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