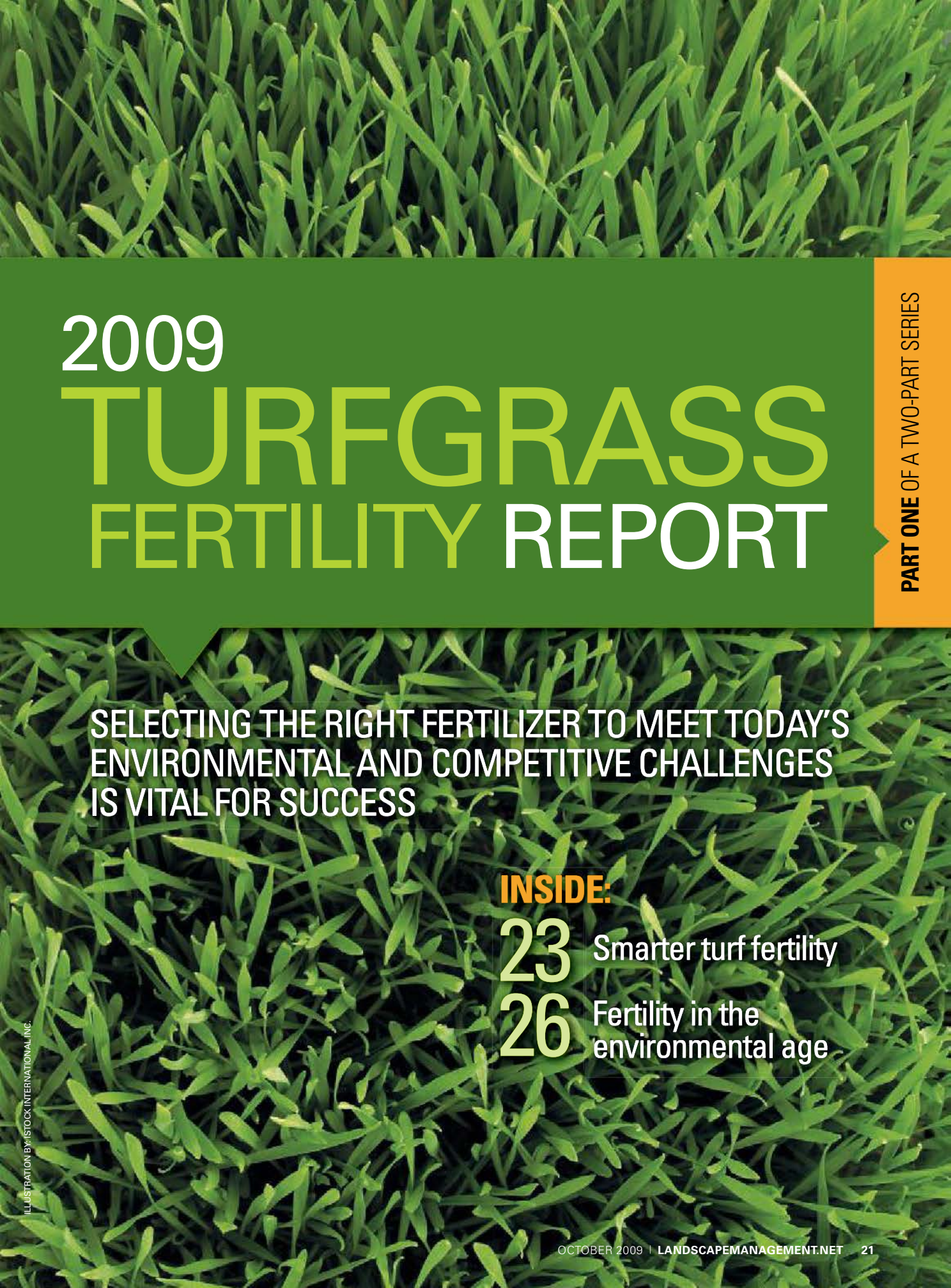

2009 TURFGRASS FERTILITY REPORT

PART ONE OF A TWO-PART SERIES

SELECTING THE RIGHT FERTILIZER TO MEET TODAY'S ENVIRONMENTAL AND COMPETITIVE CHALLENGES IS VITAL FOR SUCCESS

INSIDE:

ILLUSTRATION BY: ISTOCK INTERNATIONAL INC.

