

Central Control Pays Off in Milwaukee

By David Mellor

The late Harry Gill's dream, an automatic irrigation system, was installed at County Stadium — home of the Milwaukee Brewers — in Milwaukee, WI, in the fall of 1987. Before that, the field was irrigated with a network of quick couplers, impact sprinklers, water wheels, traveling tractor sprinklers, and hand-held hoses. A crew member frequently kept an all-night vigil, moving sprinklers every 20 to 30 minutes in an attempt to achieve consistent moisture across the field. A delay at one watering interval, or an interval cut short, resulted in uneven moisture levels that were revealed only as the turf showed signs of stress.

After years of troubleshooting the hard way and studying the reactions of the turf at County Stadium through all seasons and under a wide variety of conditions, Gill knew what he wanted an irrigation system to accomplish. He helped secure funds for the system installation. Then he teamed up with an irrigation system representative and Gary Vandenburg, current director of grounds. Together they came up with the irrigation system used today.

System Layout

The 2.6-acre site is watered by 57 Toro 640 heads operating from five separate stations. No station contains more than 12 heads. There are 22 heads on the warning track, 31 heads on the turf, and four heads for the infield skinned area. Heads are placed approximately 60 feet apart within triangular patterns for optimum coverage overlap. The spray pattern (180 degrees, 360 degrees), range (or "throw"), and arc of the heads vary to conform to the lines, curves, and angles of the field.

Each station is represented by a letter — A, B, C, D, and E. Each head is identified by an individual number within that station, such as A-1, D-6, and

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so on. In the grounds office, a display board shows the outline of the field, and the placement of each head is marked by LED lights. Whenever the head is used, the light indicating that head is lit. Personnel can tell at a glance, from inside the office, when a head is activated.

The irrigation system can be programmed up to 14 days in advance to set up the irrigation cycle, either manually by "pushing buttons" or through the grounds department's personal computer. Watering will then automatically begin when and where it's wanted for the intended duration. The Toro VT-3 Satellite (no longer manufactured by the company) contains two different set programs, which can be altered to fit conditions, such as moving the watering cycle ahead by 30 minutes when humid conditions slow turf surface dry-down.

The system is supported by 100 pounds of pressure per square inch. That's enough to operate the full range of heads and get consistent throws throughout the field.

Each head can be set individually from one minute to several hours. This gives the flexibility to adjust irrigation patterns to fit specific turf needs. For example, left field receives more sunlight than right field, which is shaded by the stands. To compensate for this, we can run the heads in left field for 25 minutes, and the heads in right field for 10 minutes.

Staying Flexible

Even the most efficient irrigation system can't compensate entirely for the alteration of spray patterns caused by winds swirling through the stadium. Because the winds are not a consistent force, and the system is designed for optimum coverage during "normal" conditions, the field has occasional isolated dry spots and edges that still must be watered by hand. When the team is in town, the infield grass is watered by hand to avoid any change to the baseline. The infield skinned area is watered by hand to achieve the precise effect the coaches and players want.

Because a sprinkler head could be activated unintentionally by a power surge or other problem in the system, more circuit breakers than required were added. Prior to games, we turn off the valve and supply and drain the rest of the system by quick coupler to prevent game interruption. An irrigation box is outside the left field gate, close enough to reach quickly if needed.

Added Benefits

There's a vast difference in field care with a central, automatic irrigation system than with a manual one. With the automatic system, we gained more complete control of our maintenance program. We're able to schedule watering on weekends, early in the morning, or whenever it will be best for the turf, rather than when the grounds crew can get the job done. Before the automatic system was installed, just moving the sprinklers to cover the field took the entire night. Now, we usually irrigate from 4 a.m. to 7 a.m. This timing reduces the water loss through evaporation we experienced with watering later in the day and cuts down on disease problems we had to contend with when the turf stayed wet during the night. Because it's no longer necessary

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for someone to physically set sprinklers or to be on hand to monitor the system during watering intervals, those valued labor hours can be used on other projects.

With the central control system, we can use irrigation to prevent problems. We use short watering intervals to knock the frost off the grass in the late fall, or the dew from the grass in the early spring. We can wash away the sugar-like substance the grass excretes from the cut

end of the blade after mowing, which helps prevent disease problems. We can syringe the turf on a hot day, moving a short spray of water from station to station across the system to cool the grass and prevent heat stress.

Controlled irrigation give us more flexibility. We can adapt watering to increase the benefits of our fertilization and seeding programs. We can set up additional deep watering periods to counteract drought. We can supply 1/4- to 1/2-inch of water exactly

where it's need to water in chemical applications.

The central system saves time and labor and enables us to use water more efficiently. It's money well spent. The field is safer and more playable because the grass is healthier and compaction isn't as great.

It's important to learn everything you can about any in-house irrigation system before it's installed. You'll want to be an "in-house" plumber who is able to work with solenoids and basic repair of heads, piping, and connecting hardware if necessary.

Gary Vandenburg and I do the troubleshooting on our system, and have had few problems. Sometimes, there will be grit in the collar of the heads that border the warning track. This grit must be removed to allow the head to function freely. A visual check of the heads will reveal any minor problems. If the throw from a head is erratic, the pattern inconsistent, or the arc improper, there could be a problem with the head itself or an obstruction that prevents it from retracting correctly.

In northern regions, it's important to winterize the system properly and early enough in the season to avoid damage. Use a compressor — rent one if necessary — to ensure the water is completely blown out of the system. Even a small amount of water can cause extensive damage during the freeze-and-thaw cycles of winter.

Irrigation technology is constantly changing and improving. It's even easier now to get excellent control of field water needs. Compare options and costs to current and projected field use when making sprinkler system decisions. Take into account the characteristics of your soil, turf, and weather conditions, as well as your budget and labor resources.

Central, automatic irrigation systems aren't the answer to every problem. However, they can be a vital, cost-effective tool in a high-quality turf management program. □

Editor's Note: David Mellor is assistant director of grounds at Milwaukee Brewers' County Stadium. He holds a bachelor's degree in agriculture from Ohio State University, and serves as professional team director on the board of the Midwest Chapter of the Sports Turf Managers Association, and on the two-year advisory board of Michigan State University's turfgrass program. He has teamed with George Toma in sports turf presentations across the U.S.

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