

Mulberry – *Morus alba*, *Morus alba x rubra*

Climate								Soil						
Min Optimal Temp (°F)	Max Optimal Temp (°F)	Min Absolute Temp (°F)	Max Absolute Temp (°F)	Growing Degree Days (°F base)	Chilling Hours (32-45 °F)	Min Rainfall (in/year)	Max Rainfall (in/year)	Min pH	Max pH	Optimal Soil Texture	Absolute Soil Texture	Optimal Soil Drainage	Absolute Soil Drainage	Soil Depth (in)
-20 ^{c,e,o}	95 ^{e,g,o}	-36 ^{c,e,o}	108 ^{e,g,o}	N/A	N/A	30 ^{n,o}	238 ^{n,o}	4.9 ^{e,m,o}	8.0 ^{e,m,o}	clay loam, silty clay loam, sandy clay loam, loam, silt loam ^{g,n,o}	clay, sandy clay, silty clay, sandy loam, loamy sand, silt, sand ^{g,n,o}	well drained, moderately well drained ^{a,d,p}	excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained ^{a,d,p}	20 ^{g,n,o}

	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)	Dormant	Dormant	Dormant	Dormant	Budbreak ^{b,f}	Flowering, Leaf Out ^{b,f}	Fruit Development, Fruit Ripening, Harvest ^{b,f}	Fruit Ripening, Harvest ^{b,f}	Fruit Ripening, Harvest ^{b,f}	Vegetative Growth ^{b,f}	Leaf Drop ^{b,f}	Dormant ^{b,f}	

Key Cultivars:^{h, k, l}

White mulberry (*Morus alba*) is an introduced species from China. It hybridizes regularly with our native red mulberry (*M. rubra*). Multiple varieties have been wild selected and/or bred for fruit and, to a lesser degree, foliage and ornamental value. The following are varieties that are known for cold hardiness, but due to the invasive status of white mulberry in Wisconsin, none of them have been well tested in the state.

- 'Illinois Everbearing' (hybrid, everbearing, most popular cultivar in the Midwest)
- 'David Smith Everbearing' (alba, everbearing, originated from NY)
- 'Northrup' (alba, early cultivar from NY, reportedly extremely cold hardy)
- 'Trader' (alba, originated from Germany, reportedly extremely cold hardy)
- 'Weeping' (hybrid, primarily grown as ornamental)

Climate Risk Notes:^{i, j}

Both white mulberry and its hybrid have high genetic diversity. Cold hardiness is therefore extremely variable. While mulberry typically grows better in warmer climates, there have been reports of certain mulberry varieties surviving temperatures of -30°F or lower. Select varieties from northern sources whenever possible.

References

- ^a Alfrey, P. (2017). *Mo' mulberry – The essential guide to all you need to know about mulberry*. Permaculture News. <https://www.permaculturenews.org/2017/10/12/mo-mulberry-essential-guide-need-know-mulberry/>
- ^b Barbour, J. R., Read, R. A., & Barnes, R. L. (2008). *Morus L.: mulberry*. In: Bonner, Franklin T.; Karrfalt, Robert P, eds. *The Woody Plant Seed Manual. Agric. Handbook No. 727. Washington, DC. US Department of Agriculture, Forest Service. p. 728-732., 727, 728-732.*
- ^c California Rare Fruit Growers (n.d.). *Fruit cultural data*. <https://crfg.org/home/library/crfg-fruit-list/fruit-cultural-data-2/>
- ^d Campbell, S., & Tesla, S. (n.d.). *White mulberry Morus alba*. The Morton Arboretum. <https://mortonarb.org/plant-and-protect/trees-and-plants/white-mulberry-males-or-fruitless-cultivars/>
- ^e Duke, J. A. (1983). *Morus alba L.* Purdue University Center for New Crops & Plants Products. https://www.hort.purdue.edu/newcrop/duke_energy/Morus_alba.html
- ^f Mo, R., Zhang, N., Hu, D., Jin, Q., Li, J., Dong, Z., ... & Yu, C. (2022). Identification of phenological growth stages of four *Morus* species based on the extended BBCH-Scale and its application in fruit development with morphological profiles and color characteristics. *Horticulturae*, 8(12), 1140.
- ^g Natural Capital LLC (n.d.). *Natural Capital Plant Database*. <https://permacultureplantdata.com/>
- ^h NC Cooperative Extension. (2024). *Morus rubra 'Illinois Everbearing'*. North Carolina Extension Gardener Plant Toolbox. <https://plants.ces.ncsu.edu/plants/morus-rubra-illinois-everbearing/>
- ⁱ Nepal, M. P., & Purinton, J. M. (2021). Systematics of the genus *Morus L.*(Moraceae): taxonomy, phylogeny and potential responses to climate change. In *Mulberry* (pp. 2-20). CRC Press.
- ^j Nikolova, T. (2021). Impact of climate change on the sustainable growth of *Morus alba*. In *Mulberry* (pp. 158-164). CRC Press.
- ^k North American Fruit Explorers. (2009). Pomona Spring 2009. <https://nafex.org/index.php/pomona-archives/>
- ^l North American Fruit Explorers. (2010). Pomona Summer 2010. <https://nafex.org/index.php/pomona-archives/>
- ^m University of Tennessee Extension. (2010). *Desired pH ranges and salt tolerance of common nursery plants*. https://www.tnstate.edu/faculty/ablalock/documents/Desired_pH_Range_List.pdf?fbclid=IwAR2nLL5My0eVe5tT2tpzTFho_nqwVoyDzZLsiAG09in9unohl_d_MUNnMAA
- ⁿ Uniyal, D., Kandwal, D., Kimothi, M. M., & Dhaundiyal, V. K. (2014). Geospatial Technology for identification of suitable sites for mulberry plantation: A case study of Uttarakhand state. *ISRS Proceeding Papers Dec*, 9-12.
- ^o U.S. Department of Agriculture Natural Resources Conservation Service. (n.d.). *Morus alba L.* PLANTS Database. <https://plants.sc.egov.usda.gov/plant-profile/MOAL>
- ^p Wilson, M. (2018). *Perennial pathways: Planting tree crops*. Savanna Institute. <https://www.savannainstitute.org/planting-tree-crops/>