

SPOON-FEED YOUR TURF

WHILE IT MIGHT NOT COMPLETELY REPLACE TRADITIONAL FERTILIZER APPLICATIONS, FERTIGATION ALLOWS SUPERINTENDENTS TO BE EFFICIENT AND HAVE MORE CONTROL



BY JOHN TORSIELLO

At Old Ranch Country Club (opposite page), Richard Swinhart, golf course superintendent, fertigates as a supplement to traditional fertilizer methods. Photo: Old Ranch Country Club



At Bayville Golf Club, Cutler Robinson, CGCS, uses fertigation to apply about 20 percent of his chemical treatments. Photo: Bayville Golf Club

Fertigation, using an irrigation system to deliver fertilizer, wetting agents and other chemical treatments to fairways, tees and greens, has become a more popular and effective way to help manage turf conditions.

“I had experience with fertigation at other courses, and when I got here, I started running a micronutrient program through our irrigation system,” says Kevin Jasinski, golf course superintendent at Minisceongo Golf Club in Pomona, N.Y. “I saw an immediate change in some of the greens – they gained color. I’m also running a wetting agent through the system. That allows me to use less water and also keeps the turf healthy in spots where we’ve had drying problems.”

Fertigation may never completely replace spreader applications of fertilizer, other chemicals and wetting agents on golf courses, or even eliminate the need for manually treating troublesome spots. But it’s a valuable tool superintendents have at their disposal in their ongoing struggle to maintain the best possible playing conditions.

“No, it doesn’t replace fertilizing a golf course through traditional methods, but it’s a nice supplement,” says Richard Swinhart, golf course superintendent at Old Ranch Country Club in

Seal Beach, Calif. “With our high salt content, we really push the gypsum, and it makes a big difference in the quality of the turf. We’ve had the injector break down and be out of action for a few weeks. When we got it up and running again, you could see the difference in color.”

Fertigation is a great tool for a grow-in and spoon-feeding certain areas of a course during its first seven to 10 years of growth, says Mark Mansur, golf course superintendent at Wintonbury Hills Golf Course in Bloomfield, Conn.

“It’s a nice way to enhance manganese levels, and you can incorporate wetting agents into the system to enhance turf conditions,” Mansur says.

Brad Fox, golf course superintendent at New Jersey National Golf Club in Basking Ridge, N.J., believes he has found a magic potion to keep the course’s playing conditions top-notch.

“I’m using the irrigation system to inject sulfuric acid with small amounts of urea to eliminate localized dry spots in the fairways,” Fox says. “This treatment is common out West where they might have poor water quality. I can set the pH level anywhere I want, usually around 6.5, and injecting the acid allows the water and fertilizer to get through the soil profile more effectively. When I run fertilizer and acid through the system

I’m killing two birds with one stone.

“One of the key advantages is that I’ve reduced my water usage by about 50 percent,” he adds. “I’m running the spinning heads only between 15 to 20 minutes four to six times a week. And I don’t need 18 guys going around the course hand-watering fairways. We don’t do any of that, so it saves on man power as well.”

