With foliar feeding on the rise, nitrogen use declines

BY KEVIN J. ROSS, CGCS

While the principle of fertilization has remained the same — supplying nutrients to the plant for optimal health — technology has changed the amount used, application techniques and sources of nutrients.

Analyzing greens fertilization today, we see two very big changes. First, the total amount of nitrogen used per 1,000 square feet has dropped dramatically over the past 25 years. James B. Beard’s 1973 textbook “Turfgrass Science and Culture” (widely regarded as the Bible of turfgrass management) stated that the nitrogen requirement for bentgrass should be 0.8-1.4 #N/M per growing month. Looking back, even Beard himself acknowledges that was too high. Today, we have some greens being managed with as low as 1-2 #N/M per year. Disregarding a grow-in situation, the nitrogen amounts have dropped from Beard’s first recommendations to the current 0.25 - 0.50 #N/M range per growing month.

The second change is the incredible popularity of foliar feeding. This may be the one practice that has led to the use of less nitrogen. Spraying low amounts of nitrogen, with the use of a solubles/liquids, has become one of the most popular methods of fertilization over the past 10 years. This method, or “spoon-feeding” as it’s been called, is not strictly limited to greens. Many courses

Companies put new spin on organic fertilizer products

BY A. OVECKER and D. RICE

GLEN BURNIE, Md. and NORTH AMHERST, Mass. — Two organic fertilizer manufacturers have formed new distribution ventures and dramatically expanded product offerings in an aggressive move to increase their golf industry presence.

Tim Davison, head of Davison Golf, has formed a new venture, Bio Basics LLC, to roll out a line of organic liquid and granular fertilizers and amendments nationwide.

Davison Golf has been distributing organic fertilizer and other products in the Mid-Atlantic region since 1991. EcoOrganics Inc., a firm founded in 1999 by three professors at the University of Massachusetts to develop organic fertilizers, has teamed up with Soil Technologies Corp. to increase the distribution of its products in the Eastern U.S.

Both companies offer unique fertilizer technology that could

SUPER ideas

Farley’s ‘dead ringer’ keeps tree bases neat

One of the first things I did when I arrived at Teal Bend Golf Club was spray the tree bases for weeds. Nothing can bring down the looks of an otherwise tidy course than weeds and scrappy grass at the base of trees. In order to help my spray technician apply herbicide in a perfect circle of consistent size I fabricated a simple device. For lack of a better name I call it ‘the dead ringer’.

It simply consists of a steel hook and a piece of rope with a loop on the end. The steel hook is hooked around the tree and the end of the paint gun goes in the loop. Then all you do is pull the rope tight and pull the trigger as you walk around the tree, painting a perfect circle. You just have to decide how large of a diameter you prefer around your tree bases.

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Most of my trees are young and have trunk sizes of around six to 12 inches and are generally 10 to 20 feet tall. For those trees I use a section of rope one and a half feet long, giving me a ring of three feet across. This is proportionally correct and gives the mowers ample room to work, allowing them to stay away from the tree’s base.

When it comes to the native valley oaks, I like to come all the way out to the drip line of the tree’s outer canopy. In fact the course’s EIR (Environmental Impact Report) requires us to keep all turf and irrigation away from these particular trees. For those situations I pull a section of rope out to the drip line and boom, there’s my radius.

— John Farley, superintendent, Teal Bend Golf Club, Sacramento, Calif.

When it comes to greens fertilization programs, there is no true standard in today’s industry. It is certainly a matter of experience and preference of the individual superintendent. The general program that seems to be emerging in popularity is a single granular application, usually in the spring and/or fall, and a spoon-feeding approach for the remaining months. For example, to calculate the total nitrogen of this type of program, it might be a spring and fall application at 0.5 #N/M of a granular material, and applications of soluble/liquids at a rate of 0.1 #N/M every 10 days throughout the season. In an approximate seven-month growing season, this nitrogen total is in the 2.5 #N/M range.

However, along with the amazing popularity of spoon-feeding, questions are being raised regarding the efficacy of foliar feeding. What are the maximum amounts of nutrients that the plant can absorb through the leaf tissue? Does the type of nitrogen matter? How much is lost to volatilization?

There has been very little research done on foliar feeding of turfgrass. In the agriculture industry, foliar research has been conducted for many years. The initial work that has been done indicates that a maximum of 0.1-0.125 of #N/M may be absorbed through the foliage. Research has shown that about 30 percent of the material is absorbed during the first hour after spraying, then 25 percent will be absorbed during the next 24 to 48 hours, and the remaining will likely be lost. This will also vary depending on mowing and irrigation schedules. Research has also shown that water pH of the spray mix and type of nitrogen used will greatly influence how much is absorbed by the plant. A tank mix with high water pH has the potential to convert the nitrogen to the ammonium form and have a high volatilization potential. Nitrogen compounds that are positively charged can also be absorbed electrically by the plant cells, whereas negatively charged nitrogen compounds cannot.

So what does all this mean for the industry? Even though foliar feeding has become the rage of greens fertilization programs, there are still many questions that remain to be answered from a scientific basis. Research needs to be conducted to answer the questions that are being asked. Only time will tell if foliar feeding will become the standard method of fertilization.

Farley’s SUPERidea

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Got a SUPERidea of your own? Email your ideas to editor Andrew Overbeck at aoverbeck@golfcoursenews.com. If your idea is selected for publication, we’ll send you a Golf Course News golf shirt.