2009 TURFGRASS FERTILITY REPORT

PART TWO OF A TWO-PART SERIES

AS YOU BALANCE ECONOMICS AND AGRONOMICS RELATED TO YOUR CHOICE OF FERTILIZERS, KEEP IN MIND ENVIRONMENTAL CONSIDERATIONS, TOO

ILLUSTRATION BY: ISTOCK INTERNATIONAL INC.

INSIDE:

WORD FROM OUR PARTNER

Right Fertilizer Choices Reduce Environmental Footprint and Increase Bottom Line

In recent years, increased concerns about protecting water from fertilizer runoff and leaching have prompted government officials to pay closer attention to the landscape industry. In fact, some local and federal regulatory agencies, notably the Environmental Protection Agency (EPA) and Department of Environmental Protection (DEP) are considering imposing new restrictions on fertilizer applications.

By using the right fertilizer at the right rate, time and place, landscape professionals can realize cost and time savings with fewer applications, remain competitive in the market and stay ahead of possible environmental restrictions.

Fertilizers and the Environment

Most traditional fertilizers are water soluble and release nutrients quickly. When nitrogen is delivered too quickly for the plant to take up, unused nutrients are often lost to the environment. A nutrient that leaves its intended application site risks becoming a pollutant. Movement of nitrate-nitrogen generally receives the most attention because it can contaminate ground water and cause health hazards. Excess nitrate-nitrogen and phosphorus in water bodies or wetlands can cause algae bloom and other plant growth that deplete oxygen in the water and reduce its ability to support life. In addition to the environmental impact, the loss of fertilizer nutrients to the surrounding environment represents lost value from professional landscapers' fertilizer budgets.

Slow- and Controlled-Release Fertilizers Reduce Environmental Losses

Slow- and controlled-release fertilizers deliver nutrients to the soil gradually and consistently feed the plant over a longer period of time. These fertilizers are manufactured in a way that prevents water from rapidly dissolving the fertilizer nutrients. The purpose is to prevent release of the nutrients immediately following application. Instead, nitrogen is gradually released in unison with turfgrass demands.

Slow- and controlled-release fertilizers effectively deliver more nutrients to intended plants while protecting against environmental loss. Nutrients stay in the root zone for longer and feed the plant at the root, which results in green, healthy turf and a significantly lower impact on the environment.

Agrium Advanced Technologies' Earth-Friendly Fertilizers

Agrium Advanced Technologies' slow- and controlled-release fertilizers are engineered with advanced-generation coatings and other proprietary technologies that increase nutrient uptake by plants and reduce losses to the environment.

Landscape professionals rely on our environmentally friendly fertilizer technologies to control nutrient release for improved plant growth and environmental performance. Agrium Advanced Technologies' product line includes the following slow- and controlled-release products—POLYON®, NITROFORM®, NUTRALENE®, XCU™ and DURATION CR®.

Our company is working hard to provide innovative, cost-saving solutions with slow- and controlled-release technologies and we're committed to helping our customers discover smarter ways to grow. For more information, please visit our website www.AgriumAT.com.

FERTILIZER BMPs MATTER —FOLLOW THEM

ENVIRONMENTAL CONSIDERATIONS JOIN AGRONOMIC AND ECONOMIC CHOICES IN DEFINING THE BEST MANAGEMENT PRACTICES FOR LAWN CARE COMPANIES AND THE LAWN SERVICE INDUSTRY. BY RON HALL, EDITOR-AT-LARGE

A fertility program is part agronomics and part economics. But according to Jon Cundiff, an increasingly important third leg of any landscape fertility program is environmental stewardship.

Cundiff should know. He has worked his entire adult life in the Green Industry. He started his career in turfgrass as a teenager working on the grounds crew for the Kansas City Royals baseball team. Presently, he and his wife, Vicky, co-own Turf's Up-Weed Man, a Kansas City-area lawn care company.

Depending on the weather, Kansas City can be a difficult place to grow quality turfgrass. With its hot, humid summers and freezing winters, it's in a part of the country known as the transition zone, where typically neither warm-season nor cool-season species thrive.

This year the weather gods smiled on the region with wet, relatively cool weather. Lawns, most of them cool-season tall fescue, entered the fall looking green and full, Cundiff says.