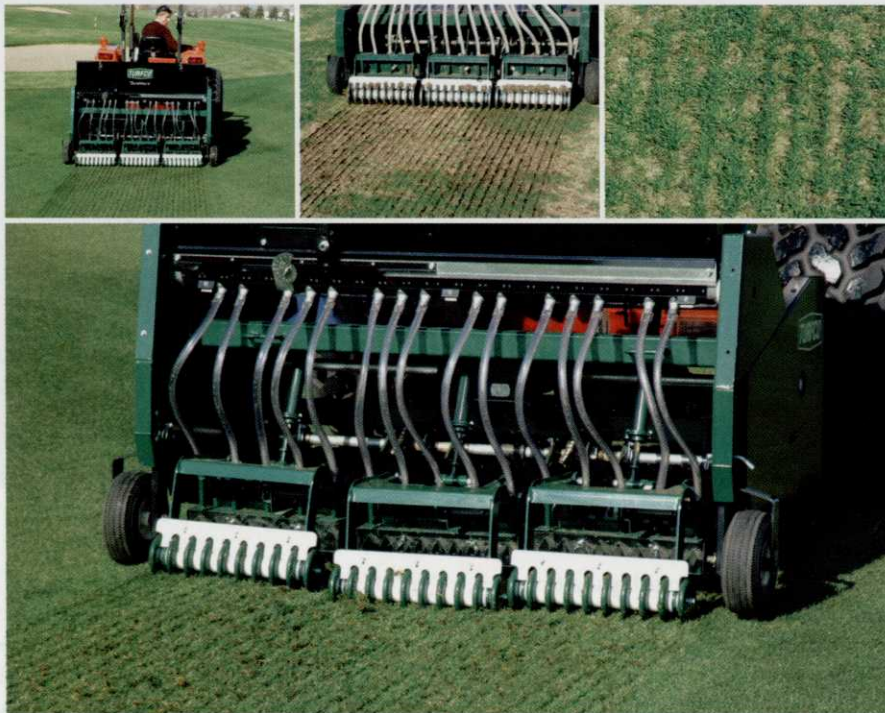
IMPROVED TECHNOLOGY

Using an existing irrigation system to apply fertilizer, wetting agents and other chemical treatments is nothing new to the industry – it’s been around since the 1970s. But the technology has improved, prices of the pumps and injectors needed to fertigate have decreased, and chemicals used in fertigation are more attainable, although golf courses compete with agricultural enterprises for product. Chemicals can be pumped through various types of irrigation systems, from fixed sprinklers to drip and surge irrigation systems.

One of the main benefits of fertigation is that chemical applications can be targeted to specific areas and fertilizer can be applied directly into the soil where it can be most effective for improving and maintaining turf. Because superintendents can spoon-feed turf through fertigation,



Fertigation is a valuable tool for spoon-feeding certain areas of a golf course. Photo: Rain Bird



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the needs of the plant can be met with a higher degree of specificity, producing a better density in the turf canopy, improved grass quality and color, and enhanced plant strength.

Ali Harivandi, Ph.D., a researcher with University of California, is a proponent of fertigation because it's an effective turf management tool.

"One of the major pluses is that the labor involved in spreading large applications of fertilizer once or twice a year isn't there," Harivandi says. "And more importantly, because the plant is receiving a smaller amount of material regularly, the plant can use it more efficiently. What you're doing is spoon-feeding the plant. It's like a human eating five or six times a day instead of one big meal. You process the food better if you spread out your meals and eat smaller amounts."

Fertigation systems have improved considerably during the past 10 to 15 years, Harivandi says.

"Because most systems are now automated, which means levels of fertilizer passing through the system can be closely controlled by a computer, the systems are more reliable and efficient," he says. "I'd say the use of fertigators on golf courses has doubled during the past 10 years."

Many new courses design their water pumping stations to include fertigation equipment. The cost of installing fertigation equipment into an existing water pumping station, while not inexpensive, isn't cost prohibitive for many facilities – somewhere between \$10,000 to \$15,000. The cost might be recouped within a few years through the decreased use of fertilizer and other chemicals, as well as a reduction in labor.

A fertigation system is tied to liquid fertilizer tanks and injection rates are monitored by an injector pump that's tied into the irrigation control panel. The injector pump can be adjusted to several flow rates depending on the specific fertilizer being applied. Control valves allow for multiple tanks to be employed on the same system. Thus, fertilizer can be applied separately or combined to create a specific blend.

"The systems have improved like any other technology," says Joe McCleary, CGCS, at Saddle Rock Golf Course in Aurora, Colo. "We monitor our fertigation system every day and keep track of what we're putting out there and how many gallons of water and chemicals we're using. You can't count on fertigation

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for all your needs, especially in the summer in Colorado when it's dry, but it's an excellent tool when I want to green-up the course quickly before a big event. I can be specific about how much fertilizer I put down."

