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TRUE CHAMPIONS

BUSINESS BUILDING SOLUTIONS

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- Too acidic or highly alkaline – calculating for corrections

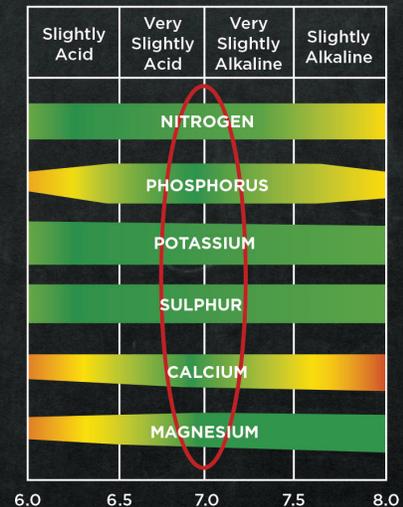
Factor Soil pH Into Your Turfgrass Strategy

Soil pH is the measure of hydrogen ions in a soil solution. This measure will fall on a scale from 0 (acidic pH) to 14 (alkaline pH), with 7 being a neutral pH.

How does soil pH affect turf's ability to absorb nutrients?

Soil pH impacts the availability of mineral nutrients, such as nitrogen, phosphorus, and potassium, from being available for root uptake.

How soil pH affects availability of plant nutrients.



*6.8-7.2 is the ideal pH for plants

Some minerals may be more available in soil pH ranging from slightly acidic to slightly alkaline (6.5-7.5). This includes nitrogen, phosphorus, potassium, as well as magnesium. Other minerals could be severely limited at highly alkaline soils (pH values above 8.0); a good example of this would be iron and manganese. This is why knowing soil pH values is important for managing soil fertility and its impact on turfgrass growth.

Why does soil pH tend to vary geographically?

Soil pH is only one of the key characteristics commonly measured and its variability reflects soil diversity as a function of soil evolution and composition. Among other variables are soil organic matter content and soil texture (fine texture such as clay soils versus coarse texture, sandy soils, and everything in between). This is why soil types can vary from house to house throughout your service area.

If a LCO knows what their general soil pH is for the region should they still soil test?

Yes, lawn care operators (LCOs) are encouraged to take soil samples and running soil tests because of the variability in the soil pH within a geographic area. In some cases, native soils could have a known general pH, but if the

soil has been disturbed such as subdivision development or construction, the soil pH can vary. It is also important to know that soil sampling and testing is not just done for pH reading only, it could also be done to analyze for phosphorus and potassium levels in the soil as well.

Can a LCO tell if a soil is acidic or basic without soil testing?

No. Only a soil test can definitively confirm that a soil is acidic or basic (alkaline). Without a soil test, one can only assume the general tendency of the soil based on the geography. LCOs cannot take any specific remedies or actions without a confirmed soil analysis for pH value.

How often should LCO be conducting soil tests?

It depends on what the LCO is testing for specifically. For a pH reading, once every few years would be sufficient. However, if the soil is deficient in a given nutrient, completing a soil test once or twice a year may be necessary to evaluate the results of any fertilizer applications or remedy actions.

Should a LCO apply soil amendments if they don't know the exact soil pH?

The two most common soil amendments are lime or sulfur. Lime is used to raise pH in highly acidic soils; sulfur is used to lower soil pH. Ideally, turfgrass soils should have a pH as close to neutral as possible with pH values around 7. Soil amendments should only be made based on exact soil pH results which often include amendment recommendations. Without knowing the soil pH, adding lime to a soil with an already low pH can impact plant growth and soil nutrient balance. The same is true for adding sulfur to a soil with an already high pH.

When trying to adjust a soil's pH, how long does that typically take?

It usually takes several months for lime and sulfur to impact the soil solution and counteract the effects of acidity or alkalinity. These processes are influenced by several complex factors in the soil related to the soil nature and composition.

Why are soil amendments so important?

When soil pH levels are too acidic or highly alkaline, the nutrient availability to root uptake could be greatly impacted. In some cases, LCOs may notice deficiency symptoms that start showing up over time when the lawns do not respond to fertilization. For example, highly alkaline soils may show signs of phosphorus deficiency, leaf tips turning purple, lack of growth, and in some case poor color). The reason for this is high alkalinity makes the phosphorus unavailable to the roots.

How can LCOs calculate the correct amount of lime or sulfur a lawn need?

Most soil testing laboratories provide recommended rates of lime or sulfur based on the soil test and analysis of the soil buffering capacity. For best results, it is recommended to check with the soil testing laboratory when the recommended amounts are too large to apply in a single application. It is often suggested to split the application between spring and fall.

LCOs have to be cautious about applications of elemental sulfur both in terms of application rates and soil moisture and temperature. The reason for the precaution is when elemental sulfur undergoes a biological transformation in the soil to go from sulfur to sulfates, sulfuric acid may form in the soil and cause root injury and lead to excessive acidity.

Some LCOs use gypsum (calcium sulfate) which is a good source of calcium and sulfate; however, gypsum has lower influence on soil pH than elemental sulfur. The biological conversion of sulfur plays a bigger role in the acidification of soils than gypsum.