Sprinkler calibration innovation means water, cost savings

By Lynn Tilton

For years superintendent Al Kline relied on factory-calibrated sprinkler heads at the University of New Mexico's two golf courses. After all, quality control at the factory assured him the sprinklers would perform as needed. But persistent watering problems caused him to take a second look.

He's still looking — and doing his own calibrating. That's because he has his own test area. The first thing he learned during 157 three-hour tests was that he was throwing plenty of water on the grass. "I was overwatering 140 percent and still had Duncan Donuts on the fairways," he said during a calibration seminar at the test site just south of Albuquerque.

Troubled with brown spots, in spite of extra sprinkler work, Kline decided to contact California State University at Fresno's Center for Irrigation Technology about its work on sprinkler calibration. CIT has been testing sprinklers for 35 years and includes three technicians on its staff. Kline soon decided to test every head.

The test is simple, far easier than the traditional way of placing 400 cans to take readings. It consists of putting 50 cans two feet apart in a straight line from the sprinkler head.

It's a simple matter to collect and measure the water, and run the results through the computer program. Kline reiterated:

"CIT's Dr. Kenneth Solomon helped him get started, and the whole CIT staff has been "super cooperative," he said.

He said, "Dr. Solomon believes so strongly in head testing that he wrote me, 'There should be a law requiring sprinkler head testing prior to installation.'"

Kline agreed, adding that no brand should be exempt. He also emphasized that Tim Cavellier, his sprinkler representative, "has given up weekends, holidays, and other time off to help me. When he couldn't be here, my wife, Jo Ann, has helped with the study."

TEST ACCURACY

The first challenge was test accuracy. Kline got this by stretching out an aluminum track, set dead level. The track are concrete half-blocks, with cup holders glued in place. Plastic cups fit in the holders, and can be turned upside down and tightly fitted when not in use.

This keeps them from blowing in the wind between tests. Kline also installed, for $4,500, a weather station, with the aerometer wired to pump controls. Thus, when the wind blows, the test shuts down automatically.

This leaves Kline and his crew free to take care of the regular work on the course.

Kline credits Jim McPhaully, a retired golf course superintendent and irrigation consultant from Denver, for bringing the CIT test to his attention.

"We've found there is a difference even on the individual head," Kline said. "Planning an irrigation system is like planning a war. The goal is to fire for effect, and a sprinkler isn't effective if it's not accurate."

He's learned that even altitude plays a role in a sprinkler's accuracy. That may be why a head that performs well at the factory may not water as uniformly when installed, especially if there is significant elevation difference between factory location and the course.

Since Kline uses Toro, Buckner and Rain Bird heads, several factory representatives were on hand for the demonstration.

Toro golf irrigation specialist David Marsh said with Kline's strategy:

"The goal is to schedule the irrigation cycle so you're not overwatering. Al's tests show how precise a given sprinkler head is for uniform application, he said.

Marsh noted that the traditional Christiansen's Coefficient of Utilization (CU) still is the industry benchmark, but manufacturers have tightened up the specifications.

"Ten years ago an 85 percent CU was our internal benchmark for good performance. Now the minimum for anybody in the 90's," Marsh said.

BIG SAVINGS

The high cost of buying water and pumping it is a major factor. He said greater watch care in general can help reduce irrigation bills.

"Too often turf managers set up their watering cycle when it's dry, but fail to adjust for wet times," Marsh said.

"A manager must check sprinkler use at least monthly to stay atop any overwatering problems."

The questions of CU came up again and again during the seminar.

Kline said: "We don't think you guys can go with averages. I unlike a corn field, you have to keep the whole thing green."

No longer sold on CU, Kline said: "CIT would have us look at a scheduling coefficient which is expressed as a percentage of additional time to apply the water needed. I agree."

"We need to get off the average as looked at by CU, and determine how much more time we'll have to run that valve or that system to get all areas to a minimum wetness."

"This will help turf managers determine whether a particular head or system can remain as is, or whether it will pay to get into a major renovation."

What is that brought Kline into the picture. He knew the university was paying dearly for water, yet he still was troubled with brown spots on the course.

Heavy rains aid parts of drought-stricken Fla.

Parts of Florida have benefited from a wetter-than-normal winter and spring, while others continue to suffer the effects of a drought heading into its fourth year in some areas.

"We've gotten abnormally large amounts of rain in some portions of the state, particularly the southeast, in what is normally our dry season," said John Foy, director of the U.S. Golf Association Green Section's Florida office.

One of the beneficiaries has been John's Island Club in Vero Beach, where the 5.6 inches of rainfall from April 1-21 was more than double the average 2.6 inches for that period, according to West Course assistant superintendent Tony McKenna.

The 65 inches of rain for the 12 months from April 1, 1990 through March 31, 1991 was significantly higher than the 49.8-inch average for the preceding three years.

"We had watering restrictions for a short time last year, but they were lifted," McKenna said.

"We've shut down watering whenever we can. We got 1-3/4 inches Saturday (April 20). We didn't have to water Saturday or Sunday and we'll just do the greens tonight (Monday)."

Foy noted another Vero Beach club where talking of installing a new, water-efficient irrigation system has died down for the first time in three winters because of the heavy rains.

But other sections continue to suffer from the drought. Foy noted the Lake County area between Orlando and Tampa where water restrictions, "about the most serious you can get," have been imposed.

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