



Interpretation of Soil pH Results¹



About pH

Soil pH is one of many relevant factors affecting a garden. It is part of the chemical status of soil, along with nutrients and their balance. Physical factors are also important. They include location, exposure, drainage, aeration, and moisture holding capacity of the soil. And, finally, biological factors, the diversity of soil organisms, can mean the difference between a productive garden and a problematic one.

In the southern Willamette valley, soil pH is generally between 5.5 and 7.5. If your pH is way outside that range or if the pH test comes back with an odd or unexpected result, it might be wise to go to the OSU Plant Clinic in Corvallis or a commercial lab to get it checked.

Measuring pH

Soil pH is the measurement of the degree of acidity or alkalinity of the soil. It is measured on a scale of 0 to 14, with lower numbers more acidic and higher numbers more alkaline. The value of 7.0 is neutral—i.e., neither acidic nor alkaline.

In general, most plants grow best in a neutral soil pH, although there are important exceptions. For example, blueberries, azaleas and rhododendrons do well in soil pH between 4.5 and 5.5. Lawns favor a pH of 5.5 to 6, while roses do best in soils with a pH of 6.5 to 7.

When pH levels are too high or too low for a given plant, minerals are bound to soil particles and, thus, unavailable to that plant. In this situation, adding more fertilizer won't do any good. Both the quantities of minerals present in native soil and annual rainfall affect soil pH. In Western Oregon, rain tends to leach out minerals and results in soils that become more acidic. In Eastern Oregon soils are more alkaline.

Types of Soil Tests

There are two primary types of soil test: One measures soil minerals and the other measures soil pH. A test for minerals measures the soil nutrients that are available to the plant. This test needs to be done in a professional lab. Soil pH can be tested by the Lane County Master Gardener Association.

¹ Oregon State University, 10 Minute University, Oregon Master Gardener Association—Clackamas County Chapter in Cooperation with Oregon State University Extension Service, "Testing Soil pH".

To Adjust Soil pH

It is best to adjust soil pH over several years. Add the appropriate amendment in the fall; check the soil pH again in 3 to 6 months. Repeat as needed.

To raise soil pH, add lime. Doing so in the fall produces optimal results. Use 5 to 10 pounds lime per 100 square feet if mixing into the soil before planting. For established lawns or plants, add 5 pounds per 100 square feet. Retest soil pH in 3 to 6 months to see whether you've achieved the target pH. For more information about raising soil pH, see EC 1478.

There are various forms of lime—powdered, granular, or pelletized. Granular or pelletized lime is easier to spread. If using powdered form, wear a mask. Dolomite lime contains magnesium and makes a good choice for gardeners in Western Oregon where soils are often deficient in magnesium. To avoid applying too much magnesium, use dolomite lime only every third or fourth lime application.

Soil pH greater than 7.0 is uncommon west of the Cascades, so gardeners in this area typically acidify their soil only for growing acid-loving plants. Soils on the east side of the Cascades are alkaline, and may need to be acidified for all crops.

To lower soil pH, add elemental sulfur. If using powdered form, wear a mask. Like lime, sulfur is best added in the fall. It is more effective to add it to an area before planting. For established trees and shrubs, add a small amount to the soil along the drip line, or broadcast in a band along a row of blueberries. For more information about lowering soil pH, see EC 1560A soil pH test in 3 to 6 months will let you know if more is needed.

OSU Extension Service resources

Visit the Lane County OSU Extension Service office at 996 Jefferson St, Eugene, OR, for these publications, or get them online at <http://extension.oregonstate.edu/catalog>

---*Soil Test Interpretation Guide* EC 1478

---*A List of Analytical Labs Serving Oregon* EM 1550

---*Soil Sampling for Home Gardens and Small Acreages* EC 628

---*Acidifying Soil for Blueberries and Ornamental Plants in the Yard and Garden*, EC 1560

Lane County Master Gardeners™

Call the Plant Clinic at phone 541-344-0265. Hours are Monday-Thursday from 10am to 1pm and 2 to 5pm. Their email is lanemg@oregonstate.edu.