (GDDs) summed from the day of corn planting. In addition to the commonly used “days” maturity rating scheme, seed companies often also define hybrid maturities in terms of the number of heat units required to reach maturity.

The good news about delayed planting of corn is that the crop adjusts by maturing in fewer heat units than when planted in normal time periods. Consequently, adapted hybrid maturities can be planted later than many growers expect with little risk of the crop failing to mature prior to a killing fall freeze. Based on field research conducted in Indiana and Ohio, the following suggestions can be made for southern Indiana growers faced with late planting or replanting of corn. Rather than GDD values, the hybrid maturities are listed in terms of “comparative relative maturity” values that most closely correspond to hybrid maturity definitions used by Pioneer Hi-Bred International, Inc.

Table 1. Approximate “safe” relative hybrid maturities for delayed plantings throughout southern Indiana.

Area of Indiana	Latest “safe” hybrid maturity for planting no later than...		
	June 7	June 14	June 21
	<i>Hybrid CRM ratings</i>		
Southwest	118+	118+	117
Southcentral	115+	113	108
Southeast	115+	113	108

The definitions of hybrid CRM (comparative relative maturity) values listed above correspond most closely with those used by Pioneer Hi-Bred International, Inc.

Hybrid maturity recommendations for delayed planting in other areas of Indiana and Ohio can be found in Purdue Univ. publication AY-312-W.

While a switch to significantly earlier hybrid maturities is not physiologically warranted for a couple more weeks, southern Indiana growers may nonetheless want to consider switching to earlier maturities to reduce their potential grain drying costs in the fall. Long-term plot data from Pioneer Hi-Bred International (Iragavarapu, 2003) indicates that the yield potential for late, medium, and early maturity hybrids becomes very similar as planting is delayed beyond June 10 in the central U.S. Corn Belt. Grain moisture differences at harvest, on the other hand, remain similar among the hybrid maturities, if not more dramatic, as planting is delayed.

Final Note of Caution: Growers who elect to switch to earlier maturity hybrids for mid-to late June plantings in southern Indiana must also remember to select hybrids with acceptable disease tolerance because of the greater risk of leaf diseases with late-planted corn (Vincelli, 2003). This is especially true if you are considering maturities unusually early, and therefore agronomically unadapted, for your location.

Related References

- Iragavarapu, Raj. 2003. **Basing Hybrid Maturity Switches on Long-term Data.** Pioneer Hi-Bred International, Inc. Available online at http://www.pioneer.com/growingpoint/agronomy/crop_insight/1012.jsp. (URL verified 6/1/04). **Note that online access to this document requires free registration via Pioneer’s GrowingPoint™ Web site.**
- Nielsen, R.L. (Bob) and Peter Thomison. 2003. **Delayed Planting & Hybrid Maturity Decisions.** Purdue Univ. Cooperative Extension Publication AY-312-W. Available online at <http://www.agry.purdue.edu/ext/pubs/AY-312-W.pdf>. (URL verified 6/1/04).
- Nielsen, R.L. (Bob). 2003. **Estimating Yield and Dollar Returns From Corn Replanting.** Purdue Univ. Cooperative Extension Publication AY-264-W. Available

online at <http://www.agry.purdue.edu/ext/pubs/AY-264-W.pdf>. (URL verified 6/1/04).

Vincelli, Paul. 2003. **Risk of Leaf Disease in Late-Planted Corn**. Kentucky Pest News. Univ. of Kentucky. Available online at http://www.uky.edu/Agriculture/kpn/kpn_03/pi030519.htm. (URL verified 6/1/04).

Don't forget, this and other timely information about corn can be viewed at the Chat 'n Chew Café on the Web at <http://www.kingcorn.org/cafe>. For other information about corn, take a look at the Corn Growers' Guidebook on the Web at <http://www.kingcorn.org>.

© 2004, Purdue University