St. Augustine Orchid Society

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pH of Water

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Orchid Growing Tips

Few orchid growers can explain why pH is important to orchid culture. If one looks up pH in the dictionary, the definition has to do with the number of hydrogen ions in water; a fact that has little meaning to most of us.

The pH of water used to grow orchids is important and so is the pH of the medium used. Most hobbyists use whatever medium is available and the water that comes from the tap. They do not need to understand pH because the combination of medium and water they are using is well within the ideal range for most orchids.

Many years ago, Ralph Wasdon, was known as one of the best orchid growers in Eastern North Carolina. He was noted for using only K-Mart generic fertilizer, one of the cheapest around. Other growers, noting his technique tried to duplicate his growth without success. Ralph knew nothing of pH, but by trial and error had found the right combination of growing medium, which when combined with his water source and fertilizer, provided an almost perfect pH balance for the absorption of nutrients. His very dilute fertilizer mix, resulted in water with a pH of 6.2, ideal for nutrient uptake.

There are a few of us who have extremely poor water or who decide to try a new type of fertilizer, growing medium, or pesticide/fungicide who do need to understand pH. Some water sources are extremely basic or acidic and there are a few fertilizers that contain excess micronutrients. Micronutrients can be toxic under very low pH.

Hobbyists that try to improve their growing by testing water for dissolved solids or pH may also fail to appreciate that it is the pH of the medium combined with water that is most important. While water source is one component, most water and nutrient uptake occurs where roots are in contact with the medium. Here, the pH may change dramatically from that of the applied water.

In peat based media, for example, the breakdown products of peat lead to acid conditions that may become extreme. If micronutrients are in the water source or applied as fertilizer they may become so soluble under acidic conditions that the orchids receive toxic levels. This can be exacerbated by using some of the high nitrogen Cal-Mag fertilizers especially blended for orchids. These fertilizers, when mixed with water, lower the pH. Typically, this is not a problem if the water source is full of minerals. If the source is rainwater or deionized water, the acidity can be so extreme that orchid roots are killed. Adding a solution that raises pH can produce fantastic growth in orchids, but requires control of the pH.

Many pesticides are most effective at a specific pH, usually slightly acidic. One popular fungicide, Kocide, can be toxic under a very acidic pH, but very effective if the pH is over 7. Kocide contains copper that is soluble and taken up by plants at lower pH values.

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So what does the average orchid hobbyist need to know about pH. If your orchids are growing well, the answer is nothing. If you begin experimenting with new fertilizers, media or pesticides, a simple pH meter may prevent you from damaging your orchids and make you a better grower.