BETWEEN THE ROWS

May 14, 2013 | CONSIDERATIONS WITH DELAYED PLANTING | wyffels.com

Background

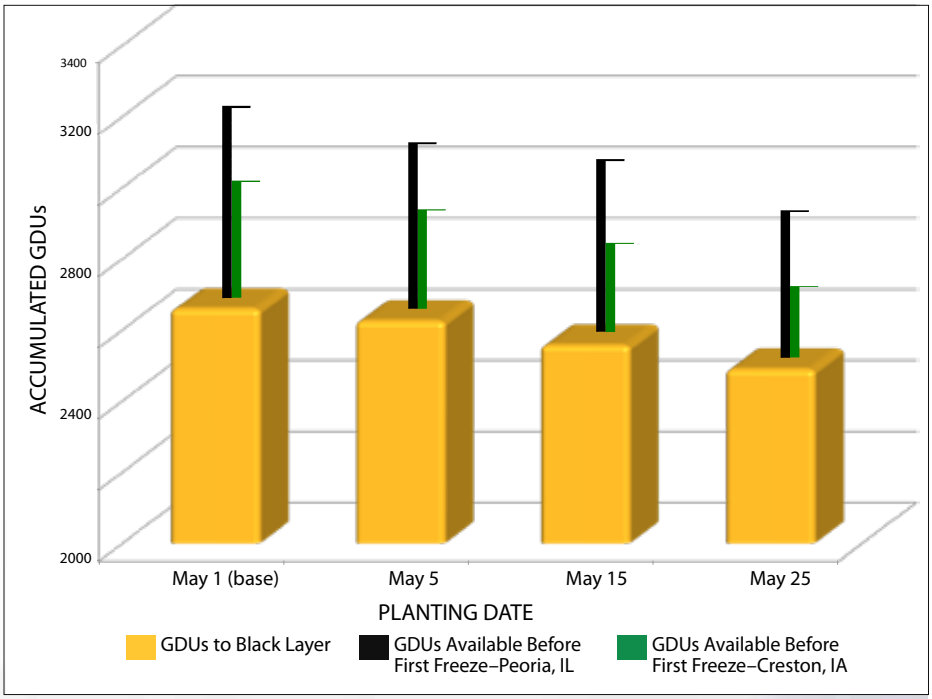
Wet weather and cool temperatures continue to delay planting in some regions of Wyffels' marketing area, causing some people to begin questioning their original cropping plans. One of the major concerns with delayed planting is getting the hybrid to mature prior to a fall freeze. Logic would dictate that each day planting is delayed would equate to one day delay in physiological maturity in the fall. The fault in this logic is that plants have an uncanny ability to adapt to their environment, as demonstrated in the research discussed below. In addition, daily accumulation of Growing Degree Units (GDUs) on average are much less in the spring months compared to June, July and August.

Experiments were conducted at Purdue and Ohio State Universities to determine the effect of delayed planting on corn development. Three hybrids of widespread relative maturities were planted at three relative planting timings at four locations. They discovered that fewer GDUs were required for later planted hybrids to mature than earlier planted hybrids.

Nielsen and Thomison reported that when planting is delayed beyond May 1, the number of GDUs from planting to black layer decreases by about 6.8 GDUs per day of delayed planting with little impact on yield. Although this shorter time did not fully compensate for the delay in planting date, these results demonstrate how corn plants adapt to later plantings. This adaptation allows hybrids that are normally grown in a given maturity zone to finish prior to a typical fall frost, even when planted a few weeks outside the ideal planting window.

In Figure 1 you see an example of GDU requirements to black layer for 110-RM hybrid at different planting dates. This also shows you an example of how many GDUs would be available, on average, before the first fall freeze in Peoria, IL and Creston, IA.

Figure 1. GDU requirements to black layer for 110-RM hybrid at different planting dates.



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In Figure 2 you will find the GDUs available on average before the first fall freeze date (32^0) for the given locations at different planting dates.

Figure 2.

Average GDUs available from planting to median freeze date^0				
	May 5	May 15	May 25	Median First Freeze (32^o)
Dekalb, IL	2734	2644	2535	Oct. 11
Peoria, IL	3069	2965	2834	Oct. 14
Springfield, IL	3272	2988	3011	Oct. 13
Effingham, IL	3265	3156	3016	Oct. 17
Owensboro, KY	3823	3673	3494	Oct. 15
Iowa City, IA	3296	3182	3035	Oct. 13
Waterloo, IA	2510	2324	2113	Sept. 30
Spencer, IA	2541	2448	2335	Sept. 26
Carroll, IA	2621	2521	2401	Oct. 6
Creston, IA	2841	2746	2627	Oct. 7

Figure 3 shows information for each of the Wyffels hybrids with the relative number of GDUs required for physiological maturity at a normal planting date. You can use this information, in conjunction with information above, to evaluate the situation specific to your operation.

By interpreting these charts you can see that because a hybrid is able to adapt to its environment there is little reason to consider changing hybrid maturities until late May.

When considering changes to your cropping plan another factor that must be taken into account is the yield advantage of later maturing hybrids. Eleven years of data collected from Wyffels research trials finds an advantage of 0.8 bushels per day of later relative maturity. Switching to an earlier maturing hybrid will lower your yield potential. Figure 4 (page 3) shows the yield difference based on relative maturity.

On the flip side, another factor is harvest timing and harvest moisture. Due to delayed planting we are experiencing there is a good chance we progress through grain fill and start drydown later in the year, with cooler temperatures. If temperatures are cooler than normal during the drydown period it will most likely extend the process. Harvest plans may have to be altered so that hybrids not equipped to stand for an extended time during the fall are not left too long in hopes of reaching lower harvest moisture. In turn, a hybrid that may normally be in the middle of your harvest lineup, but has good stalk strength and plant integrity, may now be moved to the end of your harvest window.

