



Common Name	Latin name	Height (ft) <sup>1,2</sup>	Hardiness <sup>1,2</sup> Zone	Growth Rate <sup>1,2</sup>			Longevity <sup>3</sup>	Soil Moisture <sup>1,2</sup>			Soil pH <sup>1,2</sup>			Shade tolerance <sup>1,2</sup>			Climate Resilience <sup>4,5</sup>	Pros <sup>1,2,6,7</sup>	Cons <sup>1,2,6,7</sup>
				Slow	Moderate	Fast		Dry	Moist	Wet	Acidic	Neutral	Alkaline	Full Sun	Part Sun	Shade			
Balsam Fir	<i>Abies balsamea</i>	50-70	3-5	X			Short		X	X	X			X	X	X	-	Evergreen	Vulnerable to deer browse, prone to windthrow
Box Elder	<i>Acer negundo</i>	30-50	3-9			X	Short	X	X	X	X	X	X	X			+	Drought tolerant	Weedy, structurally weak, intolerant of salt spray, messy fruit
Striped Maple	<i>Acer pensylvanicum</i>	15-20	3-7	X			Short		X		X	X			X	X	-	Relatively deer resistant	Intolerant of full sun
Red Maple	<i>Acer rubrum</i>	40-60	3-9		X		Medium		X	X	X	X	X	X	X		0	Tolerant of soil compaction/flooding	Vulnerable to damage by deer browse, pollution & salt spray
Sugar Maple	<i>Acer saccharum</i>	60-75	4-8		X		Long		X		X	X	X	X	X	X	-	Long-lived, can use for maple syrup	Vulnerable to damage by deer browse, pollution, salt spray & drought
Ohio Buckeye	<i>Aesculus glabra</i>	20-40	3-7		X		Medium	X	X	X	X	X	X	X	X		+	Moderately drought tolerant	Messy fruits
Downy serviceberry	<i>Amelanchier arborea</i>	15-25	4-9		X		Medium	X	X	X	X	X	X	X	X		+	Versatile, fruit provides food for birds	Vulnerable to deer browse
River Birch	<i>Betula nigra</i>	20-60	4-9		X	X	Short		X	X	X			X			0	Relatively resistant to deer browse, salt spray, & soil compaction; fast growing	Short-lived, non-native, intolerant of drought
American Hornbeam	<i>Carpinus caroliniana</i>	20-30	3-9	X			Short	X	X	X	X	X	X	X	X	X	-	Relatively deer resistant, moderately drought tolerant	Intolerant of salt spray
Shagbark Hickory	<i>Carya ovata</i>	60-80	4-9	X			Long	X	X		X	X	X	X	X		+	Tolerant of salt spray and drought; edible fruit	Intolerant of poor drainage
Hackberry	<i>Celtis occidentalis</i>	40-60	2-9		X	X	Medium	X	X	X	X	X	X	X	X		+	Tolerant of drought and salt spray	Highly susceptible to ice damage, structurally weak
Eastern Redbud	<i>Cercis canadensis</i>	20-30	4-9		X	X	Short		X		X	X	X	X	X		+	Beautiful spring flowers	Vulnerable to damage by deer browse, drought & salt; messy fruit
Flowering Dogwood	<i>Cornus florida</i>	15-30	5-9	X			Long		X		X				X	X	+	Relatively deer resistant; showy flowers & attractive fall foliage	Vulnerable to damage by pollution, salt spray & drought
Gray Dogwood	<i>Cornus racemosa</i>	5-10	3-8	X			Short	X	X	X		X	X	X	X	X	+	Shade tolerant, fruit eaten by birds	Vulnerable to deer browse
Washington Hawthorn	<i>Crataegus phaenopyrum</i>	20-30	3-8		X		Long*	X	X	X	X	X	X	X	X		+	Relatively resistant to deer browse and drought; showy flowers	Dangerous thorns, intolerant of salt spray, non-native
Kentucky Coffee	<i>Gymnocladus dioica</i>	60-75	3-8		X		Medium	X	X	X	X	X	X	X			+	Tolerant of drought & salt spray	Messy fruits
Eastern Red-cedar	<i>Juniperus virginiana</i>	40-50	3-9		X		Long	X	X		X	X	X	X			0	Relatively resistant to deer browse, salt spray & drought; showy fruit	Intolerant of poor drainage
Tulip Tree	<i>Liriodendron tulipifera</i>	60-90	6-9			X	Medium		X		X	X	X	X	X		+	Showy spring flowers, attractive fall foliage	Structurally weak, intolerant of salt spray, drought & poor drainage
Black Gum	<i>Nyssa sylvatica</i>	30-50	4-9		X		Medium	X	X	X	X	X		X	X		+	Tolerant of salt spray, drought & poor drainage; showy fruit	Can develop cankers or leaf spots, intolerant of alkaline soils
Eastern Hophornbeam	<i>Ostrya virginiana</i>	25-40	3-9	X			Medium	X	X		X	X	X	X	X		0	Tolerant of salt spray & drought	Intolerant of poor drainage
White Spruce	<i>Picea glauca</i>	60-80	2-6		X		Long		X		X	X	X		X		-	Versatile, long-lived	Vulnerable to damage by deer browse, salt spray, drought & poor drainage