Cundiff is keenly aware of turfgrass fertility best management practices (BMPs), partly because he tracks and incorporates into his program recommendations from turfgrass experts at the University of Missouri and Kansas State.

"We're looking at our programs and determining what worked and what didn't," he says. "We're in the process of determining if there's anything we want to tweak for next season in our fertility program."

Jon Cundiff follows recommendations from local universities to keep his firm's fertility program on target.

PHOTO BY: ISTOCK INTERNATIONAL INC.

Train your technicians

Gary LaScalea, whose career in lawn care started as a manager for ChemLawn during its glory days in the 1980s, will only send trained and knowledgeable technicians to fertilize customers' lawns. Because of that philosophy, the company he founded 15 years ago, Plano, TX-based GroGreen, Inc., maintains an employment strategy focused on keeping great technicians. When it hires a new employee, he says it takes at least a week — and sometimes two — for the new prospect, working under the guidance of an experienced technician, to be allowed solo on clients' properties.

The on-the-job portion of GroGreen training consists of:

› learning how to calibrate a spreader;
› using a deflector to direct fertilizer prills where they belong;
› preventing fertilizer from entering waterways; and
› sweeping fertilizers from sidewalks, driveways and other non-turf surfaces.

ENVIRONMENTAL BENEFITS OF TURFGRASS

While homeowners appreciate the beauty of their lawns, few recognize their environmental benefits:

- erosion control
- dust stabilization
- precipitation capture for groundwater recharge
- surface water quality improvement
- improved entrapment and decomposition of synthetic chemical pollutants
- soil restoration
- heat dissipation and temperature moderation
- noise abatement
- glare reduction
- sequestration of carbon dioxide

ANNUAL NITROGEN REQUIREMENTS BY DIFFERENT SPECIES

COOL-SEASON GRASSES	LBS. N/1,000 SQ. FT./YEAR
Sheep and hard fescue	0-3
Red fescue	1-3
Tall fescue	2-4
Perennial ryegrass	2-4
Improved Kentucky bluegrass	2-4
Common Kentucky bluegrass	1-2
Creeping bentgrass	3-8
WARM-SEASON GRASSES	**LBS. N/1,000 SQ. FT./YEAR**
Improved Bermudagrass	4-8
Buffalograss	0-2
St. Augustinegrass	2-4
Zoysiagrass	2-4

SOURCE: UNIVERSITY OF ILLINOIS TURFGRASS EXTENSION & OUTREACH

Organic vs. synthetic

He says proper fertilization is based on the four R's — Right source, Right rate, Right time, Right place.

Seemingly, there's always discussion (and oftentimes disagreement) about the use of inorganic or organic fertilizers. There shouldn't be because plants, including turfgrasses, take up nutrients in inorganic forms, usually ionic forms. Consequently, organic molecules of organic fertilizers must decompose into smaller inorganic components before they can be taken up by turfgrass. Plants don't favor one source of nutrients over another as long as the required amounts and forms of nutrient ions are available.

Even so, some lawn care business owners see advantages to using organic materials alone or in combination with synthetic fertilizers. For example, Brent Flory, founder and president of Freedom Lawns, Inc., Delphi, IN, mixes and uses aerobically generated compost with urea on customers' lawns. The carbon sources in the compost help keep the urea (which he needs to increase the nitrogen to an acceptable level for the desired turfgrass response) from releasing so quickly. The humic acids in the mixture promote plant health, he says.

"The material I use on our properties is teaming with microorganisms that build the soil. I rarely worry about diseases or other problems on our lawns," says Flory, who was an agriculture consultant and fertilizer formulator before starting his landscape/lawn service company more than two decades ago.

Like all responsible lawn care business owners, Flory is aware of the environmental consequences of sloppy or inappropriate fertilizer applications. His technicians use products at the right times of the season and in the right amounts to provide optimum plant benefits — and keep nutrients from entering the waterways in the scenic Wabash River watershed, his principle market.

Fertilizer runoff into streams, lakes, bays and other surface waters is the main environmental concern about fertilization. Excessive levels of phosphorus in these surface waters have resulted in regulations that limit phosphorus in fertilizers in some areas.

More recently, turfgrass fertilizer itself — not just phosphorus — is a product category that's ending up in the crosshairs of policymakers in several regions of the country.

Brent Flory adds aerobically generated compost to fertilizer applications as an additional carbon source.

