



WITH WATER SHORTAGES BECOMING MORE PREVALENT AND restrictions looming, municipalities, communities, school districts and property owners are seeking ways to conserve water. That's the position the Lake Elsinore School District in Southern California found themselves in.

Lake Elsinore Unified School District's problem is not much different than many other communities, districts, municipalities, commercial property and homeowners have—how to conserve water. Municipalities in many parts of the country have recently implemented mandatory watering restrictions.

The Lake Elsinore School District uses roughly 1.3 million gallons of water per day for irrigation purposes. "Because of the state's current water crisis, we need to show people that we're using water responsibly," says Bill Fouts, the school district's grounds supervisor. "People drive by our schools and see water being sprayed on sidewalks or misting and it upsets them. Believe me, I've gotten my share of angry phone calls, but in the end, it just comes down to setting an example for the community."

A few years ago, the school district began to look for ways to conserve water. They began by replacing their existing irrigation controllers with "smart" controllers. Although the district was saving water, they were not entirely pleased with the results. "We were really happy with the smart controllers," says Fouts. "But we still felt that our irrigation systems were not as efficient as they could be."

Initially, Fouts and his crew turned to multi-stream rotating nozzles. These products deliver water very slowly providing roughly 0.5" per hour, and as a result, greatly reduce water waste due to overspray and soil saturation. Without question, the multi-stream nozzles helped the school district to save water. However, they also provided Fouts and his crew with a new challenge.

"The problem we had with the rotating nozzles is that we were having to double, triple and in some cases, even quadruple our run times in order to get the amount of water on the ground that we needed," Fouts says. "We have very precise watering windows that we have to adhere to, and we just didn't have the kind of time that this technology requires."

"As a result of the positive experience with Toro Smart Controllers, the school district agreed to provide a test site for Toro's new Precision Series Spray Nozzles. As part of the test, Laurence Budd, owner of Urban Water Conservation— an IA-Certified Landscape Irrigation Auditor and EPA WaterSense Partner—was selected to audit the test site and assess the efficiency of these new nozzles. "We selected one of the school's sites and evaluated three separate irrigation zones," says Budd. "In the first zone, we had the Precision Sprays. The second zone we set up using rotating nozzles, and in the third zone, we used traditional spray heads."

The goal of the testing was to measure and compare the distribution uniformity (DU) of each zone. DU is important because it is a measurement of how evenly water is being distributed over a given area.

The results of the study were revealing. "The Precision Sprays were the most efficient, coming in with a DU of more than 80 percent. That's a pretty amazing number," Budd said. Fouts was extremely impressed by the performance of the Precision Nozzles. "The water-saving properties of the Precision Sprays are really great," says Fouts. "But what really excited us is the rate at which they deliver water."

To confirm these results, a second audit was conducted at the Lake Elsinore Water District facility under the supervision of Rob Whipple, the District's conservation specialist. In this case, however, instead of auditing three different zones, the same zone was audited three times with three different types of nozzles: conventional sprays, then Precision Spray Nozzles and finally rotating stream nozzles. The results of these audits confirmed the results of the earlier Lake Elsinore Unified School District site audits.

The reason why the Precision Sprays are so efficient is because of their use of a patented H2O chip technology. "The chip is a highly engineered chamber," says Jeff Miller, a product manager at Toro. "Without the use of any moving parts, the chamber generates one or more high-frequency oscillating streams to achieve the distance and pattern of conventional spray nozzles, but with 1/3rd lower flow rates and more even coverage. It is these oscillating streams that give these 'spray' nozzles the performance characteristics of a rotor—lower precipitation rate and higher uniformity."

Another water-friendly feature of the Precision Spray Nozzle is its 20 to 50psi operating range. "The technology is much more resistant to high pressure misting, and the consistent size and velocity of the water droplets provide better performance in wind than conventional spray nozzles. This means that the water is going to land where it is intended to, which eliminates waste," says Miller.

Fouts could not be happier. "In the areas where we are testing the sprays, we're seeing our water consumption decreased by about 10 to 15 percent. I've really never seen anything deliver water more precisely. I guess that's why they named them what they did." 