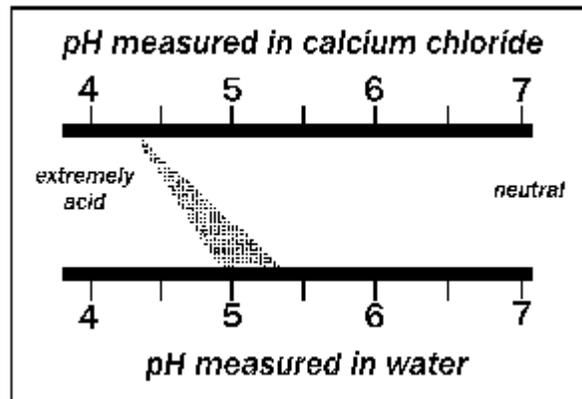


Information on Measurement of pH in Soil

Methods of pH Measurement

There are many different ways of measuring the pH of soil. Some use a saturated paste extract, others use a 1:5 dilution of soil: water, and then take a pH measurement on the resulting solution with a laboratory meter. Others use the 1:5 dilution, but instead of water they use a dilute Calcium Chloride (CaCl_2) solution. As a rough guide, the pH in CaCl_2 is usually 0.8 pH lower than in water, but can be as much as 2.0 pH units lower on grey sands. Ensure that you check the method used to measure your soil pH so that you are comparing similar methods.



USING A CALCIUM CHLORIDE SOLUTION FOR SOIL TEST

Using a dilute CaCl_2 solution will probably give more consistent results than using rainwater or diluted water. When the soil is diluted with water, most of the H^+ ions tend to remain attracted to the soil particles and are not released into the soil solution. The addition of small amounts of calcium chloride provides Ca_{2+} ions to replace some of the H^+ ions on the soil particles, forcing the hydrogen ions into the solution and making their concentration in the bulk solution closer to that found in the field. The pH measured in CaCl_2 is almost always lower than pH of the same soil measured in water due to the higher concentration of H^+ . The procedure gives a value similar to that for natural soil solution because the soil solution also contains dissolved Ca_{2+} and other ions

Make up a dilute CaCl_2 solution with distilled/deionised water to use as you need it. Ready made calcium chloride solutions often do not keep for very long, so buy CaCl_2 and make the solution yourself. The calcium chloride is usually the dehydrate form (water is attached to the crystals - it will have this written on the label of the container - $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$). Dissolve approximately 7.5g of the salt in 5 litres of distilled/deionised water. If you are using a form of calcium chloride crystals without any water attached (CaCl_2), dissolve about 5.5g of the salt in 5 litres. There is no need to be very accurate in your weighing as small errors will not effect the results.

Methods for Soil pH

Use the spoon to weigh out about 10g (to the nearest half gram), of your soil into the container. Add 50ml of distilled water to the soil. Any rough measurement ensuring a 1:5 diluted will suffice. Shake the container for about 2-3 minutes then allow the soil to settle for 2 minutes. If your soil has a high clay content and you require a very accurate result, it may not be necessary to filter the suspension. If filtering is not required, measure the pH value on the water above the soil in the container. Ensure you get a steady reading on the digital readout. Always wash your containers out before testing your next

sample.