

Water quality: a hidden yield robber

By ERIC McMULLIN

GOOD water management is like a pass/fail course. And the harsh reality is that if you haven't had your irrigation water tested recently, you failed. But don't worry; you can retake the course at any time.

Water quality often gets overlooked as growers worry more about plant genetics, fertility, disease, insects and a timely harvest. It's true that in practical terms each of those can be more important financially than water quality. If growers are lacking in those areas, it behooves them to start there. Yet most growers are already strong in those areas. That makes water quality the next place to look for two reasons:

✓ First, it's simply the next-most-important agronomic practice to master.

✓ Second, if you're strong in other aspects of farming but are still seeing lower yields than similar operations nearby, water quality oftentimes is the culprit, says Larry Schwankl, Extension irrigation specialist with the Department of Land, Air, and Water Resources at the University of California-Davis.

Hidden problems

Poor irrigation water quality can be responsible for a host of problems, from necrosis and poor yields to soil sealing over and irrigation nozzles clogging up. Oftentimes, the problem isn't even visible.

"Most growers are aware that mineral precipitates can plug their drippers," says Danyal Kasapligil, a consultant with Dellavalle Lab in California. "But by the time they see the telltale white chalk buildup, it's too late. People often tell them they can flush the system with acid and clear those nozzles; but, generally, once drippers become plugged, it can be difficult if not impossible to clean them."

That's bad enough, but Kasapligil makes an equally important point when he says, "But the problem was occurring well before the chalk built up and plugged the dripper. Earlier, as the carbonates were building up, they were slowly choking off the orifice, restricting the flow by 10%, then 20%, then 30% and so on."

Consequently, certain areas weren't getting enough water. And if a grower is running fertilizer through that water, those areas weren't getting enough nutrients either.

"By the time the problem is visible,"

says Kasapligil, "the damage is done. The only way [a farmer] could have known the problem was by testing the water."

Seek qualified help

Some growers complain that the labs to which they send water samples offer confusing or contradictory advice, or they use standards of measurement — such as parts per million vs. milligrams per liter — that don't "interface" with

other facets of their operations. Such problems are easily remedied.

Remember that this isn't rocket science; it's chemistry. The interactions of elements within your water and soil are well-understood. If you're getting contradictory advice or the advice is confusing, find a new lab. To find a good lab in your area, ask your neighbors or Extension adviser for references.

A final reason to test your water is that even if your water quality is good,

oftentimes your water is an excellent means of treating soil and fertility problems. Applying sulfur or gypsum to the soil, for example, can treat crusting of soil. Or running gypsum or sulfuric acid through your water can treat it much more easily.

As the adage goes: It's easier to treat an acre-foot of water than an acre-foot of soil. It all starts with water test.

Class dismissed.

McMullin writes from Berkeley, Calif.

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GET ASSISTANCE: It is important to get good advice from reputable labs and technicians. Here, technicians conduct irrigation tests on various soils.