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DOES DELAYED PLANTING OF SPRING WHEAT MEAN LOWER YIELDS?

Spring wheat planting is off to a slow start, with only three percent of the area planted compared to 22% for the 5-year average. Research has repeatedly shown that delayed planting can have a detrimental effect on the yield of small grains. Planting date is one way we can partially “manage” the weather environment in which the small grain crop grows. Earlier planting usually means that temperatures are more favorable during tillering and spike formation. Cooler temperatures during this early vegetative period promote more tillering and larger spikes. This is the time that the crop establishes its foundation for its potential yield. Additionally, when compared to later planting dates, earlier planting usually means that grain-filling will take place when temperatures are relatively cooler. Warmer than optimal temperature during grain-filling reduces the amount of photosynthate available to the developing kernels. Hence the recommendation that one should plant early in order to improve the chances of higher yield. Nevertheless, there are a lot of other factors that can ultimately impact grain yield, regardless of planting date. Nitrogen availability (N losses due to leaching and denitrification), drought, diseases, and lodging are examples of factors that can impact yield even when the weather might otherwise be favorable.

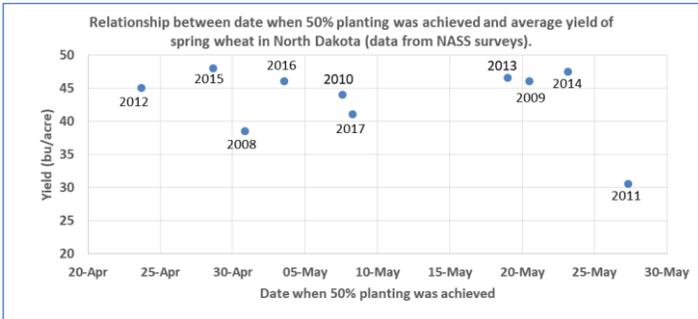
The intent of this article is to examine the relationship between planting date and final yield on a statewide basis (rather than results from small-plot research) using planting progress data

and final yield that is available from USDA-NASS. In the graph below, I summarize data from the past 10 years, relating the estimated date when 50% of the spring wheat area had been planted and the yield that was achieved later that season. For the purposes of this article, to fix a 50% planted date, I extrapolated between the NASS reporting dates when there was less than 50% planted and when there was more than 50% planted. The yield values were those reported for the state as a whole. I used information for spring wheat only.

During the last 10 seasons the date at which 50% of the spring wheat was planted ranged from April 23 to May 27, with an average date of May 10. Given our very slow planting progress to date, it seems likely that much of the planting will be later than optimal, but with the current planting capabilities in the state, it is still feasible that 50% of the acres could be planted by the average date of May 10th if field conditions are favorable.

It is interesting to note from the graph below that there was little relationship between date to 50% planting and yield. In fact, three of the highest yielding seasons (2009, 2013 and 2014) occurred when most of the planting occurred after May 15. Moreover, in 2008 which was the third earliest date to achieve 50% planted, it was second lowest yielding of the group. The lowest yielding year (2011) in this dataset was the latest planted, suggesting that perhaps after that date, yield reductions will be significant even if the rest of the growing season remains favorable for wheat development and yield.

Though these data seem to suggest, when considering the state as a whole, that planting date may not be an important determinant of yield, I think that other research strongly suggests planting as early as is practical is critical to achieving the best chance of producing high yields in a given season.



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HOW SOON WILL SUGARBEET EMERGE AFTER PLANTING?

Sugarbeet seeds germinate and emerge over a wide temperature range in the presence of adequate moisture and oxygen.

In Minnesota and North Dakota, snow cover and wet fields prevented planting in early to the end of April in most areas. There is no need for sugarbeet growers to panic. The soil has been warming up rather rapidly during the past week. During the week of April 24 through 30, average

bare soil temperature at the 4 inch soil depth increased by about 8 to 10° F, from 40 to 48° F to 48 to 58° F. This warming trend is expected to continue with day temperatures of 68 to 75° F forecasted for the next week. This will mean that although beets will be planted later than last year in most areas, they will emerge more rapidly and uniformly because of warmer soils with adequate moisture required for germination.

The following table gives approximate days to emergence of sugarbeet seeds planted at different soil temperature ranges with adequate moisture.

Soil Temperature (°F)	Days to Emergence
38-45	21 days or more
45-52	10-21 days
52-60	7-12 days
60-70	5-7 days

You can easily obtain soil temperature by downloading and using the “Sugarbeet App” available for free download on Apple devices (only – Android version will be available later) at: <https://itunes.apple.com/us/app/sugarbeet-production-guide/id1369831563>

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