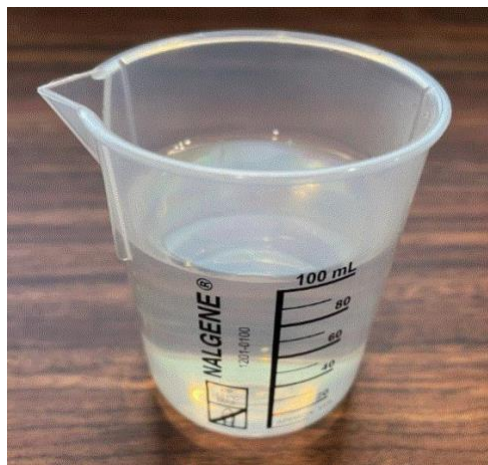


WATER QUALITY: REVIEW & IMPORTANCE

When water test results come back, there are specific parameters to consider.



Where It All Starts: Water Quality

Water quality has a huge influence on how we grow our crops. It affects fertilizer choice and the need for various growing media amendments, changes the availability of mineral nutrients applied to your crops, and even influences the efficacy of plant growth regulator applications and pesticides. So when growers come to me with questions on problem crops that they struggle with for months each year, suboptimal water quality is often the culprit, and my first question is always, “Do you have a recent irrigation water analysis?”

High- and low-pH-loving crops often bear the brunt of misunderstood or unmanaged water quality, but ultimately no plant is safe when water quality is out of whack. Mineral nutrient deficiencies and toxicities are often the most common result 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 will guide your decisions on fertilizer choice, growing media amendments, whether you need to treat your water, and what your water quality monitoring strategy should be. If you haven’t already, be sure to send a water sample off to your favorite lab for testing soon, before it’s too late and you’re in the heat of the spring season!

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 is 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/or “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 per 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 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, respectively. 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 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.

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