WORD FROM OUR PARTNER

Increase Profits and Efficiency with Slow- and Controlled-Release Fertilizers

Today, landscape and lawn care professionals face greater pressures, especially in financial terms. Rising fuel, material and labor costs have dipped into profits and the slowing economy means some homeowners and property managers are eliminating services to accommodate their shrinking budgets.

Landscape and lawn care professionals need to make some changes in order to remain competitive. Re-evaluating fertilization is a good place to start.

When it comes to achieving green, healthy turf and plants, fertilizers represent a necessary and essential investment and a significant time requirement. If those commitments can be reduced, the efficiency and profit potential for the applicator can be considerably greater.

More Weeks of Green Equals More Savings

Nitrogen is essential in all fertilizers, but not all fertilizers that contain Nitrogen are the same. The main difference is how Nitrogen is released, which impacts how often and how much to apply—this varies greatly from fertilizer to fertilizer.

Most traditional fast-release fertilizers are highly water soluble and typically release their Nitrogen quickly and all at one time. When this happens, nutrients may not be available to the plant later on. This means several more applications may be needed to keep the landscape green and healthy.

Slow- and controlled-release fertilizers, on the other hand, are manufactured in a way that prevents water from rapidly dissolving the fertilizer nutrients. Instead, nutrients are gradually and consistently released to the soil to meet plant demands over a longer period of time.

Slow- and controlled-release fertilizers allow landscape and lawn care professionals to increase their productivity and lower overhead costs. And, because nutrients are supplied gradually to plants, slow- and controlled-release fertilizers also minimize the chance of nutrient losses to the environment through leaching or volatilization.

Wasted Applications

Recent survey results show that landscape and lawn care professionals across the country typically average four to six fertilizer applications per year at any given location. That eats up quite a bit of time, energy, labor and fuel. Slow- and controlled-release fertilizers, like Agrium Advanced Technologies' XCU™, DURATION CR®, NITROFORM®, NUTRALENE® and POLYON® brands, allow lawn care professionals to lower annual use rates, make fewer applications and provide a steady supply of nutrients into the soil over many weeks or months. This means customers' lawns will get the nutrients they need to stay healthy and look good, and you'll save money.

It's important for landscape and lawn care professionals to re-examine their approach to fertilization—especially in regard to weeks of green and the cost savings associated with enhanced efficiency fertilizers.

As the leading manufacturer of slow- and controlled-release fertilizers and plant protection products for lawns, landscapes, golf courses, greenhouses, nurseries and agriculture, Agrium Advanced Technologies is at the forefront of economic, environmentally friendly fertilizer technologies. 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 www.agriumat.com.

SMARTER TURF FERTILITY

SUCCESSFUL LAWN AND LANDSCAPE PROS BASE THEIR FERTILIZER CHOICES ON CUSTOMER-PLEASING, SERVICE-DELIVERY MODELS

BY RON HALL, EDITOR AT LARGE

Fertilization is the best thing landscape contractors can do for turfgrass. It contributes greatly to turf color, density, uniformity and growth. Properly fertilized turf is able to compete with weeds and recover from damage caused by insects, diseases or weather-related stresses better.

But implementing a fertility program that keeps lawns green, healthy and weed free as well as fitting efficiently into a company's service-delivery model, is far from simple.

For one thing, there are many turf fertilizer choices (See Table 1). For another, landscape or lawn care companies that fertilize clients' properties often operate with different business models. On one end of the spectrum are the traditional chemical lawn care companies. They visit customers' properties every six to eight weeks during the growing season to make fertilizer and pest control applications.