# Tree Planting Recommendations



Climate Resilience Key - Predicted future climate impact on species: Positive impact (+); Negative impact (-); No impact (0)





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				Slow	Moderate	Fast		Dry	Moist	Wet	Acidic	Neutral	Alkaline	Full Sun	Part Sun	Shade				
<b>Black Spruce</b>	<i>Picea mariana</i>	30-60	2-6	X			Medium		X	X	X				X			-	Resistant to deer browse & soil compaction	May be stressed in warm climates, prone to windthrow
<b>Red Pine</b>	<i>Pinus resinosa</i>	50-80	2-5		X		Long	X	X		X				X	X		-	Resistant to deer browse, salt spray & drought; showy fruit	Susceptible to some minor diseases and insects
<b>White Pine</b>	<i>Pinus strobus</i>	50-80	3-7		X	X	Long		X	X	X	X			X	X		-	Tolerant of poor drainage	Vulnerable to damage by deer browse, pollution, salt spray & drought
<b>Sycamore</b>	<i>Platanus occidentalis</i>	75-100	4-9			X	Long	X	X	X	X	X	X	X	X	X		0	Tolerant of salt spray & poor drainage	Intolerant of drought, messy fruits
<b>Black Cherry</b>	<i>Prunus serotina</i>	50-80	3-9			X	Medium	X	X	X	X	X	X	X	X	X		-	Tolerant of drought & poor drainage	Vulnerable to damage by deer browse, ice damage, & salt spray
<b>White Oak</b>	<i>Quercus alba</i>	50-80	3-9		X		Long	X	X		X	X			X			+	Drought tolerant; less susceptible to oak wilt; fall color	Vulnerable to damage by deer browse, salt spray & poor drainage
<b>Swamp White Oak</b>	<i>Quercus bicolor</i>	50-60	4-8		X		Long	X	X	X	X	X	X	X	X			0	Tolerant of soil compaction, drought and poor drainage; less susceptible to oak wilt	Vulnerable to deer browse & salt spray
<b>Bur Oak</b>	<i>Quercus macrocarpa</i>	70-89	3-8	X			Long	X	X	X	X	X	X	X	X			+	Drought tolerant; less susceptible to oak wilt; fall color	Vulnerable to deer browse & salt spray
<b>Chinkapin Oak</b>	<i>Quercus muehlenbergii</i>	50-80	5-7	X	X		Medium	X	X	X	X	X	X	X	X			+	Tolerant of drought & poor drainage; less susceptible to oak wilt; fall color	Vulnerable to damage by deer browse and salt spray
<b>Shumard Oak</b>	<i>Quercus shumardii</i>	40-60	5-9		X		Long	X	X	X	X	X	X	X	X	X		+	Tolerant to drought and poor drainage, nice fall color	Vulnerable to damage by deer browse & salt spray
<b>Sassafras</b>	<i>Sassafras albidum</i>	20-30	4-9		X	X	Short	X	X		X	X	X	X	X	X		+	Resistant to deer browse, salt spray & drought; attractive fall color	Excessive sucker growth, short-lived, intolerant of poor drainage
<b>White Cedar</b>	<i>Thuja occidentalis</i>	40-60	3-7		X		Medium	X	X	X	X	X			X	X		0	Tolerant of soil compaction, salt spray, drought & poor drainage	Highly vulnerable to deer browse
<b>American Basswood</b>	<i>Tilia americana</i>	60-80	3-8		X		Long	X	X	X	X	X	X	X	X	X		0	Tolerant of drought & poor drainage; showy flowers	Vulnerable to damage by deer browse, ice, salt spray and pollution
<b>American Elm</b>	<i>Ulmus americana</i>	60-80	3-9		X	X	Medium	X	X	X	X	X	X	X	X			0	Tolerant of salt spray, drought & poor drainage; nice fall color	Vulnerable to Dutch elm disease, choose disease resistant varieties
<b>Nannyberry Viburnum</b>	<i>Viburnum lentago</i>	10-18	3-7		X		Short	X	X	X			X	X	X			+	Resistant to deer browse & salt spray; versatile	Short-lived

