Hemp – *Cannabis sativa*

Key Cultivars:

Fiber

- Futura 83
- Tiborszallasi

Grain

- NWG 2463
- X-59

Climate Risk Notes:

	Key Months for Crop Development and Thresholds											
	DEC	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**
Stage of growth *(under current conditions)*						Planting [e, f, i, k]	Planting, Vegetative growth [e, h, I, k]	Vegetative growth, Flowering [e, h, k]	Flowering, Harvest for fiber [e, f, h, k]	Seed development, Harvest for grain [d, e, f, h]	Harvest for grain [d, e, f, k]	
Min Temp *(°F)*						40 [a, b, f]	40 [a, b, f]	40 [a, e, h]	30 [a, e, h]	30 [a, e, h]	30 [a, e, h]	
Max Temp *(F)*						105 [a, b, j]	105 [a, b, j]	105 [a, b, j]	105 [a, b, j]	105 [a, b, j]	105 [a, b, j]	

Climate									*Soil*						
Min Optimal Temp (°F)	**Max Optimal Temp (°F)**	**Min Absolute Temp (°F)**	**Max Absolute Temp (°F)**	**Germination Soil Temp (°F)**	**Growing Degree Days (34°F base)**	**Chilling Hours (32-457 °4)**	**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)**
65 [d, h, k]	80 [a, h, k]	30 [a, e, h]	105 [a, b, j]	40-50 [a, h]	Fiber: 1900 [a, b, c] Grain: 2700 [a, b, c]	NA	0.5 [a, e, k]	3 [d, e, h]	6 [a, e, k]	7.5 [a, h, k]	Loamy sand, sandy loam, loam, silt loam, clay loam, sandy clay loam, silty clay loam [d, e, k]	Sand, clay, silt, silty clay [e, g, k]	Well drained [a, g, h]	Somewhat excessively drained, moderately well drained [a, g, h]	40 [h, i, k]

References

[a] Anderson, E., Baas, D., Thelen, M., Burns, E., Chilvers, M., Thelen, K., & DiFonzo, C. (2019, May 24). *Industrial hemp production in Michigan.* Michigan State University Extension. https://www.canr.msu.edu/resources/industrial-hemp-production-in-michigan-e3402

[b] Coolong, T., Cassity-Duffey, K., & Joy, N. (2023, January 19). *Role of planting date on yield and cannabinoid content of day-neutral and photoperiod-sensitive hemp in Georgia, USA.* HortTechnology, 33(1): 138-145. https://doi.org/10.21273/HORTTECH05151-22

[c] Darby, H. (2018, February). *2017 industrial grain hemp planting date trial.* University of Vermont Extension. https://www.uvm.edu/sites/default/files/media/2017_Grain_hemp_planting_date_trial.pdf

[d] Duley, C., Clark, J., Halfman, B., Olson, A., & Davis, K. (2022, February). *Exploration of hemp for fiber production and quality in Wisconsin.* University of Wisconsin-Madison. https://cropsandsoils.extension.wisc.edu/files/2023/08/2022-Exploration-of-Hemp-for-Fiber-Production-and-Quality-in-Wisconsin.pdf

[e] Duley, C., Clark, J., Halfman, B., Olson, A., & Davis, K. (2020). *2020 UW Madison – Wisconsin help cultivar trial.* University of Wisconsin-Madison. https://cropsandsoils.extension.wisc.edu/files/2023/08/2020-UW-Madison-Wisconsin-Hemp-Cultivar-Trial.pdf

[f] Ellison, S. (2024). *Wisconsin expert review interview.* Interviewed by Katherine Young and Catherine Wollmuth. 17 September, Madison.

[g] Graybill, J. S., Harper, J. K., Collins, A., Roth, G. W., Manzo, H. E., & Kime, L. (2023, December 21). *Industrial hemp production.* Pennsylvania State University Extension. https://extension.psu.edu/industrial-hemp-production

[h] Gu, S., & Fulk, R. A. (2021, October). *All about hemp: a manual for farmers and other agricultural professionals.* North Caroline State University Extension. https://www.ncat.edu/caes/cooperative-extension/files/all-about-hemp.pdf

[i] Luck, B. D., Drewry, J. L., Shinners, K. J., & Friede, J. C. (2020). *Industrial hemp grain production: lessons learned from a large-scale field study.* University of Wisconsin-Madison. https://cropsandsoils.extension.wisc.edu/files/2023/08/Industrial-Hemp-Grain-Production.pdf

[j] Rahemi, A., Dhakal, R., Temu, V. W., Rutto, L., & Kering, M. K. (2021, November 12). *Performance of different-use type industrial hemp cultivars under Mid-Atlantic region conditions.* Agronomy, 11(11): 2321. https://doi.org/10.3390/agronomy11112321 - growing degree days

[k] Ugur, S., Slivicke, J., Gartman, L., Savage, T., & Ellison, S. (2021). *2021 UW Madison – Wisconsin hemp cultivar trial cannabinoid production.* University of Wisconsin-Madison. https://cropsandsoils.extension.wisc.edu/files/2023/08/2021-UW-Madison-Wisconsin-Hemp-Cultivar-Trial-%E2%80%93-Cannabinoid-Production.pdf