"If we're not out on customers' properties six or seven times a year controlling weeds and solving other problems, we're going to get callbacks," says William Hildebolt, president of Nature's Select Premium Turf Services in Winston-Salem, NC.

Bill Hildebolt says multiple visits are needed to solve the host of problems that can affect clients' lawns.

Because most lawn application companies are treating lawns in markets also served by national service providers, such as TruGreen or Scotts Lawn Service, they feel — from a competitive standpoint — they have to be on customers' properties multiple times each season. Realizing they'll be visiting properties every six weeks colors their fertilizer choices.

Companies that specialize in maintenance/mowing operations comprise another significant but separate industry segment. Many of these companies offer fertilization and weed control, also. Then there are the landscape companies that provide just about every conceivable outdoor service a property owner might need or want, from multimillion dollar construction projects to turf care.

Selection criteria

Each of these specialized businesses will select and use the type and grade of fertilizer, including treatment regimen, that fits its business needs and delivers results that satisfy its customers. All customers want green weed-free turf.

Kevin Johnson, president and second-generation operator of Des Moines, IA-based All American Turf Beauty, looks at five factors when selecting fertilizer:

1) The correct rate of nitrogen (N), phosphorus (P) and potassium (K)
2) At least 25% of the N available in a slow-release form
3) A quality product with properly sized prills that flow out of the spreaders smoothly and uniformly
4) The effectiveness of the product in combination with a weed or insect control
5) Price

PHOTO BY: ISTOCK INTERNATIONAL INC.

All American Turf Beauty offers clients several treatment options, programs that feature four, five or six visits from a technician each season.

By contrast, YardApes, Inc., a 19-year-old company founded by Shayne Newman operating out of New Milford, CT, offers lawn care as just one of a full palette of landscape services.

Because of its service mix, Newman approaches lawn care — an important source of revenue for his company — with a different mind-set than most lawn-care-only operations.

"We'd rather mow the lawns we fertilize because homeowners often do a bad job of mowing," Newman says. "They mow the grass too low, scalp the lawn and use dull blades."

Because YardApes mows and maintains many of the same properties that receive its lawn care services, Newman doesn't want to create unnecessary mowing or bagging because of over aggressive fertilizing. This is one reason why it applies only two rounds of high-quality fertilizer annually to the lawns his firm maintains.

A justifiable cost

There's an extra cost to using specially formulated, high-quality nitrogen fertilizers. In YardApes' case, the higher cost is more than justified because the product, which releases nutrients for a longer time and at a more controlled rate, fits his company's business strategy and satisfies customers. (See Table 2)

"The fertilizer cost for the two rounds is about the same as three rounds we were doing before," Newman says. "Take into account we're eliminating the cost of labor needed for that third round. That frees up our guys to help with mowing and fall cleanup."

Two fertilizer stops a year satisfies YardApes clients, and saves labor, says Shayne Newman.

YardApes mows more than 250 lawns a week.

Another benefit is that the lawns his company treats and mows don't get an "insane spring flush of growth," Newman says.

When Newman made the decision to change his program, he knew he had to educate customers to see the benefits for themselves, as well. He stressed that his company was using a superior product but the cost to clients would remain the same. They accepted the change because they were satisfied with his company's service, Newman says.

