



**IT IS ESSENTIAL THAT YOU CHECK THE pH OF YOUR SOIL, ESPECIALLY THOSE OF YOU WHO GROW YOUR OWN FRUIT AND VEG.**

In 2012 Following the wettest year for donkey's years (with over a month of 2012 to go, Manchester has already had a year-and-a-half's worth of rain), the RHS points out that the leaching away of nutrients, including bicarbonates (hydrogen carbonates), will have made soils more acid than normal. Most veg like a slightly alkaline pH (pH 7.5) and some fruits, especially stone fruits like plums and damsons, need a high level of calcium, that is found in lime and ground limestone, in their fruit formation. So in January get a soil pH test kit (available in the Hut) and use it. Then, add either lime or ground limestone to bring up the pH. Personally, I will lime beds for brassicas and peas and beans no matter what, late this winter, as both prefer a highish pH.

The RHS also points out that, while adding humus in the form of peat, garden compost and rotted manure helps open clay soils and enhances a light soil's capacity to hold moisture, these also tend to make the soil more acid. So again, having winter-dug and added plenty of humus to the ground, you need to check the pH in spring before planting crops.

Lastly, in the quagmire of 2012, fertilisers leached away quickly. One market gardener I know had his cabbage/sprout fields checked in late June and there was no measureable nitrogen left in the soil. It had all been washed away. So assume that there are no significant levels of the main elements for plant growth (nitrogen, phosphate, potassium) and it may be worth investing in Rock Dust to boost the micronutrient levels. Advert: we sell Rock Dust in our sale's hut.

## ***The Effect and Testing of Soil pH***

Soil pH is measured on a scale of 1 to 14 and a measure of how acidic (below 7) or alkaline (above 7) a solution is with 7.0 being neutral. Each plant has its own recommended soil pH value range and can have a direct influence on the health of the plant. The reason for this is that soil pH affects the availability of nutrients within the soil and plants have different nutrient needs.

For most garden plants best pH value range for soil is approximately 6 or 7 as general the as this is the range in which most nutrients can be readily available. If your plants are growing well and look healthy, your pH is probably OK. If your plants are having nutrient problems or are not growing vigorously, it's worth testing your pH. If the soil's pH is not within an acceptable range for the plants you are growing, the plants will not be able to access the nutrients in the soil, no matter how much you feed them.

So when planning and planting your garden or allotment, you need to know whether the soil is acid or alkaline, as different plants thrive in different soils. Once you know what the pH is then if needed take steps to change the pH value over time.

Different types of plants each require varying degrees of soil acidity. In fact, some plants are *very* sensitive to soil pH. Rhododendrons and heathers will not tolerate lime in the soil. On the other hand Clematis prefers and alkaline soil.

Sorrel, creeping buttercup, nettle, dock and mare's tail are all signs your soil is becoming or is too acid. Reducing soil acidity will help deter some weeds – they are evolved for acid soils unlike our normal crops.

### ***Measuring pH of Soil***

Finding out the pH of soil is quite simple with various types of test kits available at most good garden centres and from the NLWGA sales hut. With many you mix a soil sample with water and a few drops of testing solution then compare a colour change to a chart, but this can be time consuming when taking more



than a couple of samples. Alternatively use an electronic meter, which is much easier just requiring polishing and inserting into wet soil. For the best results, you can send a soil sample to a laboratory for detailed analysis. Testing can be done at any time, but if carried out within three months of adding lime, fertiliser or organic matter, the test may give misleading results.

Never make a judgement on the basis of just one test. You may have hit an area with particularly high or low pH. Take samples from a number of areas and this will give you a much better general view of your soil's acidity level.

### ***Changing the pH level of the soil***

Once you know what your pH is, you can begin to adjust it slowly; don't consider it as a quick fix it can take months to register a change in the pH and you will need to periodically retest your soil to insure it doesn't revert to its old pH. It is sometimes easier to simply change your plants to suit your pH.

### **Making Soil More Alkaline (Increase pH)**

Generally speaking, it is easier to make soils more alkaline than it is to make them more acid. This is done by adding Lime which is a compound of calcium or calcium and magnesium. It is usually applied in the form of ground garden limestone, or hydrated lime (slaked lime). The smaller the limestone particles then the quicker your soil will become more alkaline. For this reason hydrated lime will offer the quickest performance because it is slightly soluble in water so it can permeate the soil quicker and reduce acidity faster.

Because different soil types react in different ways to the application of lime you will have to add more lime to clay soils and peaty soils than you will in sandy soils to achieve the same result. It's usually best to lime your soil in the autumn and allow it to work its way into the soil over the winter. Don't add lime when you have crops in the ground as it may well damage the crops Since brassicas like both high amounts of nitrogen & humus as well as a high pH, manure in the autumn for them and lime in the early spring,

Counter to what you may expect, but adding loads of manure year after year will actually reduce soil fertility by making it too acid so the plants cannot access the nutrients. They become locked up. Never Mix Lime and Fertilizer in the same year you fertilize the soil if you can avoid it and certainly not in the same couple of months as they will react and at best cancel each other out.

### ***Types of Garden Lime***

**Garden Lime** is made from pulverized limestone or chalk. As well as raising the pH it will provide calcium for the crops and trace nutrients.

**Dolomite Lime** is similar to garden lime but contains a higher percentage of magnesium.

**Hydrated lime** is produced by burning rock limestone in kilns first producing Quick lime which is highly caustic and cannot be applied directly to the soil. Quicklime reacts with water to produce hydrated lime, which is then spread on the soil. Their use is prohibited by the organic standards and while fast acting, the effect is short lived in comparison to garden lime.

### ***How to Make Soil More Acidic (Decrease pH)***

Some ornamental and fruit plants like blueberries require an acidic soil hence we have ericaceous composts for acid loving plants. To make your soil more acidic (decrease its pH value) you can use acidifying agents such as aluminium sulphate or sulphur. Aluminium sulphate is the quickest acting as it will



increase the acidity as soon as it dissolves into the soil. The downsides are though that its effects can be short term and it is possible to over-apply it. Clay soils often require very large amounts of acidifying material and soils with free chalk or lime are not usually treatable.

A slower way to increase your soil pH is to use sulphur. Sulphur converts to sulphuric acid with the help of bacteria in the soil but this takes time depending on factors like the presence of bacteria, texture of the soil and moisture levels. This could take months if conditions are not ideal.

Most vegetables thrive when the soil is slightly acid i.e. a pH level between 6.5 and 7, Potatoes tend to prefer a lower pH, more acid, soil and Brassicas prefer a slightly alkaline soil, pH of 7.0 or even slightly higher. That's why it is suggested to lime in the autumn after potatoes and to follow with Brassicas who like the high ph.

Sawdust, composted leaves, wood chips, cottonseed meal, leaf mould and especially peat moss, will lower the soil pH.