PHOTO BY: ISTOCK INTERNATIONAL INC.

The blame game

For example, county officials in Pinellas and Hillsborough counties on Florida's Gulf Coast have been considering a ban on the use of lawn fertilizer (by professionals and do-it-yourselfers alike) during the summer to curb the development of toxins and algae in Tampa Bay and other surface waters. Officials claim residential runoff accounts for 20% of the nutrient runoff in the Bay. This past summer, an algae bloom stretched 14 miles across the Bay.

The turfgrass industry says that banning lawn fertilization in the summer won't solve the region's water quality problems — and may, in fact, contribute to them. It says that as turfgrass on home lawns and other properties becomes thinner it is less able to retain precipitation and prevent runoff.

Regulators are targeting both do-it-yourself (DIY) homeowners and professional lawn application companies.

Of the two, professionals (if they are professionals) build their programs incorporating BMPs, including soil testing, and the proper product selection, amount and timing for the type of turfgrass they're fertilizing. They monitor soil conditions and seasonal needs, and keep fertilizer off impervious surfaces and away from streams, lakes, ponds and other sources of surface water.

"We don't run soil samples on every customer every year, but we run about 50 a year," says Mark Grunkemeyer, president of Buckeye EcoCare in Centerville, OH.

Soil testing is particularly important to Grunkemeyer because of the differences in soil types from the southern to the northern ends of his service area.

"We base our programs on the fertilizer standards provided by The Ohio State University, but our technicians have the ability to give lawns what they need, usually at the neighborhood level," he says. "They're well trained — and well compensated." LM

SOME NITROGEN CARRIERS AND RELATIVE CHARACTERISTICS

CARRIER	% NITROGEN	ANALYSIS	RESIDUAL RESPONSE	LOW TEMP. EFFECTS	BURN POTENTIAL	LEACHING POTENTIAL
QUICK RELEASE						
Urea	45-46	45 or 46-0-0	short	rapid	high	moderate
Ammonium nitrate	33-34	33 or 34-0-0	short	rapid	high	high
Ammonium sulfate	21	21-0-0	short	rapid	high	high
Potassium nitrate	13	13-0-44	short	rapid	high	high
Diammonium phosphate	20	20-50-0	short	rapid	moderate	moderate
SLOW RELEASE						
IBDU	31	31-0-0	moderate	moderate	moderate to low	low
SCU	22-38	22 to 38-0-0	moderate	moderate to low	low	low
Resin-coated urea	24-35	24 to 35-0-0	moderate to long	moderate	low	low
Methylene ureas & ureaformaldehyde	38	38-0-0	moderate to long	very low	low	low
Activated sewage sludge	4-6	4 to 6-4-0	long	very low	very low	very low
Manures	1.5-3	variable	long	very low	very low	very low
Dried blood	3-14	variable	short	moderate	very low	very low

SOURCE: UNIVERSITY OF ILLINOIS TURFGRASS EXTENSION & OUTREACH

GROWTH RESPONSES OF MAJOR MINERALS USED BY TURF

MINERAL	RESPONSE
Nitrogen (N)	green color; shoot growth and density; root growth; carbohydrate reserves' recuperative potential; heat, cold and drought hardiness; wear tolerance; and disease susceptibility
Phosphorus (P)	establishment rate, maturation, root growth, seed production
Potassium (K)	root growth; heat, cold and drought hardiness; wear tolerance; disease susceptibility
Sulfur (S)	green color, shoot growth and density, root growth, carbohydrate reserves, disease susceptibility
Iron (Fe)	green color; shoot growth and density; root growth; carbohydrate reserves; heat, cold and drought hardiness; wear tolerance

SOURCE: UNIVERSITY OF ILLINOIS TURFGRASS EXTENSION & OUTREACH

2009
TURFGRASS
FERTILITY REPORT

CONTRACTORS CHANGE THEIR FERTILIZER SELECTION AND PURCHASING DECISIONS FOLLOWING HISTORICALLY HIGH PRICES IN 2007 AND 2008.

BY CINDY GRAHL

LESSONS FROM THE PRICE SPIKE

Commodity prices have settled since the world economy plunged in late 2008. The price of fertilizer has stabilized as a result. This is in stark contrast to the volatility denting contractors' budgets for the 2007 and 2008 seasons. During the 12 months ending April 2008 nitrogen prices jumped 32%, phosphate prices increased 93% and potash prices exploded 100%, says the U.S. Department of Agriculture.