To that end, all the company's employees, not just the managers, are reminded constantly to monitor the

[TABLE 1]

COMMON SOURCES OF NITROGEN IN TURFGRASS FERTILIZERS

SOURCE	CONTENT (% N-P-K)	SALT INDEX PER UNIT a	ACIDIFYING EFFECT b	COLD WATER SOLUBILITY c
Ammonium nitrate	33-0-0	3.2 H	62	14.5
Ammonium sulfate	21-0-0	3.3 H	110	5.7
Calcium nitrate	15-0-0	----	----	----
IBDU	31-0-0	0.2L	----	SS
Milorganite	6-4-0	0.7L	----	SS
Polymer-coated urea	38-0-0	----	----	SR
Potassium nitrate	13-0-44	5.3 H	(-23)	1.0
Sulfur-coated urea	32-0-0	0.7 L	----	SR
Urea	45-0-0	1.7 M	71	6.2
Urea formaldehyde or methylene ureas	38-0-0	0.3L	----	SS

SOURCE: UNIVERSITY OF TENNESSEE EXTENSION

a Expressed as relative salinity of mineral salts per unit of nutrient compared to sodium nitrate (6.3). High=2.6 or greater; moderate=1.0 to 2.5; and low=less than 1.0 b Units of CaCo3 required to; neutralize 100 unites of fertilizer (by weight) c SS=slow soluble; SR-slow release

[TABLE 2]

NITROGEN FERTILIZERS

FAST RELEASE

- Urea
- Ammoniacal forms
- Ammonium sulfate
- Ammonium nitrate
- Calcium nitrate

SLOW RELEASE

- Sulfur-coated urea
- Plastic-coated urea
- Natural organic sources
- Methylene urea sources

In addition to superior service, lawn service companies have to cultivate trust with their clients, says Ken Mays in Baltimore.

condition of the properties they treat and keep customers apprised of what they see.

"Some people really appreciate that, and some don't care," Newman says.

But all customers want to see results — that's what counts, he adds.

Always looking to improve

Landscape contractors can't overestimate the importance of customer education and trust when it comes to providing lawn care services, says Ken Mays, who bought Baltimore-based Scientific Plant Services in 1975. Mays put this personal belief to the test in the fall of 2008 when his company combined its final two lawn applications into one.

"We're always looking to improve our operations and the value of our services, so we started looking at Polyon (a controlled-release fertilizer from Agrium Advanced Technologies), figuring out what it's about and how it can improve our services," he says.

When Mays determined the product could provide customers with the results they had come to expect from his company, while also eliminating labor and windshield time for his operation, he incorporated it into his

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PHOTO COURTESY: SCIENTIFIC PLANT SERVICES

HOW TO READ THE LABEL

To purchase and apply turfgrass fertilizers intelligently, one must be able to read and understand a fertilizer label. Every fertilizer must be labeled stating the guaranteed chemical analysis of the material and, in almost all cases, the following label information:

- the name or brand;
- potential acidity;
- manufacturer's name and address; and
- net weight of the fertilizer in the bag.

The **guaranteed analysis** is sometimes called the **fertilizer grade**, which is a listing of nutrients contained in the bag by weight. A complete fertilizer contains nitrogen (N), phosphate (P_2O_5) and potash (K_2O), in contrast to an incomplete fertilizer that's missing one of these three key elements.

The **ratio of the fertilizer** is the relationship between N, P_2O_5 and K_2O. A fertilizer with a 20-5-15 ratio contains 20% N, 5% P_2O_5 and 15% K_2O by weight. A 50-lb. bag of 20-5-15 contains:

- 0.5 x 20 = 10 lbs. N
- 0.5 x 5 = 2.5 lbs. P_2O_5
- 0.5 x 15 = 7.5 lbs. K_2O

Only nitrogen is expressed as an element, while phosphorus and potassium are present as oxides, meaning the elements are contained in the phosphate and potash compounds, respectively. Phosphate contains 44% phosphorus, and potash contains 83% potassium as expressed in the formulas of their oxide forms, or $P_2O_5 \times 0.44 = P$ and $K_2O \times 0.83 = K$.

So, a 50 lb. bag of 20-5-15 would have 10 lbs. of nitrogen but only 1.1 lbs. of phosphorus (0.5 x 5 x 0.44 = 1.1 lbs. P) and 6.2 lbs. of potassium (0.5 x 15 x 0.83 = 6.2 lbs. of K).