Hybrid selection is one of the most important decisions made every year. Through Wyffels' extensive research program we identify the very best hybrids for your area. 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 is important to take advantage of the remaining growing season. Stick with hybrids best fit for your farm and geography to maximize your yield potential.

Figure 3. Relative GDUs required for physiological maturity at normal planting date.

		GDU to Black Layer* Adjusted for Planting Date$^+$			
Hybrid Base	Relative Maturity	Base (May 1)	May 5	May 15	May 25
W1687RIB	96	2425	2391	2323	2255
W1787RIB	96	2560	2526	2458	2390
W1838RIB	97	2515	2481	2413	2345
W1917RIB	98	2445	2411	2343	2275
W2277RIB	100	2580	2546	2478	2410
W2757RIB	102	2675	2641	2573	2505
W3007RIB	103	2600	2566	2498	2430
W3100	103	2690	2656	2588	2520
W3127RIB	103	2525	2491	2423	2355
W4179	105	2640	2606	2538	2470
W4267RIB	105	2630	2596	2528	2460
W4348RIB	106	2600	2566	2498	2430
W4797RIB	106	2650	2616	2548	2480
W5078RIB	107	2675	2641	2573	2505
W5281	108	2675	2641	2573	2505
W5787RIB	108	2700	2666	2598	2530
W6440	109	2700	2666	2598	2530
W6487RIB	110	2660	2626	2558	2490
W6526	110	2715	2681	2613	2545
W6878RIB	110	2720	2686	2618	2550
W6917RIB	111	2790	2756	2688	2620
W7057RIB	111	2700	2666	2598	2530
W7071	111	2800	2766	2698	2630
W7147RIB	111	2730	2696	2628	2560
W7213	111	2810	2776	2708	2640
W7477RIB	112	2745	2711	2643	2575
W7718RIB	112	2850	2816	2748	2680
W7806RIB	113	2740	2706	2638	2570
W7886RIB	113	2770	2736	2668	2600
W7997RIB	113	2760	2726	2658	2590
W8681	115	2720	2686	2618	2550
W8967RIB	117	2880	2846	2778	2710

Lost yield potential

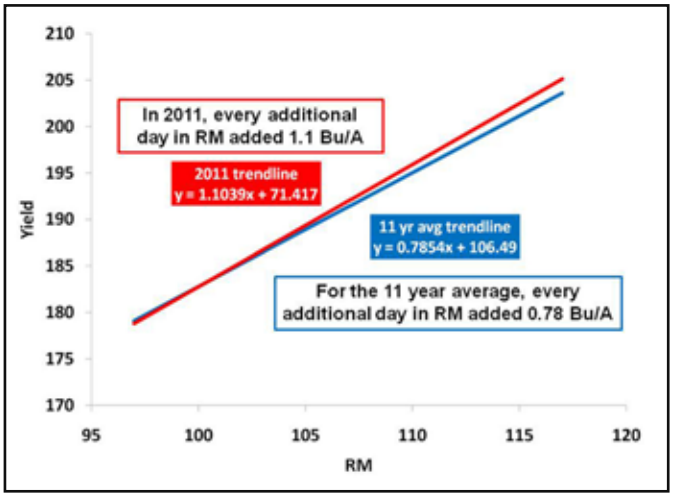
Another issue with delayed planting is lost yield potential. In most of the Midwest, the optimum planting window for full yield potential is mid-April to early May. These dates will vary from north to south, but probably not as much as one might expect. Iowa State University reported hybrids reached 100% yield potential in their trials when planted between April 20 and May 5, and 99% of their yield potential for planting dates up to May 20. Yield potential will slowly decrease throughout the month of May, regardless of hybrid maturity. Switching hybrid maturities will not resolve this issue.

Having corn planted by a certain calendar date will not have as much impact on yield as will the conditions in which it's planted and the conditions throughout the remainder of the growing season. There have been many years with what would consider delayed planting that have come in at or above trend line yields (1992, 2002, 2009). Ironically, some of our worst years on recent record have been in years with planting done ahead of schedule (1988, 2012). This just reinforces the fact that many other factors can have a greater impact on yield besides planting date.

Economics

Before finalizing any changes to a cropping plan it's a good idea to see which options are most profitable. With the price of corn it is still much more profitable when compared to soybeans through the end of May. Each situation will be different, and there are a lot of great tools available to check the profitability of your cropping plans. Many extension offices offer planting decision and crop profitability models. No matter how late in the season we are planting, each decision is a business decision in the end, so it is helpful to look at all variables.

Figure 4. Yield advantage observed with later relative maturity.



Data compiled from Wyffels hybrids tested in zone in 2001-2011 Wyffels research sites.

Summary

Even as planting is delayed into late May there is still little reason to consider switching away from top hybrids just to plant an earlier maturity hybrid. The corn plant has an uncanny ability to adapt to its environment. Cool, wet conditions are in the forecast for parts of the Corn Belt. Patience to ensure planting conditions are right before starting will have a greater impact on yield potential than the calendar.

Delayed Planting scientific research paper
Nielsen, R.L., P.R. Thomison, G.A. Brown, A.L. Halter, J. Wells, and K.L. Wuethrich. 2002. Delayed Planting Effects on Flowering and Grain Maturation of Dent Corn. Agron. J. 94:549-558.

Purdue University Agronomy publication
Nielsen, R.L. and P. Thomison. 2003. Delayed Planting and Hybrid Maturity Decisions. Purdue University Cooperative Extension publication AY-312-W.

Iowa State University Integrated Crop Management Newsletter
Delayed Corn planting http://www.ipm.iastate.edu/ipm/icm/node/233