

Fertigation:

Precise control, surprising solutions

Think fertigation's just for golf courses? Think again. It may be the cost-effective alternative a property needs.

By ROBERT E. REAVES

Depending on whom you ask, there are four major reasons why the landscape trade has not rushed to use fertigation:

- ▶ high comfort level with granular fertilizers;
- ▶ higher cost of fertigation equipment;
- ▶ lack of education or misinformation about fertigation; and
- ▶ unwillingness to move toward alternative management practices.

But contractors are always looking for ways to increase revenue and at the same time improve the quality of the customer's landscape. Managers of commercial landscapes and sport complexes need ways to maximize the efficiency of their crews.

Surprisingly for some, fertigation — the application of fertilizer through drip and sprinkler irrigation systems — could be the answer. Not only does fertigation deliver labor and fertilizer savings, it also can mean a healthier landscape and environment through micro-doses of nutrients.

In the commercial landscape trade, myths about fertigation have slowed its

use, which is unfortunate. Did you know that the golf course market represents approximately 15% or less of the turf market revenues in the United States? That means sports fields and landscapes comprise ample opportunities for the savvy landscape professional or distributor.

Sports fields a good target

"Next to golf courses, the largest growth in fertigation will be the municipal and sports field markets," predicts Danny Kruse, irrigation design department manager for Storr Tractor in Somerville, NJ. He says growing suburban communities are running out of space and must use the ball fields they already have.

"Most of these parks and ball fields have major compaction and drainage problems," Kruse says. "I know of one ball field nearby that is used by more than 3,000 kids in a weekend. That's a lot of footprints. They need a fertigation system badly."

Landscape irrigation contractors have plenty of opportunity, too. "An irrigation contractor makes money two ways — when he installs and when he repairs an irrigation system," observes Michael Chaplinsky, owner of Turf Feeding Systems Inc. in Houston, TX. "Every contractor is looking for secondary income. We encourage contractors to go back to their existing customers and sell injection equipment as an aftermarket add-on."

"We are aggressively moving into the commercial landscape market. For example, we have eight units at Mandalay Bay Casino in Las Vegas, which cover all their

grounds and interiorscapes," adds Chaplinsky. "We micro-dose the turfgrass, which allows us to adjust the fertilizer rates up or down." He pointed out that for a landscape management firm or property manager, this results in fewer clippings and less irrigation.

"My biggest hurdle is getting people to use fertigation correctly and not abandoning the product," says Daryl Green, district manager for Pacific Technical Services, Laguna Hills, CA. "The contractor must take a responsibility with fertigation. It is probably the most ideal way to fertilize in drip systems and on slopes, where granular fertilizers wash away."

Remedy for harsh conditions

Steve Trotter, Midwest Turf, Fort Worth, TX, provides nutrition advisory services for golf courses. "Landscape will follow the golf course market and use more fertigation systems," he predicts.

Trotter says nutrient injection is especially beneficial under tough soil and harsh environmental conditions. "Because you are spoon-feeding the turfgrass, you don't have the purge cycle seen with granulars. Fertigation can be the solution if there are mineral deposit problems with the soils or a deficiency in plant tissue. A soil-applied product can't correct these problems."

Research confirms Trotter's comments about the purge cycle of conventional granular fertilizers. G.H. Snyder, B.J. Augustin and J.L. Cisar — three turfgrass researchers at the University of Florida — presented a paper 10 years ago titled, "Fertigation for Stabilizing Turfgrass Nitrogen



Turf Feeding Systems Inc. Model 500 Valve Box System.

Nutrition." They compared treatments of conventional dry granular ammonium nitrate with ammonium nitrate applied through a fertigation system. They found that nitrogen fertigation stabilized turfgrass nutrition during the last weeks of the bi-monthly fertilization cycles, with lower leaching levels.

What does this mean for the facility manager? Because fertigation gives microdoses of nutrients, you won't see the huge flush of succulent growth on plants and turfgrass found with granular fertilizers. Water requirements decrease, along with fewer grass clippings. "We conducted a test for the city of Santa Fe, NM, on several of their parks and found that water reduction went as high as 48% with nutrient injection systems. In the West, water conservation is the biggest issue today," notes Chaplinsky.

Tim Schumacher, president of Bio Green Injector Systems, Las Vegas, NV, says fertigation offers contractors an important advantage with new landscape installations. "New plantings will look much better with the injector systems during the six-month to one-year warranty program on plant material. The chances of a call-

back are much less." He says many contractors lose plants because of high alkaline soil conditions in the Las Vegas area.

