When weather delays corn planting, growers may consider changes to ensure planting occurs with as little additional delay as possible. Some field operations can be adjusted with little impact on yield potential. Hybrid selection, however, is one management decision that needs to be held firm despite delayed planting conditions.

**Optimum Planting Window**

The Corn Belt has about a 4-week window that is described as the “optimum” planting date for maximum yield performance. This is based on planting date research by various agronomic research organizations both public and private. For most of the Central Corn Belt, this window is around April 20 through May 15. After this window yield potential can start to decrease, but it’s important to remember planting date is just one factor in final yield, and the effect is not the same every year.

Relative yield potential by planting date is based on averages of several years of data. Although not accurate in every situation, it can be used as a guide to help with planting decisions (Table 1). Dr. Bob Nielsen, Purdue Agronomist, in a recent article explains that planting date only accounts for about 11-12% of variability in yield trend departures from year to year. In other words, a number of factors outside of planting date also affect the ultimate maximum yield for a given year.

The original hybrids in your planting plan were chosen because they provide the best chance to maximize productivity in your fields and environment. Another factor that must be taken into account is the yield advantage of later maturing hybrids. Eight years of data collected from Wyffels research trials finds an advantage of 1.7 bushels per day of later relative maturity. Switching to an earlier maturing hybrid will lower your yield potential. Figure 1 shows the yield difference based on relative maturity.

*Figure 1. Yield increase of later maturing hybrids. Data from Wyffels Replicated Research Sites in 2010-2017.*

<table>
<thead>
<tr>
<th>Planting Date</th>
<th>Yield Loss</th>
<th>Relative Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1 to May 15</td>
<td>No yield loss, planting within optimum window</td>
<td>Stay with original plans for all hybrids</td>
</tr>
<tr>
<td>May 15 to May 25</td>
<td>~0.5 to 0.75% per day yield loss</td>
<td>Stay with original plans for hybrids of adapted RM Only switch very full season hybrids for your area.</td>
</tr>
<tr>
<td>May 25 to June 01</td>
<td>~0.75 to 1.0% per day yield loss</td>
<td>If switching hybrids, keep within 5-7 days of the full season hybrid for your area.</td>
</tr>
</tbody>
</table>
Kernel Black Layer

Kernel black layer is the point in a corn plant’s life cycle that signifies physiological maturity. A frost or freezing event after black layer results in no yield loss and does not affect grain moisture loss. Seed companies often use Growing Degree Days (GDDs) to describe when black layer occurs among hybrids.

The number of GDDs required to reach black layer is not a constant value from year to year, although that is a common misinterpretation. The number provided is an average to help provide a general guideline for each hybrid. The chart below (Figure 2) is an analysis of 16 years of black layer data from Wyffels Corn Breeding and Research that shows a 500 GDD variance between the lowest year (2009) to the highest year (2011).

Harvest Moisture

One of the potential drawbacks of a delayed planting season is higher grain moisture at harvest. However, this is much more dependent on weather for the remainder of the season, especially September and October. A hot and dry end of the season can cause grain moisture loss rates of up to 1% per day. On the other hand, cool and wet conditions at the end of the year will cause later planted corn to be wetter than earlier planted corn. This needs to be considered along with the grain drying capabilities for farmers planting very full season hybrids.

Conclusion

Hybrid selection is one of the most important decisions made every year. The hybrids chosen in the original cropping plan were chosen because they were the best hybrids for your soil, cropping rotation, agronomic practices, and climate. That is still the case. With a shortened growing season, it’s still important to maintain focus on maximizing productivity and profitability by planting the best products for your field and environment. **Stick with your original plan until at least May 25.**

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*Figured 2.  GDDs to Black Layer (2002-2017)*

The GDD to black layer values Wyffels provides are aligned with the solid multi-year average line. GDD variance is supported by research conducted by Purdue and Ohio State Universities that demonstrated when planting is delayed beyond May 1, the number of GDDs to black layer decreases by about 6.8 GDDs per day of delayed planting. So, a hybrid that requires 2600 GDD to black layer planted on May 1, will only require 2460 GDD if planting is delayed to May 20. The corn plant’s ability to adjust to the growing season allows hybrids to maximize production even when planted past the optimum window.