

Selecting Trees & Shrubs for Alkaline Conditions

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Soil pH or level of acidity/alkalinity is a critical soil condition that needs to be considered when selecting trees and shrubs for planting. Many trees are adaptable to a wide range of soil pH levels, but a few species are sensitive to high or low pH levels. This sensitivity can have a detrimental effect on the long-term health of the plant.

Most woody plants will grow in a pH range from 5.0 to 6.5. High pH levels or alkaline soils that range from 7.0 to 8.0 and above have the greatest impact on the health of some sensitive species. This usually results in a nutrient deficiency in the plant that appears as chlorotic foliage or foliage that appears dull green or yellowish. Iron deficiency is the most common problem. The deficiency occurs because at high pH levels Iron becomes immobile in the soil and cannot be taken up by the plant.

Problems generally only occur when sensitive plants are planted in soils outside their pH tolerance range or when extreme pH levels exist. Other environmental stresses may contribute to the problem such as compacted, infertile or poorly drained soils.

It is important to know your soils relative pH level and soil properties when selecting species to plant. This will reduce the complications from the right plant in the wrong site. Choose plants from the list below to help you match the plant to the site.

This list is not all encompassing so research any plants not listed here. Remember plants are living organisms and as such do not always respond in predictable ways. One plant may thrive where it shouldn't and another may die in ideal conditions.

COMMON NAME	GENUS
Native trees, pH 5.0-7.4	
Silver maple	Acer saccharinum
Sugar maple	Acer saccharum
Serviceberry	Amelanchier laevis
Bitternut hickory	Carya cordiformis
Shagbark hickory	Carya ovata
Tulip tree	Liriodendron tulipifera
White Pine	Pinus strobus
Black cherry	Prunus serotina
Am Chokeberry	Prunus virginiana
Shingle oak	Quercus imbricaria
Red oak	Quercus rubra
Black oak	Quercus velutina
Bald cypress	Taxodium distichum

Native trees, pH 5.0-8.0

Bottlebrush buckeye	<i>Aesculus parviflora</i>
Paper birch	<i>Betula papyrifera</i>
American hornbeam	<i>Carpinus caroliniana</i>
Catalpa	<i>Catalpa speciosa</i>
Hackberry	<i>Celtis occidentalis</i>
Redbud	<i>Cercis canadensis</i>
Yellow wood	<i>Cladrastis lutea</i>
American smoketree	<i>Cotinus obvatus</i>
Washington Thorn	<i>Crataegus phaenopyrum</i>
Persimmon	<i>Diospyros virginiana</i>
American ash	<i>Fraxinus americana</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Honey locust	<i>Gleditsia triocanthus inermis</i>
Kentucky coffee tree	<i>Gymnocladus dioica</i>
Butternut	<i>Juglans cinerea</i>
English walnut	<i>Juglans regia</i>
Cucumber magnolia	<i>Magnolia acuminata</i>
Hophornbeam	<i>Ostrya virginiana</i>
American sycamore	<i>Platanus occidentalis</i>
Scarlet oak	<i>Quercus coccinea</i>
Bur oak	<i>Quercus macrocarpa</i>
Chinkapin oak	<i>Quercus muehlenbergii</i>
American linden	<i>Tilia americana</i>
American elm	<i>Ulmus americana</i>

Shrubs, pH 5.0-7.4

Black Chokeberry	<i>Aronia melanocarpa</i>
Red Chokeberry	<i>Aronia arbutifolia</i>
American witchhazel	<i>Hamamelis virginiana</i>
Am. cranberry bush vib.	<i>Viburnum trilobum</i>

Shrubs, pH 5.0-8.0

Sweet shrub	<i>Calycanthus floridus</i>
Red twig dogwood	<i>Cornus alba</i>
Gray dogwood	<i>Cornus racemosa</i>
Redosier dogwood	<i>Cornus sericea</i>
Beaked filbert	<i>Corylus cornuta</i>
Arrowwood viburnum	<i>Viburnum dentatum</i>
Nannyberry viburnum	<i>Viburnum lentago</i>
Euro. cranberry bush vib.	<i>Viburnum opulus</i>
Blackhaw viburnum	<i>Viburnum prunifolium</i>

Non-native trees, pH 5.0-7.4

Tartarian maple	<i>Acer tartaricum</i>
Cedar of lebanon	<i>Cedrus libani</i>
Katsura tree	<i>Cercidiphyllum japonicum</i>
Dawn redwood	<i>Metasequoia glyptostroboides</i>
Persian parrotia	<i>Parrotia persica</i>
Sargent cherry	<i>Prunus sargentii</i>
Douglas fir	<i>Pseudotsuga menziesii</i>
Japanese tree lilac	<i>Syringa reticulata</i>

Non-native trees, pH 5.0-8.0

English maple	<i>Acer campestre</i>
Amur maple	<i>Acer ginnala</i>
Paperbark maple	<i>Acer grisium</i>
Norway maple	<i>Acer platanoides</i>
Sycamore maple	<i>Acer pseudoplatanus</i>
Rubyred horsechestnut	<i>Aesculus x carnea</i>
European hornbeam	<i>Carpinus betulus</i>
Cornelian cherry dogwood	<i>Cornus mas</i>
Turkish filbert	<i>Corylus colurna</i>
Smoke Tree	<i>Cotinus coggygria</i>
Hardy rubber tree	<i>Eucommia ulmoides</i>
European beech	<i>Fagus sylvatica purpurea</i>
Ginko	<i>Ginko biloba</i>
Golden rain tree	<i>Koelreuteria paniculata</i>
Golden chain tree	<i>Laburnum alpinum</i>
Golden chain tree	<i>Laburnum x watereri</i>
Star magnolia	<i>Magnolia stellata</i>
Saucer magnolia	<i>Magnolia x soulangiana</i>
Crab apple	<i>Malus species</i>
Amur corktree	<i>Phellodendron amurense</i>
London planetree	<i>Platanus x acerifolia</i>
English oak	<i>Quercus robur 'Fastigiata'</i>
European Mt Ash	<i>Sorbus acuparia</i>
Korean Mt Ash	<i>Sorbus alnifolia</i>
Japanese stewartia	<i>Stewartia pseudocamillia</i>
Japanese pagoda tree	<i>Styphnolobium japonica</i>
Little leaf linden	<i>Tilia cordata</i>
Silver linden	<i>Tilia tomentosa</i>
Chinese elm	<i>Ulmus parviflora</i>
Japanese zelkova	<i>Zelkova serrata</i>