Hops – *Humulus lupulus*

Key Cultivars:

- Cascade
- Centennial
- Chinook
- Newport
- Nugget
- Galena

Climate Risk Notes:

Different cultivars are grown to produce distinctive flavors and aromas. These can be combined by brewers to create many different specialty beers. As temperatures continue to increase, cultivars with high heat resistance will likely be favored.

Diseases like powdery mildew and downy mildew are one of the main issues when producing hops. To avoid this, hops are mainly grown on sandier, well-draining soils. Because of this low water holding capacity of the soils, irrigation is often used to provide hops with a sufficient amount of water.

Vernalization period of 1-2 months of continuous <40F temperature during the dormant stage is required to produce cones. Therefore, large fluctuations in temperatures may make hops less viable in Wisconsin.

	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 [g]	Dormant [g]	Dormant [g]	Dormant [g]	Spring regrowth [g]	Vegetative growth, Planting [g]	Vegetative growth, Planting [g]	Vegetative growth, Reproductive growth [b, g]	Reproductive growth, Harvest [g]	Harvest, Dormant [g]	Dormant [g]	Dormant [g]
Min Temp *(°F)*	-15 [b, m]	-15 [b, m]	-15 [b, m]	-15 [b, m]	32 [b]	32 [b]	32 [b]	32 [b]	32 [b]	32 [b]	5 [i, j]	-15 [b, m]
Max Temp *(°F)*	40 [b, k, l, m]	40 [b, k, l, m]	40 [b, k, l, m]	40 [b, k, l, m]	90 [d, g, n]	90 [d, g, n]	90 [d, g, n]	90 [d, g, n]	90 [d, g, n]	90 [d, g, l]	40 [b, k, l, m]	40 [b, k, l, m]
Ideal Precipitation (in/week)					1.5 [b]	1.5 [b]	1.5 [b]	1.5 [b]	1.5 [b]			

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 (40°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)**
5 [i, j]	85 [b, d, h, o]	-15 [b, k]	90 [b, e, h, o]	NA [n]	2500 [d, e, f]	800 [k, l, m]	55 [a, l, n]	80 [a, l, n]	5.5 [f, g, l]	8 [f, g, l]	Sand, sandy loam, loamy sand, loam, sandy clay loam [f, k, l]	Silt loam, clay loam, silty clay loam, silty clay, silt, clay [k, m, p]	Well drained [f, k, l]	Somewhat excessively drained. Moderately well drained [f, k, l]	36 [c, f, l]

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