The eruption in the cost of fertilizer was tied directly to the exploding demand for natural gas and other raw materials, such as phosphorous, potassium and sulfur, which is used to coat some urea products. Robust worldwide economic expansion fueled this demand and increased prices of all commodities, including farm products such as corn, which also rose 100%. Since then the world's economic picture has changed dramatically — and prices for all commodities have fallen.

How long prices will remain steady depends on demand resulting from an anticipated worldwide economic recovery. The minerals that comprise fertilizers are traded globally.

The price of natural gas figures largest in the fertilizer price picture. It takes 33,500 cu. ft. of natural gas to manufacture a single ton of anhydrous ammonia, which is found in most of the popular forms of nitrogen fertilizer the Green Industry uses.

Prices also were affected by the rapid expansion of the ethanol industry, which led to increased demand for corn crops, further boosting fertilizer prices.

To hedge against this volatility, including future price surprises as the world economy rebounds and drives demand for resources again, lawn care professionals are looking to buy smarter and increase the efficiency of their fertilizer applications.

Michael Turner, president of Custom Lawns in North Ridgeville, OH, didn't worry much about prices previously. But he says a big reason why the company maintained last year was because he bought fertilizer in May.

"We anticipated an increase, but not on the order of 20% per month," he says.

Jack Robertson, president of Jack Robertson Lawn Care in Springfield,

IL, was moved to action by the price volatility of the last 18 months. He says now checks prices as well as different suppliers more frequently than in the past to get the best value for his dollar.

Harnessing technology

End users, fertilizer manufacturers and suppliers are seeking to increase the efficiency of fertilizer. More attention is being given to slow- and controlled-release products, including those that use polyurethane coatings or chemical bindings to make nutrient release more consistent. These are activated over a longer period of time by hydrolysis or temperature-controlled diffusion, and release the nutrients at a more controlled, plant-available pace.

Fertilizing the "old way" with frequent applications wastes product and money because too much is used and it runs off or leaches into the water table, says Chris Derrick, technical specialist at Agrium Advanced Technologies, Sylacauga, AL.

"Lawns want to be spoon-fed, given the proper nutrition, with fertilizers applied appropriately," he says.

Thus, using a more efficient fertilizer that delivers a more effective application of nutrients reduces product costs and enhances performance.

Quick-release fertilizers are typically applied about every six weeks with an initial whoosh of nutrient (and nutrient waste).

"The old mindset is for LCOs to keep fertilizing every month; it makes the customer feel good," Derrick says.

But that idea is changing. Contractors should take a lesson from golf course superintendents because they have access to the latest turf management technologies, Derrick says. Slow- and controlled-release fertilizers allow lower rates of application and fewer applications a year. Although the product may cost a little more up front, these means that applications are reduced, saving labor and product costs. Delivery fuel and inventory costs are reduced, too.

Timing and storage options matter

When buying fertilizer, more LCOs are employing various purchasing and storage strategies to take advantage of pricing and delivery options.

"Our bidding begins in January, and we give our list for the entire year to four or five suppliers," says Rick Kier, president of Pro Scapes in Jamesville, NY.

Kier says he buys in two different ways: 50-lb. bags on a skid or 10 to 12 tons of liquid fertilizer in one big truckload. Pro Scapes has a 6,500-gal. tank of liquid fertilizer on-site, and keeps granular fertilizer in storage one month before it's needed, buying as needed to avoid tying up capital.

