

HOME GROUNDS FACT SHEET



Cornell University
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Nassau County



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Soil Acidity/Alkalinity Needs for Plants

Plant growth is directly affected by soil acidity. Relative acidity and alkalinity are expressed in terms of a pH value. The pH value range from 0.0 to 14.0 with 7.0 being neutral, below 7.0, acid and above 7.0, alkaline.

pH 4.5-5.4 strongly acid	pH 5.5-5.9 medium acid	pH 6.0-6.9 slightly acid	pH 7.0 neutral	pH 7.1-7.5 slightly alkaline	pH 7.6-8.0 medium alkaline	pH 8.1-9.5 strongly alkaline
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Plants do not grow well in soils that are either extremely acid or alkaline. The availability of some plant nutrients is regulated by the acidity or alkalinity of the soil and can become toxic if the plant is not growing in the correct pH range. Most plants prefer a pH of 6.0 to 7.0, although the range of tolerance is quite wide. It is important that plants be grouped with other plants that require the same pH range. This is critical when designing new planting areas. The typical symptom of an acid-loving plant subjected to too much alkalinity is yellowing of the leaves, technically known as chlorosis. Be sure to have the soil of your new planting areas checked periodically to make sure the plants are growing in their proper pH range. (See the chart below for guidelines.)

On Long Island and regions with high rainfall and humidity, the soil tends to be naturally acid. Sudden or large changes in pH values do not occur because of buffering properties in the soil. However, this resistance to pH change can be overcome by adding different materials. The pH can be raised by tilling limestone into the soil, either in early spring or fall. To lower the pH add iron sulfate, finely ground sulfur or aluminum sulfate. Materials such as peat moss, pine needles and oak leaves may also lower pH slightly.

The following is a list of common plants and the pH they prefer:

pH Preferences					
Andromeda	—	5.0 - 6.0	Lobelia	—	6.0 - 7.5
Apples	—	5.0 - 6.5	Magnolia	—	5.0 - 6.0
Asparagus	—	6.0 - 7.0	Mock Orange	—	6.0 - 7.5
Azalea	—	4.5 - 6.0	Mulberry	—	6.0 - 7.5
Beans, Lima	—	6.0 - 7.0	Oak, Pin	—	5.0 - 6.5
Beans, Snap	—	6.0 - 7.5	Onion	—	5.8 - 7.0
Blueberries	—	4.5 - 5.5	Parsley	—	5.5 - 7.0
Cabbage	—	6.0 - 7.5	Parsnips	—	6.0 - 7.0
Corn	—	6.0 - 7.0	Peas	—	6.0 - 7.0
Cucumber	—	6.0 - 7.0	Pine, White	—	4.5 - 6.0
Daisy, Shasta	—	6.0 - 6.5	Potatoes	—	4.8 - 6.0
Eggplant	—	6.5 - 7.5	Privet	—	6.0 - 7.0
Endive	—	5.8 - 7.0	Radish	—	6.0 - 7.0
Garlic	—	5.5 - 8.0	Rhododendron	—	5.0 - 5.5
Geranium	—	6.0 - 8.0	Rhubarb	—	5.5 - 7.0
Gooseberry	—	5.0 - 6.5	Rye	—	5.0 - 7.0
Grape	—	6.0 - 7.0	Spinach	—	6.0 - 7.5
Hemlock	—	5.0 - 6.0	Squash	—	6.0 - 7.0
Honey Locust	—	6.0 - 7.5	Strawberries	—	5.5 - 6.5
Horseradish	—	6.0 - 7.0	Sycamore	—	6.0 - 7.5
Juniper, Creeping	—	5.0 - 6.0	Tomatoes	—	6.0 - 7.0
Kale	—	6.0 - 7.5	Turnips	—	6.0 - 6.8
Kohl-Rabi	—	6.0 - 7.5	Yew, Canada	—	5.0 - 6.0
Lettuce	—	6.0 - 7.0	Yew, Japanese	—	6.0 - 7.0

If you do not know what your soil pH is, you can have it tested at your Cornell Cooperative Extension office or local garden center. See leaflet A-1-0 for testing information.

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