"Because an injector system can be used to buffer soil pH, plant losses and callbacks will decrease."

Equipment for any program

Fertigation equipment costs for agricultural and golf course systems can get expensive, but it's a different story for the landscape and sports field markets. Prices are all over the map and continue to decrease. Units with proportional injection are the most popular:

► Turf Feeding Systems' unit for as little as \$1,000 (Model 500 valve box-ground mount system) is specifically designed for ground mounting at office building complexes, parks, sport fields or large estates. It uses a commercial 15 x 21-

in. lockable valve box, which contains a 15-gallon poly tank.

► Green Tech, a firm in Laguna Hills, CA, sells InjectaFLO™ fertilizer injection systems through two different divisions, Enhanced Technical Services (Dublin, CA) and Pacific Technical Services. "The InjectaFLO system includes a flow sensor that installs in the irrigation main line, conveying variable water flow rate data to an electronic batch control unit," says David Gibson, CEO of Green Tech. "Pulse signals are then relayed to a metering pump that dispenses the correct amount of product for the acreage and flow rate."

"A fertigation unit can cost around \$8,000 for sports field applications," notes Kruse. "Cost is the biggest objection I hear with fertigation. However, if the customer lets me take a look at his budget, I can show how a fertigation system actually

saves money over a five-year period."

Kruse likes a unit from Agri-Inject called Inject-Pro™, a five-foot high unit with a tank built right on the unit. It's easy to use — "almost a no-brainer for the customer" — and includes a polyethylene base, a pump, mixer at the bottom of the tank, injector



Agri-Inject's Inject-Pro

probe and a flow meter. Kruse says it is easy to drop on site and plugs into 110 power sources. It's also available in 12-volt DC model and automatically adjusts pump output to water flow changes for consistent application.

What about residential fertigation systems? "A homeowner should expect to pay around \$2,000 for a professional quality



Fertigation units are used to micro-dose nutrients to the 5.5 acres of turf and roses at the San Jose Municipal Rose garden.

unit. They don't need the 'bells and whistles' of a commercial unit, but should look for a quality unit with flow metering," advises Kruse. Will this market be a significant factor? He says no, believing that most homeowners will shy away from fertigation, with the exception of the high-end homeowner with technical interests.

Others, however, think homeowner interest will rise. Bio-Green Injector's systems for commercial and residential use range from \$49.95 for a half-gallon injector system up to \$330 for a 10-gallon system that will treat up to two acres. "We serve more than 2,000 customers, including Rio Hotel and Casino, Texas Station and the Las Vegas Strip," says Schumacher.

How to get off probation

As head gardener at the 5.5-acre Municipal Rose Garden in San Jose, CA, Mary Heidler has her hands full. "Over the years, the garden shifted from an overhead watering system to a new system with flat popup spray heads and three InjectaFlo fertigation systems to control and monitor nutrient levels," says Heidler. "The turf and rose beds are all on separate heads. The only granular fertilizer we use is a single February application of a systemic product."

Heidler says each of fertigation units costs about \$8,000. But the results have been worth it. "This is an All-American Rose Test Center. When I arrived three

years ago, we were placed on probationary status by the organization. After a year with our new irrigation and fertigation system, we were taken off probation because of the improved health of the plants."

But the system is not perfect, she cautions. "The one problem I see is our inability to use different fertilizers for the roses and the turf. However, we believe fertigation is promoting soil microbial activity — breaking up the top portion of our heavy clay soil." To keep the program going, liquid fertilizer is delivered for two 55-gallon tanks. "Locate a reliable fertilizer distributor before you go with a fertigation system," she notes.

"We believe fertigation is a good idea, especially at high-end properties," adds Mike Schmitt, a manager of WaterWise Systems in Calabassas, CA, the water management division of Environmental Care Inc. "Fertigation offers more effective cost and use of time than granular fertilizer, given that irrigation systems are not that efficient." Schmitt believes fertigation will become

even more popular in the commercial landscape trade, particularly in low-volume irrigation systems.

However, he cautions it is essential to examine the distribution uniformity (DU) before considering a fertigation system.

"Otherwise, you are wasting fertilizer just like water." He recommends an irrigation system should have a minimum of 70% DU.

Kruse will not encourage customers to purchase a fertigation system unless they are willing to undergo water, soil and tissue testing. He says customers like New York City's Central Park have seen the benefits of fertigation when combined with testing.

"If you can satisfy customer needs and also take care of the turf, it's

an economic home run. A compact-sized fertigation unit that features ease of installation and use will overcome most objections facilities managers might have with a fertigation system," Kruse adds. **LM**

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— Green