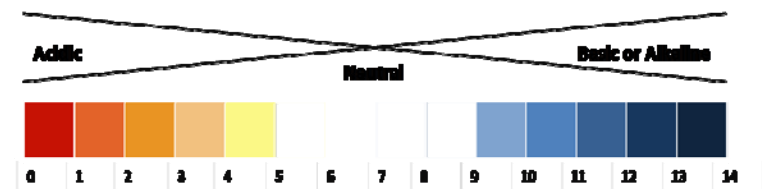
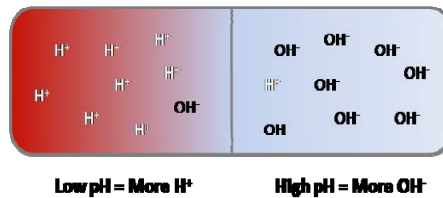


pH, alkalinity and Phyton-27

Often we get questions about water pH and the use of Phyton-27. In general, pesticides could lose effectiveness when mixed with alkaline water (high pH). Water pH is not the same throughout the country; it might not even be the same within your state. Therefore, measuring and monitoring your water pH and alkalinity is highly important. To understand better the relationship between water pH and pesticides, we need to be familiar with certain concepts and terms frequently used.

pH (H⁺)

pH refers to the concentration of hydrogen ions (H⁺) and hydroxide ions (OH⁻) in solution. A scale from 0 to 14 is used to measure pH. This scale is logarithmic, which



means for example a pH of 3 would be 10 times more acidic than a pH of 4. The pH will determine the kind of chemical reactions that will occur, or the reactions that will be inhibited.

Some pesticide's active ingredients are degraded at higher pH levels (>7) by a chemical reaction known as alkaline hydrolysis which reduces the pesticide effectiveness.

Alkalinity

It's the capacity of the water to neutralize or buffer acids. With the alkalinity, we can know how easy or difficult it is to change the water pH. The concentration of carbonates and bicarbonates in the water will determine the alkalinity. Therefore, the more carbonates and bicarbonates present in the water, the more acid is needed to change the water pH. High alkalinity could result in high pH, but high pH does not necessarily mean high alkalinity. Alkalinity could be also confused with the term alkaline which means basic or high pH.

Phyton-27

The optimal pH range of Phyton-27[®] solution is 5.5 to 6.5. This is the pH of the solution after mixing the product with water and which you eventually will use for plant treatment.

The concentrate's pH is 4.7 and may lower the water pH. Municipal water's pH is usually close to 7.5, Phyton-27 will bring pH down. However, pH change will depend on the alkalinity (buffer capacity) of the water in a particular area.

pH levels below or above the given range could potentially have the following consequences:

pH below 5.5 can lead to phytotoxicity due to elevated levels of free copper

pH above 7.0 will decrease Phyton-27 efficacy.