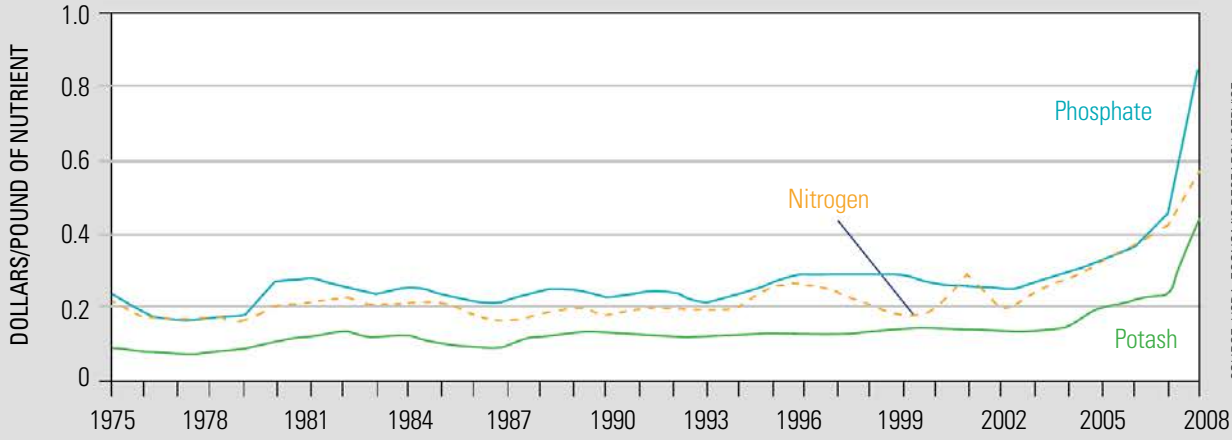
"Using common sense and planning ahead are the best ways to save money, as well as knowing your square footage, because you can find out that an $18 bag is $14 two months later," he says.

The Kapp's Lawn Specialists branch in Macedonia, OH, buys in the winter, usually in January. It purchases as much as 11 truckloads at a time, with as many as seven of those self-stored.

PHOTO/ILLUSTRATION BY: ISTOCK INTERNATIONAL INC.; PHOTO COURTESY: JACK ROBERTSON

Price is the average for April of each year. Nitrogen prices are average prices of nitrogen nutrient in anhydrous ammonia, nitrogen solution, and urea. Phosphate prices are the P_2O_5 prices of superphosphate. Potash prices are the K_2O prices of muriate of potash.

PRICES OF FERTILIZER NUTRIENTS INCREASED SHARPLY TO HISTORICAL HIGHS IN 2008



"We look at our usage for the entire season," says Branch Manager Robert Walls, Jr. "Sometimes we buy less, sometimes more."

Walls shops around for the best price, not assuming local suppliers will have it. He says he is always willing to negotiate.

Dennis' 7 Dees Landscaping in Portland, OR, has a program with a local distributor familiar with its needs. The distributor makes the recommendations, and it works very well, says Department Manager Jeff Rieger. The company buys the one-ton pallet with a preset price because the supplier knows the volume the company buys. The distributor stores the supply for Dennis' 7 Dees and delivers it as needed.

"We buy by the truckload, as needed, based on what it used in the past and on price, volume and quality," says Jack Roberson. "We buy on demand to avoid the expense of storage and insurance costs. Sometimes the dealer stores it, and sometimes it's delivered to the company's warehouse."

What it's all about

In the long run, fertilizer should be used to enhance lawn health and appearance, Derrick says. Agrium has an online prediction tool to allow managers to look at cost savings relative to their own microclimate and specific location, based on the actualities of water release and weather in a 12-year period.

Rieger is a proponent of slow-release fertilizer.

"We know mowing is what will kill you because increased growth slows down productivity for our crews, so we're careful not to overfertilize," he says. "We know what the square footage is and don't work it too hard. We do four to five applications of slow release a year. That way, we don't have to fertilize until the last half of April. Our goal is to have the last application stretch through the winter and spring months."

Paying attention to the local climate conditions is important.

"In our climate, we need a certain amount of slow release between February and early October," Turner says. "We outline a four- or five-step program to get a certain amount of nutrients. We'll use slow release in spring and summer and late summer, depending on the climatic calendar."

Walls prefers slow-release fertilizer but, depending on the client, may use a product that's applied as much as six times annually.

"We're getting good feedback from LCOs about the slow- and controlled-release fertilizer products," Derrick says. "They may need to make fewer trips to fertilize, but they can use that time to do things such as weeding, edging and other tasks that bring value to the service."

Environmental benefits

Fertilizer also plays into today's sensitivities about sustainability. A more precise nutrient delivery system reduces runoff and surface or groundwater contamination. Ultimately, contractors must sell themselves not on how often they apply fertilizer, but on the result they achieve: the look and the health of the lawn. It's important for contractors to focus on that outcome.

"We save not so much on product as by being a knowledgeable shopper, knowing the different types and makeup of various products," Kier concludes. "We use slow release four times a year. It depends on how many applications you make. And it depends on your ultimate goal." LM

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