CONSIDERATIONS

At Bayville Golf Club in Virginia Beach, Va., Cutler Robinson, CGCS, uses fertigation to apply about 20 percent of his chemical treatments.

"Fertigation lets me slow release my chemicals," Robinson says. "I use a baseline of potassium to build the turf. My perfect world would be doing 20 to 30 percent of my feeding through fertigation, another 20 to 30 percent through organic feeding and 50 percent or more through traditional fertilizing methods.

"One of my biggest problems is that I can't get product all the time, and some of it's very expensive," he adds. "So, cost and availability are factors, at least for me."

Swinhart gets around those obstacles by planning ahead.

"Sure there's a cost factor involved because the products you use with fertigation are more ex-

pensive than most granular products," he says. "I tend to buy all my gypsum and fertilizer in bulk, and that helps me with my per-bag price. I'll bring in two truck and trailers of both each year."

Any course with an irrigation system can fertigate. A system's effectiveness might vary from course to course, depending on topography and climate. In areas that receive high average rainfalls, it might be more of a challenge to monitor the application or fertilizer through an irrigation system because of the possibility of runoff caused by heavy rain. If the topography of a golf course is severe, the benefits of fertigation might be less because fertilizer and other chemicals applied through the irrigation system might accumulate at the bottom of berms and hills.

"A superintendent should study the lay of the land and where the irrigation lines run," Harivandi says. "You also need to know what times of the year are best for fertigation. Weather changes the needs of a plant, whether it's dry or wet, warm or cold, and you have to adapt to that. Courses in Nebraska, for instance, don't need nitrogen in the middle of the summer. Because you aren't looking at a date on the calendar and

blasting fertilizer four times a year, you need to be more diligent and precise with your feeding if you fertigate."

There are subtle side benefits to fertigation, Harivandi says.

"When you're fine-tuning a system, you learn more about your course and how best to care for it. You use less water with fertigation. But you do so because you're more tuned into your use of water and not overwatering like many courses do."

There also might be environmental benefits to fertigation. It reduces the need to broadcast large amounts of fertilizer and other chemicals onto the turf, which can lead to runoff into aquifers or other nearby above ground water supplies.

At Old Ranch Country Club, Richard Swinhart buys gypsum and fertilizer in bulk to save money. Photo: Old Ranch Country Club



Because they contain chemicals, the tanks used for fertigation must be placed in a containment building to avoid soil and water contamination if there's a leak in a tank.

And while tanks containing pesticides can be tied into an irrigation system, most superintendents shy away from using these chemicals in their irrigation system because of environmental concerns.

"I consider having the ability to fertigate my course a huge plus," Jasinski says. "I worked at a course that didn't have it, and the superintendent was very persistent with the president of the green committee to approve buying a system to add onto the existing irrigation system. It's better to have a fertigation system than to not." GCI

John Torsiello is a freelance writer based in Torrington, Conn. He can be reached at jtorsiello@sbcglobal.net.

THE SKINNY ON FERTIGATION

Pros

- Allows more efficient fertilizer, other chemical and wetting agent use
- Running wetting agents through a fertigation system can reduce water consumption
- Reduces manpower costs associated with hand-watering and spot fertilization
- Can be fine-tuned to meet specific demands of turf during various times of the year
- Reduces potential for environmental harm by avoiding runoff associated with using large amounts of fertilizer at one time

Cons

- Somewhat costly, especially if adapted to existing irrigation systems
- Chemicals used in fertigation systems can be expensive, and availability is an issue sometimes
- Fertigation can be used only on golf courses that have irrigation systems
- Demands careful planning and monitoring to assure maximum benefits
- If a course's irrigation system is old, using it to fertigate might provide uneven results and spotty color

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