



Late Corn Planting Recommendations in Minnesota

- As planting time approaches and wet soils remain across much of Minnesota, many growers may be thinking about switching to earlier maturity corn products to offset late planting.
- Yield potential can decrease with delayed planting due to a number of factors, including a shorter growing season, insect and disease pressure, and moisture stress during pollination.
- Switching to earlier maturity corn products for late-planting situations should not be an automatic decision.

Corn Maturity

Recommendations from your local agronomist regarding full-season corn relative maturity (RM) groups and RM switch dates for Minnesota are listed in Table 1. Careful consideration should be given prior to switching to an earlier corn product. Full-season corn products for a given area typically have the highest yield potential, which can help offset an increase in drying costs. As planting is delayed, corn product maturities will come closer together. Growing degree unit (GDU) accumulation increases as the growing season progresses. As a result, corn generally requires 1.6 GDUs less each day to reach flowering and 6.8 GDUs less each day to reach physiological maturity (black layer) as planting is delayed beyond about May 1. This means that late-planted products mature in fewer than expected GDUs. Therefore, corn planted in late May compared to an optimum date may actually take 125 to 200 GDUs less to reach black layer.

When to Switch Corn Maturity

The yield for late-planted corn will vary greatly depending on the rest of the growing season. The decision to switch maturity with delayed corn planting is difficult because of variations in growing seasons relative to available GDUs, first frost date, and fall drying conditions.

Table 1. Local Monsanto agronomist recommendations for switching corn maturities in Minnesota

Minnesota Region	Full-season RM	"Switch-to" Dates	
		May 15	May 25
-----Days-----			
Southern ¹	106-111	100-105	94-99
Central ²	100-104	94-99	89-93
Northern ³	98-102	94-96	85-89

¹ Southern zone = east to west line SOUTH of U.S. Highway 212

² Central zone = east to west line NORTH of U.S. Highway 212

³ Northern zone = line from Morris to St. Cloud, MN and north

Table 2 (page 2) lists accumulated GDUs, at several locations over several weeks, based on an April 28th planting date. It can help with the decision of when to switch to an earlier maturity by determining the potential GDUs remaining from a given planting date to typical maturity or killing frost in a given area. Table 3 (page 2) shows average first frost dates for some cities in Minnesota.

For example, consider if planting was delayed until the week of May 15 in the Lamberton area. In that time, 140 GDUs would have been lost from April 28. If the first killing frost date is October 7, the maximum potential GDUs remaining for Lamberton is 2565 (2705 - 140). Therefore, a product with a GDU to black layer rating of 2500 GDUs can still be planted because its rating is below the 2565 estimated GDU potential that may occur before the first killing frost. If the reduced GDU requirement after May 1st is also taken into consideration, the product is even less likely to encounter a killing frost before physiological maturity:

$$2500 \text{ GDU requirement} - (6.8 \text{ less GDUs/day} \times 15 \text{ days}) = 2398 \text{ GDUs}$$

The numbers given are based on averages and should only be used as a reference. Growers must decide what is best for their operation. Remember that the main reason for switching corn product maturity is not so much for yield, but to reduce the risk of immature and wet grain in the fall.

Product Considerations

Insect protection and crop safety become even more important with later planting. Corn with Genuity® traits that offer insect protection and herbicide tolerance, such as Genuity® SmartStax® and Genuity® VT Triple PRO® products or Genuity® SmartStax® RIB Complete® and Genuity® VT Triple PRO® RIB Complete® corn blends, should be considered. Additionally, even with delayed planting, it is still important to try to minimize the risk of adverse weather during critical growth stages by planting a package of products that range in GDU requirements to flowering as well as maturity. Several new products flower early, which can help to lower the risk of an early frost.

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Table 2. Average GDU accumulation from six locations in Minnesota, based on April 28th planting date.

Date	Montevideo	Morris	Lamberton	St. Cloud	Waseca	Rochester
May 8	82	64	83	75	88	89
May 15	134	111	139	130	143	144
May 22	218	194	226	212	228	227
May 29	324	297	338	321	344	340
June 5	430	403	458	426	464	454
June 12	524	489	560	515	564	558
September 25	2388	2336	2556	2388	2537	2503
October 2	2456	2400	2632	2448	2608	2571
October 9	2520	2457	2705	2506	2677	2639
October 16	2547	2481	2739	2532	2712	2675
October 23	2569	2497	2764	2551	2738	2702

Source: The University of Minnesota Climatology Working Group.¹

Table 3. Median first frost (28 °F) dates in Minnesota from 1948 to 2005.

Region	City	Date
West Central	Morris	10/6
	Montevideo	10/7
	Fergus Falls	10/8
Central	Hutchinson	10/13
	St. Cloud	10/5
	Willmar	10/15
Southwest	Lamberton	10/7
Southeast	Rochester	10/12

Source: The University of Minnesota Climatology Working Group.² (60% available data for the period 1948-2005).

Sources:

- ¹ University of Minnesota Climatology Working Group. Agriculture climate information. Create custom growing degree day summaries. Online: <http://climate.umn.edu> (verified 4/15/13);
² University of Minnesota Climatology Working Group. Agriculture climate information. Median frost dates. Online: <http://climate.umn.edu> (verified 4/15/13); North Dakota Agricultural Weather Network. Online: <http://www.ndawn.ndsu.nodak.edu> (verified 4/15/13);
 Brouder, S. et al. 2008. Corn & Soybean Field Guide. ID-179. Purdue University. Online: <http://www.agry.purdue.edu> (verified 4/15/13); Nielsen, R. L. 2009. Late planting & relative hybrid maturity decisions. Purdue University Extension. Online: <http://www.agry.purdue.edu>. (verified 4/15/13).

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Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. **ALWAYS READ AND FOLLOW PESTICIDE LABEL**

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