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**References:**

1. The Morton Arboretum. Tree and plant selection. <https://www.mortonarb.org/trees-plants/tree-and-plant-selection>.
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3. Barnes, B. V., & Wagner, W. H. (2004). Michigan trees: a guide to the trees of the Great Lakes region. University of Michigan Press.
4. Huron River Watershed Council and Great Lakes Integrated Sciences and Assessments. Climate Resilient Communities: Review of climate impacts to tree species of the Huron River watershed. <https://www.hrwc.org/wp-content/uploads/2013/03/Natural%20Infrastructure.pdf>.
5. Oakland County Parks and Recreation Natural Resources Staff interpret climate resilience for trees NOT modelled by HRWC, based on characteristics like geographic range and tolerance to drought and flooding.
6. Pusateri Burroughs, J. & Dudek T.A. (July 2008). Deer-Resistant Plants for Homeowners. MSU Extension. [https://www.canr.msu.edu/ipm/uploads/files/deer\\_resistant\\_plants.pdf](https://www.canr.msu.edu/ipm/uploads/files/deer_resistant_plants.pdf).
7. Cregg, B.. (May 19 2006). Selection of salt tolerant trees. MSU Extension. [https://www.canr.msu.edu/news/selection\\_of\\_salt\\_tolerant\\_trees](https://www.canr.msu.edu/news/selection_of_salt_tolerant_trees).



**Selecting trees:**

- Purchase trees grown locally: Many nurseries stock trees that are shipped in from other regions and may not be tolerant of Michigan’s weather. For lower tree mortality, source locally grown stock.
- Choose straight species: Ask for straight species (when available), not cultivars.
- Plant small: After planting, trees establish roots before expanding their canopy. It takes approximately 1 year per inch of trunk diameter to establish roots before canopy expansion.

This means that three years after purchasing a 1” diameter tree it has expanded its canopy for two years. A 3” diameter tree has taken all three years to establish its larger root system. So, over a 10-year period a tree that was smaller when planted can grow to be larger and healthier than a tree of the same species that was larger when planted. Smaller trees are also easier to handle and require less work to plant and maintain.

**Planting Tips**

- Spring or fall are the best times to plant. Spring allows the trees an entire growing season to establish roots and prepare for winter.
- Choose the correct soil and sun conditions for a selected species.
- Dig the hole 2 times wider than the diameter of the root ball (e.g., for a 1-foot diameter root ball dig the hole 2-feet in diameter) and only dig as deep as the root ball.
- When placing the tree in the hole, make sure the tree is straight and that the top of the root ball is level with, or slightly higher than, the surrounding soil.
- Don’t add soil to the top of the root ball. Backfill the rest of the hole and sides of the root ball with the same soil taken out of the hole.
- Mulch the trees after planting to help with water retention and to prevent weeds. Don’t allow mulch to touch the trunk of the tree.
- Keep the soil moist, but not saturated, the first year after planting. Adjust watering patterns to the weather.