

RESEARCH LABORATORY TECHNICAL REPORT



Optimum Soil pH Ranges For Selected Common Tree Species

Neil Hendrickson, PhD, Forestry

Soil pH affects the nutrient uptake ability of trees and shrubs. When pH values are above or below the optimum range, the uptake of certain nutrients is limited. This will affect the physiology of the plant and can result in obvious nutrient deficiencies, weakening of the plant's ability to defend itself against certain insects or diseases, and/or make it more susceptible to some abiotic disorders.

Soil pH is determined with a soil nutrient analysis or with in-field test of the soil. The most accurate and in-depth soil analysis is obtained by submitting a soil sample for testing to a specialized laboratory. Field tests that utilize a glass electrode probe device can also be used and are more accurate than those that use litmus paper or steel electrodes. For greatest accuracy, pH meters should be calibrated on a regular basis.

Common Name	Optimum pH Range			
	Low	High		
Arborvitae	6	7.5	Maple, Japanese	6 7.5
Ash, Green or Red	5	8	Maple, Norway	4 7.5
Ash, White	5	7.5	Maple, Red	5 6
Beech, American	4.5	6.5	Maple, Silver	4.5 6.5
Birch	5	6.5	Maple, Sugar	5.5 7
Cherry	5	7	Oak, Pin	5 6
Crabapple	5	7.5	Oak, Red/Northern Red	4.5 6
Dogwood	5	6.5	Oak, White	5 6.5
Elm	5.5	8	Pear, Callery	5 6.5
Fir	5	6.5	Pine, Austrian	4 7
Fir, Douglas	6	7	Pine, Eastern White	5 7
Ginkgo	6	7	Pine, Japanese Black	4.5 6.5
Hawthorn	5.5	6.5	Pine, Scots	5 7
Hemlock	5	6	Redbud, Eastern	4.5 7.5
Holly	4.5	6.5	Sassafras	6 7
Honeylocust	6	8	Serviceberry	5 6.5
Hornbeam	6	8	Sophora (<i>Styphnolobium</i>)	4.5 7
Horsechestnut	5	6	Spruce, Colorado Blue	6 7
Juniper	5	6	Spruce, Norway	5 7
Linden	4.5	7.5	Sweetgum	6 7
Magnolia	5	6	Sycamore	6 7.5
			Tulip poplar	6 7
			Tupelo, Black	6 7
			Walnut	6 8

