



Let's return to science-based turf fertility

Dec 17, 2009
By: Ron Hall
Athletic Turf News



COLUMBUS, OH — It's time to get back to university-recommended levels of soil fertility in our golf course, sports turf and commercial turfgrass programs, agronomist Dr. Chuck Darrah advised about 200 turf managers at the recent Ohio Turfgrass Conference here. That means providing the proper amounts of nutrients, including two of the most critical – nitrogen and phosphorus – that some of us have been skimping on in recent years.

“You have to understand that these are essential plant nutrients, and plants need them and we must supply them in our fertilizers,” said Darrah.

Evidence suggests that, because of price and regulatory action, many turfgrass managers reduced the amount of nitrogen and phosphorus in their programs. This can't go on, not if producing green, healthy turfgrass is their goal, said Darrah.

Price, in particular, is no longer an excuse for giving turfgrass what it requires. The historically high fertilizer costs that rocked lawn care company owners and turfgrass managers in 2007 and 2008 have moderated. On the regulatory front, some regions of the country have enacted regulations to:

- Control the amount of phosphorus applied to landscapes.
- Forbid the application of lawn fertilizer during certain times of the year. For example, several communities on Florida's Gulf Coast no longer allow turf fertilization during the summer (“the rainy season”). That, of course, is the season when warm-season grasses are growing fastest and most in need of nutrients.
- Limit how much fertilizer can be applied at one time or limiting the number of applications per year.
- Establishing limits on soluble vs. slow-release sources of nitrogen.

Darrah, founder and owner of soil testing laboratory CLC Labs, Westerville, OH, was openly skeptical of the wisdom of some of these regulations, especially those that disregard or go against the recommendations of university or extension experts.

“In my opinion as an agronomist, we've moved in the wrong direction,” said Darrah. “We have a good story to tell in turf, if can get the attention of the public and politicians.”

He spent much of his presentation explaining the role of nitrogen (N), the most critical and expensive element in any program, and phosphorus (P), which is essential for the establishment of newly planted turfgrass.

The blame game

Nitrogen and phosphorus fertilizers are often blamed for contributing algae blooms in ponds and lakes. And, yes, by applying both elements in excessive amounts, on impervious surfaces or by blowing leaf clippings onto sidewalks or streets where they can wash into storm drains can cause serious water issues. But, the amount and manner of nutrient use are all under a turf manager's control.

While turfgrass managers are keenly aware of the need for N in keeping turfgrass green and attractive, the role of P is sometimes not as clearly understood. Make no mistake about its importance, said Darrah. Turfgrass thins out, becomes poorly rooted and becomes susceptible to drought and red thread in phosphorus-deficient soils, he said.

Phosphorus issues

Phosphorus, in particular, has been singled out as a contributor to excessive algae and plant growth in ponds, lakes and bays. In 2001, the State of Minnesota passed legislation forbidding the use of phosphorus fertilizer except when establishing new turfgrass or when soil tests indicate low soil phosphorus levels. Several other states and regions have followed suit. Again, in all cases, they allow the application of P if soil tests indicate that it's needed and during the establishment of new stands of turfgrass.

It turns out that these laws often increase rather than decrease the amount of phosphorus applied to soils since many soils, when tested, are deficient in the nutrient. It's not unusual for the subsoils found on many residential properties to lack P. Developers often strip and sell the topsoil prior to home construction. Properties that were previously farmed and fertilized, by contrast, generally contain acceptable levels of phosphorus, which binds to soil.

Darrah said that of the 3,500 soil tests that his company has performed from properties in and around Minnesota's Twin Cities, 28% needed additional levels of P, according to University of Minnesota recommendations. Similarly, in Maryland, which requires soil tests for all commercially treated properties, many soils showed low levels of P, prompting turf managers to increase the levels of that element in their programs.

Phosphorus revisited

"Because of the Minnesota controversy, the universities went back and looked at phosphorus again, and what turfgrass needs," said Darrah. Although some states had recommended soil levels of 75 ppm or more, he said the generally agreed rate now is 20-25 ppm for established turfgrass and 40-45 ppm for turfgrass establishment. The bottom line : Turfgrass needs adequate amounts of P to remain vigorous and healthy.

Indeed, stands of healthy, properly fertilized and maintained turfgrass prevent rather than contribute to nutrient loading in ponds, lakes and bays, said Darrah. Work by Dr. Tom Watschke at Penn State several decades ago, which has been repeated with variations at other universities since, including Dr. Wayne Kussow at the University of Wisconsin, have conclusively demonstrated that healthy turfgrass slows and traps surface water runoff.

"In a good stand of turf we don't get much erosional loss," said Darrah, adding that runoff is greater from a thin, poor stand of turfgrass caused by P-deficient soils. "Think about restoring P back into your programs, at least some P," said Darrah.

In response to a question from the audience, Darrah recommended that turfgrass managers should sample and test native soils under their care once every "three or four years."

Darrah, formerly with the University of Maryland and for many years with ChemLawn, advised the turf managers at the Ohio conference to acquire and reference the book, *"Turfgrass Soil Fertility & Chemical Problems Assessment and Management,"* by R. N. Carrow, D. V. Waddington and P. E. Rieke, for reliable information for keeping their fertility programs on track.

He concluded by reminding them that the price of turfgrass fertilizers has retreated from their record 2008 highs, so it's time to quit skimping on their programs (assuming they were) and to bring the nutrient levels of soils under their care back to university-recommended levels.