

## Corn – *Zea mays*

### Key Cultivars:

The main factors used to determine corn cultivars is relative maturity and disease resistance. Currently, cultivars with a relative maturity of 115 to 85 are grown in Wisconsin.

### Climate Risk Notes:

**Relative maturity** dictates the number of growing degree days needed for the corn to reach full maturity. As temperatures increase, corn cultivars with higher relative maturity than current cultivars could be grown in Wisconsin.

**Diseases and pests** affecting corn may change as the climate fluctuates. For example, tar spot is an emerging disease in Wisconsin corn. Integrated pest & disease management in a changing climate is recommended.

	<i>Key Months for Crop Development and Thresholds</i>											
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
<b>Stage of growth</b> <i>(under current conditions)</i>					Planting <sup>f,g</sup>	Planting, Germination <sup>f,g</sup>	Vegetative growth (V6) <sup>f,g</sup>	Vegetative growth, Reproductive stages <sup>f,g</sup>	Reproductive stages <sup>f,g</sup>	Reproductive stages, Harvest <sup>f,g</sup>	Harvest <sup>f,g</sup>	
<b>Min Temp (°F)</b>					28 <sup>n</sup>	35 <sup>n</sup>	45 <sup>n</sup>	50 <sup>n</sup>	60 <sup>n</sup>	60 <sup>n</sup>	45 <sup>n</sup>	
<b>Max Temp (°F)</b>					80 <sup>c,d,e</sup>	80 <sup>c,d,e</sup>	112 <sup>b,c,j</sup>	112 <sup>b,c,j</sup>	112 <sup>b,c,j</sup>	112 <sup>b,c,j</sup>	90 <sup>n</sup>	
<b>Ideal Precipitation (in/week)</b>					1.75-2.1 <sup>b,f</sup>	1.75-2.1 <sup>b,f</sup>	1.75-2.1 <sup>b,f</sup>	1.75-2.1 <sup>b,f</sup>	1.4-2.1 <sup>b,f</sup>	1.4-2.1 <sup>b,f</sup>	1.4-2.1 <sup>b,f</sup>	

<i>Climate</i>									<i>Soil</i>						
Min Optimal Temp (°F)	Max Optimal Temp (°F)	Min Absolute Temp (°F)	Max Absolute Temp (°F)	Germination Soil Temp (°F)	Growing Degree Days (50°F base)	Chilling Hours (32-45 °F)	Min Rainfall (in/week)	Max Rainfall (in/week)	Min pH	Max pH	Optimal Soil Texture	Absolute Soil Texture	Optimal Soil Drainage	Absolute Soil Drainage	Soil Depth (in)
60 <sup>c,g,h</sup>	90 <sup>c,h,j</sup>	32 <sup>c,j,m</sup>	112 <sup>b,c,j</sup>	50-80 <sup>c,d,e</sup>	2300-2700 <sup>f,i,j</sup>	NA	1 <sup>b,c,k</sup>	3 <sup>b,h,k</sup>	5.8 <sup>a,g,o</sup>	7 <sup>a,h,o</sup>	Loam, sandy loam, silt loam, lay loam, loamy sand, silty clay loam <sup>d,k,o</sup>	Sand, clay, silt, peat, muck <sup>d,k,l</sup>	Well drained <sup>d,h,k</sup>	Moderately well drained, somewhat excessively drained <sup>d,h,k</sup>	20 <sup>c,d,h</sup>

## References

- <sup>a</sup> Bundy, L. G. (1998). *Corn fertilization*. University of Wisconsin Extension. <https://soilsextension.webhosting.cals.wisc.edu/wp-content/uploads/sites/68/2014/02/A3340.pdf>
- <sup>b</sup> Clark, C. A. (2023, July 28). *The flash drought of 2023: ideas and resources #2*. University of Wisconsin-Madison, Extension. <https://cropsandsoils.extension.wisc.edu/articles/wisconsin-drought-resources-for-2023-episode-2/>
- <sup>c</sup> Delahaut, K. A., & Thiede, T. J. (1999, December). *Crop profile for corn (sweet) in Wisconsin*. NSF Center for Integrated Pest Management. <https://ipmdata.ipmcenters.org/documents/cropprofiles/wicorn-sweet.pdf>
- <sup>d</sup> Farmhand, D. (2006, February 1). *Planting season*. Corn Agronomy. <https://corn.agronomy.wisc.edu/Management/L003.aspx>
- <sup>e</sup> Isleib, J. (2012, May 4). *Soil temperature, seed germination and the unusual spring of 2012*. Michigan State University Extension. <https://www.canr.msu.edu/news/soil-temperature-seed-germination-and-the-unusual-spring-of-2012>
- <sup>f</sup> Kaur, H. (2024). *Wisconsin crop expert interview*. Interviewed by Katherine Young and Catherine Wollmuth. 2 August, Madison.
- <sup>g</sup> Lauer, J., & Broeske, M. (n.d.). *Visual guide to corn development*. University of Wisconsin-Madison, Extension. <https://ipcm.wisc.edu/wp-content/uploads/sites/54/2022/11/UW-CornDevGuide.pdf>
- <sup>h</sup> MacKenzie, J. (2018). *Growing sweet corn in home gardens*. University of Minnesota Extension. <https://extension.umn.edu/vegetables/growing-sweet-corn#soil-testing-and-fertilizer-493860>
- <sup>i</sup> Mitchell, V. L., & Larsen, R. W. (1981). *Growing degree days for corn in Wisconsin*. University of Wisconsin-Madison, Extension. <https://wgnhs.wisc.edu/pubshare/ES019.pdf>
- <sup>j</sup> Neild, R. E., & Newman, J. E. (n.d.). *Growing season characteristics and requirements in the corn belt*. Purdue University Extension. <https://www.extension.purdue.edu/extmedia/nch/nch-40.html>
- <sup>k</sup> Taylor, L., & Voyle, G. (2016, May 19). *How to grow corn*. Michigan State University Extension. <https://www.canr.msu.edu/resources/how-to-grow-corn>
- <sup>l</sup> Thelen, M. L. (2012, April 3). *A good corn crop starts with a good stand*. Michigan State University Extension. <https://www.canr.msu.edu/news/a-good-corn-crops-starts-with-a-good-stand#:~:text=Corn%20planted%20in%20sandy%20soils,planting%20and%20adjust%20for%20conditions.>
- <sup>m</sup> University of Wisconsin-Madison. (2014, February 23). *Corn Agronomy*. <https://corn.agronomy.wisc.edu/Management/L041.aspx>
- <sup>n</sup> University of Wisconsin-Madison. (n.d.). *Wisconsin's environmental mesonet*. WiscoNet. <https://wisconet.wisc.edu/maps.html>
- <sup>o</sup> Vetsch, J. (2016, February 9). *Soil pH and liming needs in Minnesota*. University of Minnesota, Nutrient Management Conference. <https://mawrc.org/downloads/5.-vetsch-soil-ph-and-liming-needs-in-minnesota.pdf>