

QA AND ASK THE EXPERTS



Q: We have two sources of water for our greenhouse production. One is municipal water and the other is from our well. We've noticed a marked difference in plant performance with the two different sources. How important is water quality in greenhouse production?

A: Water quality is very important in greenhouse production. You should have both of your water sources analyzed by a professional lab. Monitoring pH, electrical conductivity (EC) and alkalinity of your water are keys to successfully growing horticultural crops. Water quality often influences your fertilization program, site selection and even which crops you can grow. All growers should know the following: water pH, media pH, alkalinity of irrigation water, EC of irrigation water, EC of irrigation water plus water soluble fertilizer and EC of your media.

Q: What can I do to monitor water quality?

A: While it is important to have your water tested annually by a professional lab, growers should also repeat tests themselves throughout the growing season using a pH & EC hand held meter as well as an alkalinity kit.

Q: What is pH?

A: The pH of growing media drives chemical reactions and nutrient uptake by the plant roots. In general, the initial optimum container media pH range is from 5.8 to 6.4 (depending on your crop). Water pH influences media pH, but in most cases water pH does not equal media pH. Water pH also affects soil microbes and effectiveness of pesticides and growth regulators. Most successful growers continuously monitor the pH of their water as well as the pH of their media throughout the growing season.

Q: Is alkalinity the same thing as pH?

A: Alkalinity is not the same thing as pH. Alkalinity is defined as the capacity of the water to neutralize acids and is measured by the amount of bicarbonates and carbonates in the water. It will dictate how much influence the water's pH will have on your media, nutrient availability, and ease or difficulty of reducing the pH of water. Alkalinity is expressed as ppm calcium carbonate CaCO₃. Most water sources acceptable for container production will have alkalinity in the range of 0 to 400 ppm CaCO₃. Growers of bedding plant plugs should pay close attention to pH and alkalinity, as media pH can rise rapidly and potentially cause iron deficiency symptoms.

Q: What is electrical conductivity?

A: Electrical conductivity is the measurement of a solution's ability to conduct an electric current. Electrolytes in the water determine its level of conductivity. Over time, high water electrical conductivity can ruin good soil. Electrical conductivity is an excellent indicator of water quality, soil salinity and nutrient levels. Electrical conductivity can be measured by a hand held electrical conductivity meter. A good Electrical conductivity range for irrigation water is 0 to 0.75 milliSiemens per centimeter. A good reference for greenhouse water quality issues is "Water, Media, and Nutrition for Greenhouse Crops" edited by David Wm. Reed, Ball Publishing.

OHP would like to thank guest expert Dr. Stephen Millett, technical advisor, with Hummert International in St. Louis, MO for his contributions to this section.



HAVE A QUESTION FOR THE EXPERTS?
E-MAIL YOUR QUESTION TO
ASKTHEEXPERTS@OHP.COM
www.ohp.com

ohp Partners
with
solutions