WIN and **WSN**, two other terms on a bag of fertilizer, stand for water insoluble nitrogen and water-soluble nitrogen. WSN is quickly available to the turf and provides fast green-up and growth. WIN is slow released by one of several mechanisms, less likely to burn the turf and provides a longer-lasting response than WSN.

Other secondary elements — such as calcium, magnesium and sulfur, along with minute amounts of boron, chlorine, copper, iron and manganese, molybdenum and zinc — are often found in fertilizers and are among the 17 essential nutrients for turfgrass.

TO DETERMINE HOW MUCH FERTILIZER TO APPLY TO AN AREA OF TURFGRASS, ONE MUST KNOW:

1. **the square footage of the turf to be treated;**
2. **the recommended application rate; and**
3. **the analysis of the fertilizer.**

Using the 20-5-15 grade fertilizer with a recommended application rate of 1 lb. N/1,000 sq. ft., one can determine how many pounds of the fertilizer would be needed to treat a 5,000-sq.-ft. lawn. Because 5 lbs. of N is needed and the 50-lb. bag contains 10 lbs. of N, one can fill a spreader with 25 lbs. of the 20-5-15 grade fertilizer for the application, using the formula (5 lbs. N) / (0.20) = 25 lbs. of N needed for the job.

LANDSCAPE AND LAWN CARE PROS MUST ADJUST THEIR APPLICATION PROGRAMS TO COMPLY WITH AN INCREASING NUMBER OF REGULATIONS AIMED AT REDUCING NITROGEN AND PHOSPHORUS IN STREAMS, LAKES AND BAYS

BY CURT HARLER

FERTILITY IN THE ENVIRONMENTAL

Smart landscape contractors making the move to package billing are finding it pays to reduce trips and rely on performance rather than showing up time and again to do the same basic job. This is especially true regarding fertilization because several states and regional water authorities, over objections by the industry, have laws restricting applications.

Those in states where contractors haven't yet been forced to make the change may soon see guidelines or regulations that require them to rethink their fertilizer strategies. Indeed, they may be mandated to apply the required fertilizer to the lawn in fewer trips and within the legal window for the regional authority.

This past summer on the Gulf Coast of Florida, nitrogen fertilizer use was almost completely prohibited. Less is often best, maintains the Southwest Florida Water Management District (SWFWMD). The Tampa Bay area moved to follow in those footsteps, with Pinellas County drafting regulations that prohibited fertilizer application in the rainy months and requiring use of slow-release materials.

"Our basic direction to landscape professionals is to get the Florida Best Management Principles certificate," says Mary Beth Henry, commercial horticulture specialist with the Hillsborough County Extension office.

A law passed in June now requires everyone applying fertilizer to pass the BMP course. The 6-hour program includes a pretest, post-test, and a passing 75% grade. Everyone pushing a spreader, not just supervisory personnel, must pass.

With fertilizer, it's simply sound agronomic practice, whether in the North or the South, to fertilize grass only during the active growing season, which includes root growth in the fall, even when top growth has slowed, claims Henry.

Florida's BMPs limit the use of nitrogen to one pound per 1,000 sq. ft. of slow-release material. If it's not slow release, then the limit is one-half pound. Application timing varies by region of the state, and the local recommendations even vary by grass variety.

Local ordinances might be more stringent than the BMPs. If a contractor is operating in an area, he has to follow the local ordinance, Henry says. Sarasota is one case in which the regulations are quite restrictive to amount applied and timing. The proposed Pinellas County rules, for example, will require 50% slow-release nitrogen by June 2010.

SWFWMD suggests contractors use iron instead of nitrogen if they want to green-up a lawn, a practice that is not universally accepted by university researchers.

In every case, however, agronomists generally agree it's a good idea to postpone any fertilizer application if a heavy rain is predicted.

