



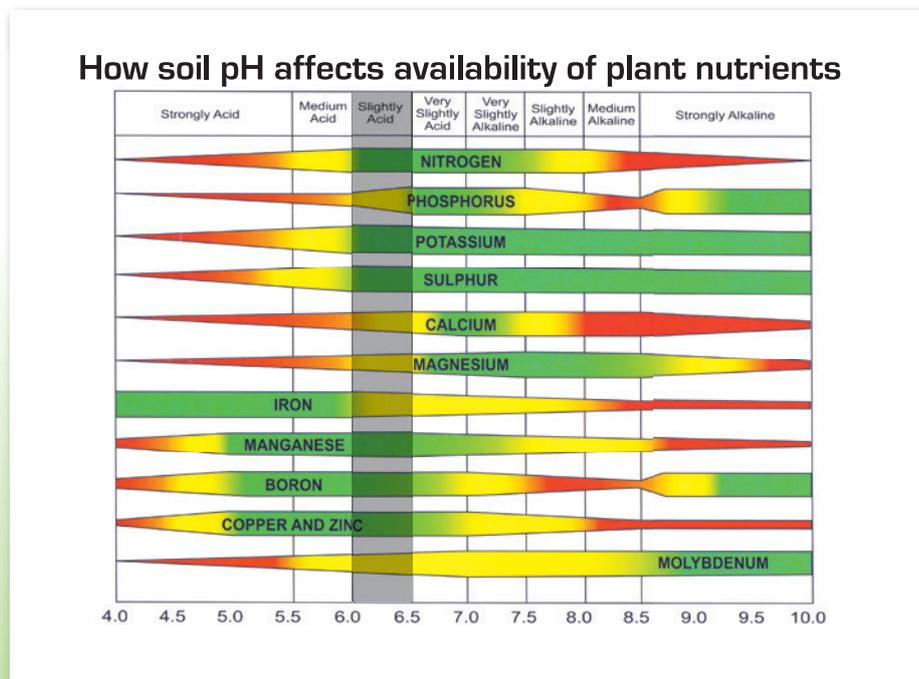
SUPERIOR A balanced pH

What is soil pH?

The pH of your soil is simply measuring the concentration of hydrogen ions (H⁺) present. The greater the concentration of hydrogen, the lower the pH or more acidic your soil is. A high pH indicates a more alkaline soil with less hydrogen; a pH of 7 indicates a neutral soil.

Is there an ideal soil pH?

The following diagram shows how the availability of each nutrient is affected by pH levels. The ideal soil is between pH 6 and 6.5 as this is where the majority of nutrients are available to the plant. The soil microbiology also functions best between pH 6 and 6.5 and assists in making nutrients available to the plant roots.



The 'ideal' soil structure is:



- Organic Matter 5 %
- Minerals 45 %
- Air 25 %
- Water 25 %

The base saturation of Calcium, Magnesium, Potassium and Sodium have the greatest effect on the soil structure and pH. A well constructed soil will also create the home for the biology to live in.

Calcium, Magnesium, Potassium and Sodium influence soil pH; not just Calcium (lime)

What influences pH?

Soil pH is influenced by four major elements; Calcium (Ca), Magnesium (Mg), Potassium (K) and Sodium (Na). These elements need to be present in the correct proportions to give you a 'balanced pH' and achieve the ideal soil structure for plant roots to thrive.

Do you have a good Olsen P, a good pH, but your soil is still not performing?

A good soil test will often reveal that the major elements which influence pH (Ca, Mg, K and Na) are in the wrong proportions, so you have great pH but poor production. For example, the following soils have a great pH, but only soil A will perform to expectation:

Soil D		C.E.C. (M.E.)	5.56
Good pH, superb P but crop failed completely. Major nutrients out of balance and severely deficient in magnesium.		Soil pH	6.00
		Organic Matter %	2.40
		Nitrogen (N) Kg/Ha	76.16
Base Saturation Percentage			
		Desired %	Available%
Calcium (Ca++) (60–72%)		68.00%	2.16%
Magnesium (Mg++) (10–12%)		12.00%	3.88%
Potassium (K+) (2.5–7.5%)		5.00%	2.01%
Sodium (Na+) (0.5–2.5%)		1.50%	1.55%
Total Base Saturation (T.B.S.)		86.50%	79.60%
Expressed as kgs/ha			
		Desired(kgs/ha)	Available(kgs/ha)
Calcium (Ca)		3,857	4,093
Magnesium (Mg)		408	132
Potassium (K)		553	222
Sodium (Na)		98	101
Phosphates (P2O5)		500	493
Sulphate - S (SO4)		112	56
Trace Elements			
		Desired(kgs/ha)	Available(kgs/ha)
Boron (B)		3.4	2.3
Iron (Fe)		448.0	291.3
Manganese (Mn)		300.0	121.0
Copper (Cu)		11.2	0.7
Zinc (Zn)		22.2	4.7
Cobalt (Co)		3.4	2.0
Molybdenum (Mo)			

Note: values in brackets denote deficiencies

	Soil A	Soil B	Soil C
Calcium (60–72%)	68.0	38.0	38.0
Magnesium (10–12%)	12.0	42.0	22.0
Potassium (2.5–7.5%)	5.0	1.5	5.0
Sodium (0.5–2.5%)	1.5	1.5	21.5
Other bases	1.5	1.5	1.5
Hydrogen	12.0	12.0	12.0
Total	100	100	100
pH	6.0	6.2	6.2
	Soil A	Soil B	Soil C
Major elements balanced.	High magnesium (Mg).	High sodium (Na).	
Has the ideal soil structure for biology to thrive.	Sticky when wet.	Has salt patches.	
P most available.	Hard and cracked when dry.		
Most productive soil.			



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