By Chris Harrison

Fertigation system saves city $10,000 a year

IN TODAY'S ECONOMY, anything that saves money is a welcomed addition to a turf manager's portfolio. When technology saves labor, water and fertilizer—and has the bonus of making the fields look uniformly good—it's sure to open eyes.

Shawn Brumbaugh, sports complex manager in Olathe, KS got his eyes opened when he added a fertigation system to his irrigation. It worked so well, he made the same purchase decision a second time, using the savings from his first fertigation system to invest in another.

"We saved close to $5,000 the first year we installed our fertigation system," Brumbaugh says. "That includes the cost of the system itself."

Olathe, a southwest suburb of Kansas City, has two main sports centers: the Olathe College Boulevard Activity Center and the Olathe District Activities Center. They are virtually identical, each consisting of a football field, a pair of soccer fields, two baseball fields and two softball fields. The football and soccer fields are straight Kentucky bluegrass. The baseball and softball infields are bluegrass, too, but everything else is a durable turf-type fescue. The only difference between the various fields is some have a sand cap and others are on native soil.

All of the fields have a fairly sophisticated Rain Bird-Hunter combination irrigation system. The zones are highly refined and were optimized for efficient, effective watering.

"We have a top-of-the-line irrigation system and pump," Brumbaugh continues.

"The fields at College Boulevard Activity Center were opened in fall 2004," Brumbaugh says. For the first couple of seasons, they applied granular fertilizer with a spinner spreader on the back of a John Deere tractor. They had occasional problems with uneven application of the material but nothing devastating.

Meantime, the economy began to head south. Like everyone else in the nation, Olathe has not seen any crazy increases in its budgets. A few years ago, Brumbaugh did some serious pencil-pushing and pounding on his adding machine. He knew he had to save money. And, like many other managers, he knew one good place to save money was to find ways to reduce labor inputs.

"It was your typical 'save money now' deal," he says, adding that while saving labor dollars was the

>> **Left: THE OVERALL VIEW** of the fertigation system, controller and connections.
>> **Middle: THE MODEL L 1000 INJECTOR PUMP** in the pump room for the complex.
>> **Right: THE 300-GALLON TANK** in shop area, with the hose connection through the wall to the injector. The shop area was selected since it has easy access for the fertilizer delivery.

Fertilizer program

The fertility program at both the College Boulevard Activity Center and the Olathe District Activities Center kicks off in late February or early March with a high-nitrogen application to get the fields a kick-start.

"Both the baseball and softball fields get an application of 24-5-11 with Dimension," Shawn Brumbaugh says. He wants to get a high N dose down early, especially on the sand capped fields. "Because of the temperatures, it takes a while to take hold," he explains.

The program continues with a 25-5-11 shot in April and then 28-3-12 in May. "In June and July the fields get a light dose of Milorganite," he continues. If anything is applied in the hot weeks of August, it is another dusting of Milorganite. "For the most part, we don't put a lot of fertility down to discourage growth," Brumbaugh says.

The football fields get a typical in-season feeding. Then, the entire complex gets a high P and K feeding in the fall to build roots for the next year.

focus of his efforts they were looking for ways to reduce water use at the same time.

It all came together in the irrigation program where a move to fertigation allowed him to accomplish three goals at once: control labor costs, get more accurate and effective placement of plant food, and be more efficient and conservative with water resources.

The system

In 2005, they chose a Fertile Water fertigation from Turf Feeding Systems (www.turffeeding.com), Houston, TX. The local dealer is Ewing Irrigation in Olathe. The system was installed late in 2005 and turned up for regular use in 2006.

Fertile Water is designed to deliver budget-friendly, environmentally sound solutions to playing fields year-round, says Michael Chaplinsky, president of TFS. He notes that sports turf presents a special set of challenges. Besides being visually attractive, turf needs to be dense and soft to protect players from injury, but resilient enough to recover quickly from the assault of cleats and heavy traffic.

"When Fertile Water fertigation is used, overstressed fields start to show immediate improvement with reduced water use," Chaplinsky claims. Brumbaugh saw that promised improvement the first season.

Installation was fairly simple and took only about four hours. Ewing put a 300-gallon poly tank near the irrigation head. They ran a hose with a 5-hp pump right to the water supply line that leads to the fields. They added a small silo over the system to protect it.

"The soccer fields and football fields had hot spots from Day One," Brumbaugh says. He points a finger at the sand layer in the rootzone mix not getting the water and fertilizer it required. The even, spoon-fed fertilizer application seemed to handle the problem nicely.

"The fertilizer goes on in a more even pattern and gets soaked in immediately," Brumbaugh finds.

He cheats a bit by putting more pressure to the individual heads, throwing water about 5 feet beyond the heads to assure full overlap. "That way, you don't get diamonds on the field," he notes.

There is an additional bonus. "If you get a leak, you sure can find it right away," he laughs. But it was the basics task of getting fertilizer and water to the right spot that most concerned him.

"Lo and behold, it worked," Brumbaugh says. "It saved us money." While he was surprised at the end of the first season, he was savvy enough to know when to double down. He figures he saved about $10,000 in labor and materials the first year. Even with the investment of $5,500 in the fertigation system, the District pocketed about $5,000. On-going electricity costs for the system are minimal, so the system keeps churning out savings annually.

The first system at the Boulevard Activity Center worked so well, they purchased a second system for the Olathe District Activities Center this past season.

"Basically, it is the exact same system," Brumbaugh says.

If he were putting in yet another system, the only thing Brumbaugh would do differently is to be sure there is a drain or flush valve on the system for use at the end of the season to allow them to drain and rinse any remaining chemical in the tank.

"There is a shutoff on the pipe. It's okay as long as there is no chemical left. But be sure to design a way to flush the system with clean water at the end of the season," he advises.

While he was doubling-down on the fertigation system, he was dialing back on the amount of fertilizer and materials used on a regular basis.

In addition to saving on water, he has been able to increase his application interval for Heritage from 21 days to 30 or more days through the May-August season. "We cut out two applications," he says, happily. At $2,000 per field per application, that saves him close to another $10,000 per complex each season.

The fertigation system allows the complex manager to dial-in the application rate from nothing at all to 100 percent application of fertilizer. "We used to run normally at 25 percent," Brumbaugh says. "Now we keep it at 10 percent to save more money."

He is pleased with his soil test results…both the sand cap and the native soil fields are coming back the same.

"That shocked me," Brumbaugh says. "But it's a result of the fertilizer being applied so evenly across the field." He notes that, with granular materials, you get one shot to get the application right. Slight operator error or a gusty wind can cause streaking.

"With fertigation, you get it right. Every time you water, the wind direction is different, so a little of the material hits everywhere, each time," Brumbaugh says. If there is some drift to the south today, it evens out with some drift to the north tomorrow.

In the spring, they try to water the sports fields once every three days. In the summer, they water once a day, especially on the sand caps.

"With so many heads and zones—which we rewired to get micro-fine application—we are able to get what we need where we need it throughout the summer," Brumbaugh says.

The early morning watering typically are shut off before the crews even start work.

"I'm really happy with the system," Brumbaugh concludes. "It's one of the best investments we've made." ■

Chris Harrison is a veteran free lance writer who has written many articles on turf and turf maintenance.