

- **I am a new gardener and would like to grow vegetables. I have heard the soil pH is important. What is pH and how important is it for growing vegetables?**

The pH describes the relative acidity or alkalinity of soil, which affects a plant's ability to take up the nutrients needed to grow and thrive. It also influences the number of micro-organisms in the soil such as soil fungi and bacteria. These micro-organisms make dissolved nutrients from the soil available to feed plant roots. Rich, moist soils with a slightly acidic pH host more of these life forms compared to soils that are very acidic (peat bogs) or alkaline (limestone outcroppings or deserts). pH is expressed as a number between 0 and 14. Soil with a pH of 7 is neutral, an acid soil has a lower value, and an alkaline soil has a higher one. Most plants grow best in soil that's within a specific pH range, so it's useful to know your soil's pH.

Testing kits are easy to use and widely available in garden centres and online and there are also laboratories that will do testing for you.

Soil testing on Vancouver Island can be carried out at: [https:// www.mblabs.com](https://www.mblabs.com)

The pH value of a soil is influenced by the kinds of parent materials from which the soil was formed. Soils developed from basic rocks generally have higher pH values than those formed from acid rocks.

Rainfall also affects soil pH. Water passing through the soil leaches basic nutrients such as calcium and magnesium from the soil. They are replaced by acidic elements such as aluminum and iron. For this reason, soils formed under high rainfall conditions such as the Pacific Northwest, are more acidic than those formed under arid (dry) conditions.

Having the right soil pH is key to growing a healthy garden, but it's a factor that's often not considered before adding amendments to improve nutrient levels or soil consistency. While these are also crucial things to consider, the pH of the soil plays a major role in how well your plants can absorb the nutrients you provide. The major impact that extremes in pH have on plant growth is related to either the availability of plant nutrients or the soil concentration of plant-toxic minerals. In highly acid soils, aluminum and manganese can become more available and more toxic to the plant. Also at low pH values, calcium, phosphorus and magnesium are less available to the plant. At pH values of 6.5 and above, phosphorus and most of the micronutrients become less available.

Most vegetables grow in slightly acidic to neutral soils. The following chart shows the ideal range for various types of produce. You can see that potatoes prefer the soil a little more acidic while Asparagus will grow in soil that is a little more alkaline. A range of between 5.5 and 7.5 is the sweet spot for most vegetables.

Preferred range for vegetables

Asparagus	6.0-8.0
Bean, pole	6.0-7.5

<u>Beet</u>	6.0-7.5
<u>Broccoli</u>	6.0-7.0
<u>Brussels sprout</u>	6.0-7.5
<u>Cabbage</u>	6.0-7.0
<u>Carrot</u>	5.5-7.0
<u>Cauliflower</u>	5.5-7.5
<u>Celery</u>	5.8-7.0
<u>Chive</u>	6.0-7.0
<u>Cucumber</u>	5.5-7.0
<u>Garlic</u>	5.5-8.0
<u>Kale</u>	6.0-7.5
<u>Lettuce</u>	6.0-7.0
<u>Pea, sweet</u>	6.0-7.5
<u>Pepper, sweet</u>	5.5-7.0
<u>Potato</u>	4.8-6.5
<u>Pumpkin</u>	5.5-7.5
<u>Radish</u>	6.0-7.0
<u>Spinach</u>	6.0-7.5
<u>Squash, crookneck</u>	6.0-7.5
<u>Squash, Hubbard</u>	5.5-7.0
<u>Tomato</u>	5.5-7.5

Mulching vegetable beds with a layer of natural fertilizer such as compost and composted manure will increase the micro-organisms within the soil and help keep most soils within the correct pH range to keep a vegetable garden healthy. The decomposition of organic matter adds to soil acidity.

Elemental Sulphur, iron sulphate and other acidifying agents can sometimes be added to reduce pH in soil that is overly alkaline. Clay soils may require large amounts of acidifying material.

Sources:

<https://hgic.clemson.edu/factsheet/changing-the-ph-of-your-soil>

<https://www.growveg.com/guides/soil-ph-for-organic-gardeners>

<https://www.almanac.com/plant-ph>

Sustainable Gardening,