AGE

Making it work

The key to reducing the number of fertilizer applications is to use the appropriate material – something with slow release that will last a long time, Henry says. Regulatory agencies favor the use of slow-release fertilizers to make nitrogen and phosphorus available to the turf throughout an extended period. This can include organic fertilizers and composts, neither of which face restrictions on their use. They're kinder to the environment and are usually more cost-effective, according to the SWFWMD.

Everywhere in the state there's a limit of a half-pound of phosphorus per year on established turf. It must be split in two or more applications of a quarter-pound or less. Newly established turf can receive as much as a pound per year. If, however, a contractor has a soil test or leaf tissue test that calls for extra P2O5, it can be applied to invigorate grass growth.

All of this supposedly is better for the environment, but what about business?

Obviously, contractors that have built their operations providing multiple applications of fertilizer to clients' properties, while also delivering other related services, strongly disagree with many of these provisions, especially those limiting the number of applications they can make.

Their contention is that they apply fertilizers and other materials responsibly, and provide a valuable environmental service in doing so.

Policy makers charged with making fertilizer rules respond that by reducing the number of fertilizer applications, a contractor benefits by making fewer trips to each property. Those who market their services intelligently promote the idea their services are green, protect the local watershed, save fuel and keep customers' lawns healthier longer.

This means a contractor has to tweak his sales philosophy, emphasizing packages of aeration, fertilization, pest control, leaf and needle blowing, for example.

Chesapeake Bay woes

Along with sediments, the Chesapeake Bay area's biggest pollutants are nutrients such as nitrogen and phosphorus, says the Chesapeake Bay Foundation (CBF), which has offices in the states of Maryland, Virginia and Pennsylvania.

"We have too much nitrogen around here," claims Marcy Damon, grassroots restoration coordinator for the CBF.

Damon suggests starting any fertilizer application two ways: First, with a soil test before applying any materials, and second, reducing the amount of turfgrass on properties.

Measures aimed at reducing the amount of turfgrass, especially where environmental conditions favor its growth, rankle the industry. The landscape industry, with university research

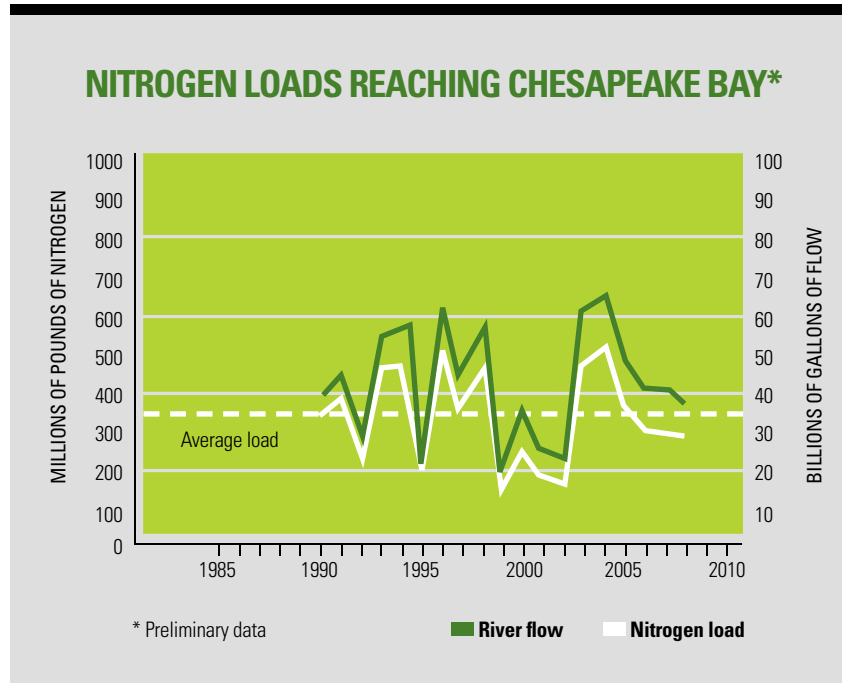

PHOTO BY: ISTOCK INTERNATIONAL INC.; CHART COURTESY: CHESAPEAKE BAY PROGRAM

"We have **enough phosphorus** for most turf in the state, anyway."

