

SOIL pH IMPORTANCE

What is soil pH?

In simple terms soil pH is measuring how acid or alkaline the soil condition is. It is measured on a logarithmic scale 0 to 14 with a neutral value of 7 in the middle, pH value below 7 is acidic soil and pH value above 7 is alkaline.



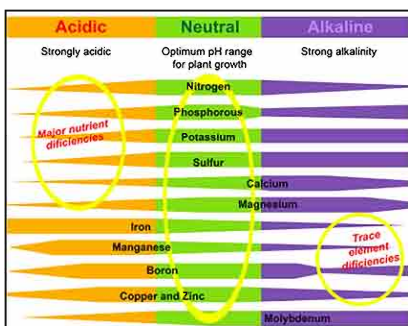
Why is soil pH so important?

Maintaining optimal soil pH is crucial as it directly influences the root activity and absorption of nutrients which are both important for healthy growth of plants. Plant roots are very sensitive and are affected by excessive acidity (low pH) and alkalinity (high pH) in soils.

- All the nutrients are easily available at a pH range of 6-7.

- Under alkaline conditions, trace elements such as Iron, Zinc & Manganese are less available for plants to take up, resulting in trace element deficiencies.

- On the other hand, under high acidic conditions, major nutrients like Nitrogen, Phosphorus, Potassium, Magnesium and Calcium become less available resulting in deficiency symptoms.



What is the optimal pH required by plants?

Most plants grow best in soils that are slightly acidic to neutral range of pH 6-7. Some plants however often referred to as acid loving plants (such as Azalea, Camellias, Blue berries etc) can grow under acidic conditions (pH 5 to 6), but not many plants like alkaline conditions.

Most Plants prefer (pH 6 to 7)	Acid Loving plants prefer (pH 5 to 6)	Only a few plants Can grow at slightly alkaline pH (pH 7 to 7.5)
Most fruit & citrus trees	Azaleas & Camellias	Lilac
Most vegetables	Gardenia, Blue berries	Figs
Roses & most flowers	Rhododendrons	Pink Hydrangeas
Lawn & most garden plants	Blue Hydrangeas	Black Currents

Note: Although a few plant groups prefer slightly acid or alkaline pH conditions as above, they also grow well under neutral pH range of 6-7.

HOW TO TEST SOIL pH

- Soil pH can easily be tested by using a Manutec Soil pH Test Kit.
- Developed on CSIRO research, it is accurate, easy, economical & instant.
- This kit is used to test soils, compost, potting mixes. It is widely used and a recommended kit for home gardeners, professional horticulturists and farmers.

Taking Soil Sample

- Collect a small sample of soil from the area to be tested. If soil is hard and lumpy, crush to make it a bit finer which will make it easy for mixing and testing.
- For shallow rooted plants sample should be taken at a depth of about 10-15 cm below surface. If plants are deep rooted such as Fruit trees take sample at a depth of about 1 ft. (25-30 cm). Remove any debris like leaves/bark etc.
- This kit can also be used to test Potting mixes or compost, however while taking sample, try to remove any undecomposed large chunks such as bark.
- We recommend taking a sample about a half a tea spoon, any larger quantity sample you will be wasting liquid and powder.

Using Manutec pH Test Kit

A few simple steps illustrated below guide you through testing soil pH. Please note this is an illustration only, the actual colour you may get when tested can vary depending on pH of your soil. For more information see product packaging or visit www.soilphesting.com



1 Take a small soil sample on the white mixing plate and add a few drops of indicator dye.



2 Then mix the indicator liquid with the soil sample to make a thick paste.



3 Sprinkle white Barium powder from the puffer bottle on to the top of moist soil paste.

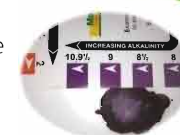


4 The white barium powder changes to a different colour, compare the new colour against closest colour on the colour chart to obtain a pH reading.

