The Importance of Proper Soil pH

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Soil pH is a critical component of producing everything from forages to flowers. The pH scale ranges from 0 to 14 with 7.0 being neutral. Values below 7 are considered acidic and numbers above 7 are basic. It is a logarithmic scale so a pH of 6 is 10 times more acidic than a pH of 7 and a pH of 5 is 100 times more acidic than a pH of 7. Because we can't determine the pH by looking at the soil we often ignore it. Due to the significant amount of rainfall we normally receive, the pH in our soils is continually going down.

Most of the crops we grow, from garden vegetables, to turf, to field crops, do well in a slightly acidic soil with a pH between 6.2 and 6.5. There are exceptions to this such as azaleas, blueberries, and Irish potatoes that produce better in soils that are more acidic contrasted with alfalfa which produces better in soils with a pH of 7.0. A major reason for adjusting pH to the appropriate level for any crop is the impact it has on nutrient availability. As pH drops above or below that desirable range essential nutrients become less available to the plant resulting in lower productivity. As an example, relative phosphorous efficiency is 100% at a soil pH of 6.5 compared to 34% at a pH of 5.0. Fertilizer wasted at pH values which are too low are significant. At a pH of 5.0, in excess of 50% of the fertilizer you apply may be either lost or unavailable to the plant. As the pH drops aluminum availability increases in the soil sometimes resulting in root pruning further reducing nutrient uptake. You can also experience nutrient problems if the soil pH is too high.

We can apply agricultural lime to raise the pH and sulfur products to lower the pH. The amount you apply should be based on a soil sample representative of the area under consideration. It is possible to create problems by over applying either, so avoid making routine applications. If you are attempting to raise the pH, be sure to use agricultural lime. It is regulated by state lime laws. Liquid calcium products made of calcium chloride will not raise the pH. If you are attempting to lower the pH, products such as iron or aluminum sulfate will react quicker that elemental sulfur.