– **MARY BETH HENRY**, COMMERCIAL HORTICULTURE SPECIALIST WITH THE HILLSBOROUGH COUNTY, FL, EXTENSION

supporting it, insists that restricting turfgrass is the wrong direction to go in reducing runoff into streams, bays and lakes. Properly fertilized and maintained turfgrass — i. e. healthy turfgrass — captures and mitigates runoff and its associated pollutants, they insist.

Whatever is applied, Damon encourages contractors to refrain from water-soluble synthetics and use slow-release materials. She also recommends contractors avoid combination products that contain fertilizer and pest controls, another sore point with application companies.

Other measures being promoted by the CBF align more closely with the interests and practices of most Green Industry contractors, if not on specifics at least on practices.

'On established turf, raising mower heights will help grass thrive, " Damon says.

"The minimum should be 3-in. tall," she adds. "You'll develop better roots, and the grass won't brown as quickly. Plus, tall grass shades out weeds."

Another sound practice is not over applying fertilizer. While it may pay off in short-term profits, it'll leave the lawn more susceptible to diseases and won't be good for the landscaping business in the long run.

Client education

It's a good idea to show customers the results of the soil test — most state universities offer an inexpensive service — conducted on their lawns.

"Without that, you have no idea what you are doing," Damon says.

On the days when fertilizer is applied, it's a good idea to sweep or blow any fertilizer on sidewalks or driveways back onto the grass, or put it back in the hopper and use it elsewhere.

Wherever a contractor is working, it's a good idea to leave a 10-foot strip along the margin of a creek, pond or other body of water. This buffer zone keeps fertilizer out of the water.

Florida laws vary on water setbacks.

"BMPs say that if you have a deflector on one side of the spreader you can get as close as three feet from the water — without a shield it's 10 feet," Henry says.

Pinellas County will require **50% slow-release nitrogen** by June 2010.

This, too, varies by municipality, even within counties. Some Florida towns recommend a low-maintenance zone of six to 10 feet along any water.

Damon also advocates leaving turf clippings on the lawn. This recycles some nitrogen back into the turfgrass roots, she says.

All of this will require some change of thinking by contractors and customers, she adds. It likely will have to start with the contractor explaining the benefits of an environmentally sensitive program for a customer's lawn and area watersheds. Odds are most customers never have given a passing thought to the question. LM

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SMARTER TURF FERTILITY

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company's fertility program.

"We told our customers they're getting a better product for the same money," he says. "We explained they're going to get better results because some of the nitrogen in the product is going to be there waiting to go to work for their lawns in the spring. We also explained the beneficial environmental aspects of it, in terms of runoff. That's big here because of the Chesapeake Bay."

By using a fertilizer with a longer release of nutrients, his employees have been able to spend more time monitoring and offering IPM services to property owners rather than returning with a spreader each visit.

In some cases, Scientific Plant Services makes just a single application of fertilizer plus Barricade pre-emergent herbicide for its larger accounts (commercial properties, college grounds and apartment complexes) and still sees great results.

Mays is able to dial in the nutrient-release capabilities of the polycoated fertilizer he needs for each round by using a special computer program offered by the manufacturer. Heading into the fall, Mays is looking at four different formulations and will select the one he believes will deliver best results as he gets a better read of fall and winter weather conditions.

"Everybody's accepted the changes we made and so far everybody's been happy with the color and the performance of their lawns," he says.

Lawn and landscape contractors agree fertility is the cornerstone and the starting point of what's developed into their robust and profitable service industry. As one grinning lawn service owner said at a recent industry conference: "We get paid to grow it (turfgrass). Then we get paid to mow it. What a great business to be in!" LM