

TECH TIP: UNDERSTANDING WATER QUALITY



Some folks say everything in floriculture production starts with your growing media. You can't sow seeds, stick cuttings or transplant young plants into nothing, right? While the argument is a compelling one, some may disagree with the logic. Media goes into the tray or pot first, but:

- What is added to that container immediately after the plant input goes in?
- What is reapplied sometimes multiple times per day until the crop leaves your greenhouse?
- What affects your fertilizer choice and need for various growing media amendments?
- What changes the availability of different mineral nutrients applied to your crops?

You guessed it—water! Because of this, it's critical to have a solid understanding of your water quality and how it will impact your crops *before* you plant anything.

This time of year, greenhouse professionals often consider crops that present yearly challenges. The first question should always center on water quality. High- and low-pH-loving crops often bear the brunt of misunderstood or unmanaged water quality, but no plant is safe when poor-quality water is a factor. Nutrient deficiencies and toxicities are often the most common manifestation of water quality concerns, but the need to correct issues like these during production should be avoided at all costs. Understand what's in your water to guide decisions on choosing the right fertilizer, growing media amendments, whether you need to treat your water, and what your water quality monitoring strategy should be.

Here are a few things to consider before the spring production season begins, if water testing is not already on your to-do list.

The Type of Water Test Counts

All water quality tests are not created equal. Submit a water sample to a lab that provides *agricultural water quality testing* services—not standard drinking water-quality tests. Depending on the lab, specific categories such as “greenhouse/nursery” water testing may be available. Whenever possible, choose the type of water test that's most directly applicable to what you do.

- Drinking water tests often offer a small handful of mineral nutrient concentrations (often calcium, magnesium, iron and sodium) and “hardness,” all of which can indicate water quality concerns. However, these values only provide a partial picture of water quality and seldom

provide enough actionable data to inform decisions on which fertilizers are most compatible with your water, whether acid injection is necessary, etc.

- Agricultural water tests (sometimes as specific as “greenhouse/nursery” water tests) are far superior to standard drinking water tests. These include alkalinity, pH, most macro- and micronutrient concentrations, nitrate and ammonium levels, electrical conductivity (EC; sometimes TDS) and sodium absorption ratio. This broad view of your water quality facilitates targeted water management decisions. It also minimizes the risk of overdoing it and spending tons of money on unnecessary measures or worse: over-correcting something that was within ideal ranges for crop production in the first place.

Testing Frequency Take-homes

Test your water source(s) at least once a year. Depending on your operation’s water source, more-frequent testing may be advisable.

- Municipal water sources tend to be very stable throughout the year, with the exception of municipal water collected from reservoirs in arid climates, on occasion. An annual agricultural water quality test is strongly encouraged and often provides ample information to allow you to stay on top of what’s coming out of your hose. *Some providers offer periodical water quality updates free to customers, so it doesn’t hurt to ask for one.*
- Well water quality often changes more frequently than municipal water. Testing at least twice per year and additional times shortly after extreme weather events is advisable to avoid seasonal or sudden water-quality changes. If you have multiple wells on your property, the quality of water coming out of each can be drastically different, so test ALL wells—even if one of them is only used seasonally or as a backup.
- Surface water sources often provide the greatest number of challenges to greenhouse growers. Rainfall, snow, drought, temperature fluctuations and unforeseen events that push contaminants into your water source necessitate frequent water testing if you irrigate from sources like a river, canal or retention pond. Ideally, water from these types of sources should be tested monthly (at minimum) or more often if severe weather or changes to the water level/flow occur.