ADJUSTING SOIL pH

Lowering soil pH

If pH reading is higher than 7 on the colour chart, it means your soil is alkaline. So you have to lower the soil pH towards neutral, by adding acidifying materials like Sulphur to the soil.



Manutec Sulphur is the most common and economical product available to lower the pH of soils.

To lower the pH by one unit (for example from 7.5 to 6.5) use the following number of grams of Sulphur per square meter of area depending on soil type.

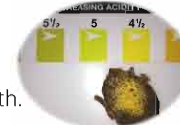
Sandy soils - 25 g/m² : Loamy soils - 50-70 g/m² : Clay soils - 100 g/m²

These amounts will lower the pH of the top soil by about 1 unit. To lower the pH value by 2 units or more, multiply the above recommendation by number of units to reduce.

Note: Sulphur is not soluble in water. When applied to soil, it is gradually converted to acid and reduces the pH. Hence the actual effect of pH change can be observed after approx. 4-6 weeks. So it is important to test the pH after this period and repeat the application if necessary.

Increasing soil pH

If the pH reading is lower than 6 on the colour chart, it means your soil is acidic and may affect plant growth.



To increase the pH, add Garden Lime or Dolomite. Both Garden lime and Dolomite are effective in increasing pH. The difference is Dolomite contains higher magnesium levels than Garden lime, and given that acidic soils are normally deficient in Magnesium, dolomite helps to enrich Magnesium levels. Do not apply lime if you are growing acid loving plants such as Azalea, Camellia, Rhododendrons etc.

To raise the pH of soils by one unit (for example from 5.5 to 6.5), use the following number of grams of Lime per square meter area depending on soil type.

Sandy soils - 100 g/m²: Loamy soils - 200 g/m²: Clay soils - 300 to 400 g/m²

Note: These amounts will raise the pH of the top soil by about one unit. To increase the pH value by 2 units or more, multiply the above recommendation by no. of units to increase. The soils that are naturally acidic need constant monitoring & checking.

SOIL pH PRODUCTS

Manutec Soil pH Test Kit is a simple, instant and economical kit to rapidly test the pH (acidity or alkalinity) of your garden soils and potting mixes. When used as directed, the contents will do in excess of 100 soil tests. Follow the directions on the package and use accordingly.



Sulphur is one of the essential elements to plants. It is necessary for the formation of Chlorophyll the green, light absorbing pigments in plants. A sulphur deficiency results in yellowing, usually of the whole plant, and small leaves with rolled down edges.



Sulphur is also the most economical and effective way of lowering the pH of soil. This is particularly important when growing acid loving plants such as azaleas, camellias and rhododendrons, as these plants prefer acidic soils.



Manutec Lime products are a finely ground natural limestone that reduces soil acidity and act as a soil conditioners. By reducing the acidity of soil (raising the soil pH) of very acidic soils, plants have better access to essential nutrients required for vigorous and healthy growth. When used on heavy clay soils will improve drainage and soil aeration. Supplies both Calcium and Magnesium. Do not apply near acid loving plants (e.g. azaleas, camellias, rhododendrons and gardenias).



Visit www.soilphtesting.com for details.



SOIL pH PRODUCTS



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SOLUBLE FERTILISERS



SOIL CONDITIONERS



FOR HEALTHY SOILS & HEALTHY NUTRITION



CORRECTIVE ELEMENTS



GROWING MEDIA PRODUCTS



ORGANIC FERTILISERS



SLOW RELEASE TABLETS/SPIKES

For further information on soil pH products, visit our specific website www.soilphtesting.com

For further information on other Garden care products, Trailer & Agricultural machinery products, please visit www.manutec.com.au



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Manutec

GARDEN CARE PRODUCTS

SOIL pH PRODUCTS

Product Information Guide



DID YOU KNOW?

When soils are too acidic or too alkaline, plants won't be able to absorb all the nutrients they need fully even though plenty available in the soil and plants don't respond no matter how much fertilisers you add. Test your soil, potting mixes and compost regularly to ensure your soils have a neutral pH between 6 and 7.