

TORO®

IRRIGATION EFFICIENCY & WATER CONSERVATION PRIORITIES

UNDERSTANDING THE HIERARCHY OF IMPROVEMENTS TO YIELD IDEAL RESULTS

When faced with a problem, we often search for a solution that is easy to implement. That's human nature. When we do this, we often overlook the best way to solve the issue, the one that yields best results. This might not be the most convenient but it is the right thing to do.

Our industry has created numerous products to improve irrigation efficiency. We've also created products that are intended to do so, but are misapplied with the expectation of good results but the outcome is often not ideal. We are all searching for the "magic bullet" that absolves us of certain responsibilities like proper scheduling or careful installation techniques.

"Smart Controllers" have become such a product. The name implies that the controller is "smart" all on its own. We know that these controllers are only as smart as the installers and the information they program into them. Well-meaning contractors present smart controllers to homeowners or businesses as the holy grail of water management. While these devices can save water, they don't correct the more insidious problems in systems



that primarily waste more water than just tweaking the program. Yes, improving a system's schedule can save water and can improve efficiency. However, it's hard to determine by how much if the controller is operating a "dumb" wasteful system.

Placing a smart controller on a poorly designed and/or installed system with mismatched nozzles, poorly spaced sprinklers, varying operation pressures at the sprinklers, piping that empties each time the system operates, crooked sprinklers, VAN spray nozzles, etc. is like installing a Nest® thermostat on a 30 year old boiler. All that does for you is allow you to connect via WIFI and watch your heating system burn dollars viewed on your smartphone in your vacation hotel room.

Let's illustrate a simple example of how a sprinkler zone with poor efficiency wastes water.

1. Imagine a spray zone with 12 spray heads using about 20GPM. A well installed spray zone usually measures DU of about 50%. This implies that ½ of the water used is not ideally or evenly applied. This results in longer run times needed to ensure that poorly covered sections of the zone are covered sufficiently.
2. If we can improve the uniformity, we will increase the efficiency. We can reduce the additional run time and save significant water. By using high efficiency nozzles and perhaps PR spray bodies, we can easily save 30%-40% of the water each time the zone operates.
3. If the zone originally used 20GPM and now uses 14GPM, and that zone operates for roughly 10 minutes (on average) that is 6 GPM saved for 10 minutes or 60 gallons.
4. That's just one zone. Imagine that there are 4 zones in that system doing the same thing. Now the savings is 240 gallons.
5. Now imagine that the system operates 120 times each year. One year's savings is almost 29,000 gallons.

6. If the system operates for 10 years, the savings for installing the updates would be almost 300,000 gallons. This does not even consider increases in water costs over the 10 years.
7. If someone is purchasing water for \$8 per 1000 gallons, they will save about \$2400 or much of what they paid to install the system.

The above example is simplistic but should help understand why the "foundation" needs to be repaired before updating the countertops and backsplash in the kitchen. None of these gains in the example had anything to do with smart control.

Now that you've maximized the system and baked a fantastic cake, it's time to ice that cake. This is where smart, weather based controllers come in. These connected controllers will squeeze further savings by tracking the landscape's water needs based on each day's evapotranspiration.

When used correctly, the controller now becomes part of the solution, not part of the problem. Combined, you have a powerful arsenal of products and technologies capable of increasing efficiency and conserving water. Just remember to use them to their best advantage and in the proper order.



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