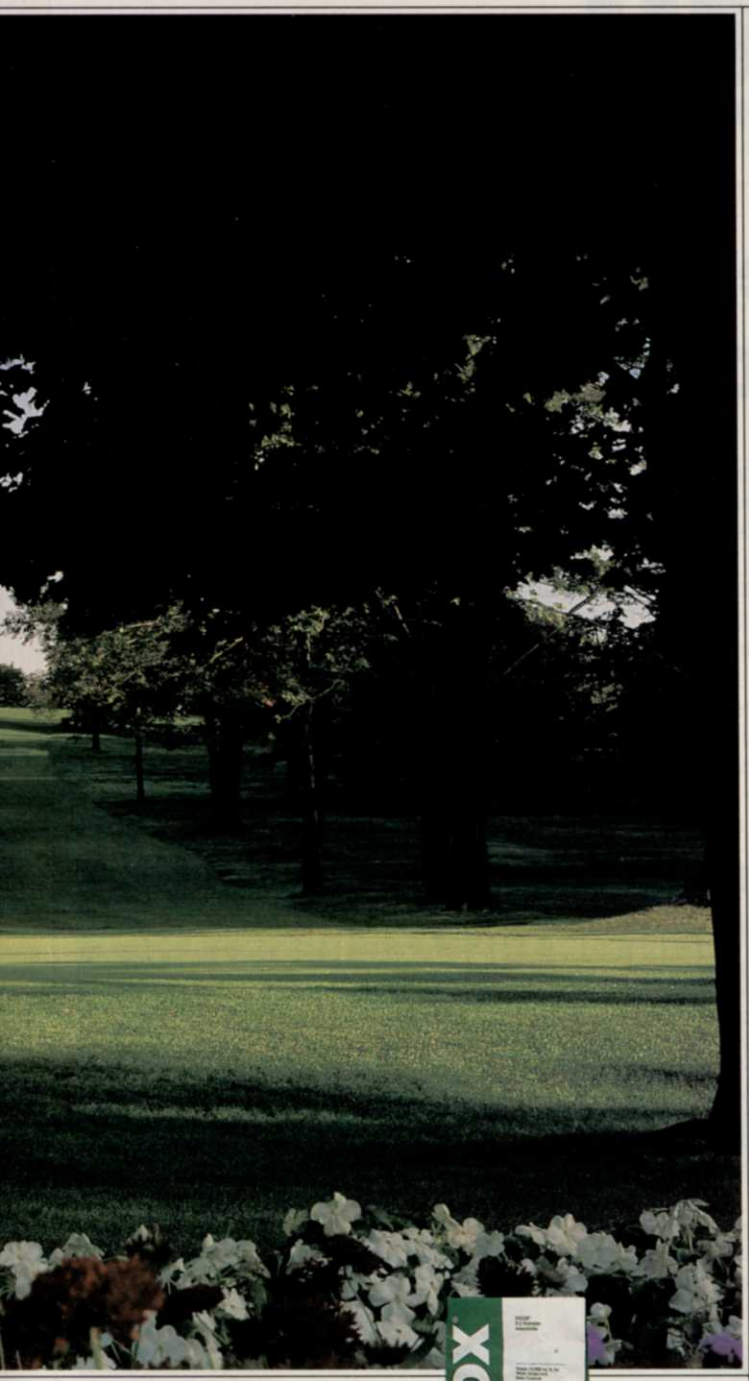

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MILES

Circle No. 121 on Reader Inquiry Card

TECH CENTER

Summer turf fertilization relies on balanced nutrients

Match nutrient applications to the plant's growth: more fertilizer in the fall and spring. But it's important to maintain some growth during the summer.

by David Wehner, Ph.D.
University of Illinois

■ Summer fertilization can help provide a strong, healthy turf when demands on the grass are the greatest. The key is understanding how the plant grows when temperature and moisture may not be optimum, and adjusting fertilization accordingly.

Too much fertilizer in the summer can decrease turf stress tolerance and increase occurrences of some diseases. Too little fertilizer will result in turf with poor recuperative potential, and, in some cases, turf unable to compete with summer germinating weeds.

Turf managers must strike a balance between the two extremes.

Understand plant growth—Cool-season turfgrasses generally show best shoot growth in air temperatures of 60 to 75° F. and best root growth at soil temperatures of 50 to 65° F.

As temperatures increase from these ranges, growth slows and eventually, at a high enough temperature, stops.

This is probably because, at the higher temperatures, the plant uses more of its food supply (referred to as carbohydrate reserves) than it produces. There isn't enough available for sustained root growth. Also, nitrogen applications cause the shoot system to grow preferentially over the root system.

Nitrogen applications, then, can make a bad situation worse by further reducing energy available for root growth.

Most turf managers also realize that, as water becomes limited, growth declines and then stops. It's important to limit nitrogen applications during times of drought stress. Conversely, a moderate nitrogen application can help a plant recover from drought-induced dormancy.

Warm-season grasses, which exhibit optimum shoot growth at air temperatures of 80 to 95° F. and best root growth at soil temperatures of 70 to 85° F., are easier to deal with, since they are growing at their peak over the summer months. They have more efficient photosynthetic mechanisms, and are more drought tolerant than cool-season grasses. However, they still need water. Too much fertilizer should be avoided during very dry periods.

Designing N programs—In designing an N fertilization program, match nutrient applications to the plant's growth. That is why you should apply more fertilizer in the fall and spring when the plants are actively growing than in the summer. It is important, however, to maintain some growth during the summer.

The turfgrass manager can approach summer N fertilization by either making several small applications of a quick-release N source or by applying a slow-release N source.

In situations where the turf manager is located at the site, apply 0.25 to 0.50 lbs. of actual N per 1000 sq.ft. from a quick-release fertilizer during the summer when it is necessary to increase the turf's growth.

The alternative strategy is to apply a slow-release fertilizer (1 to 2 lbs. of actual N per 1000 sq.ft.) early in the summer. This may be more feasible where it is difficult to get back to the site for applications over the summer.

A third strategy would be to moderately apply a slow-release at the beginning of summer and then supplement with small amounts of a quick-release source.

These same strategies, with modifications in the amount of N applied, can be used with warm-season grasses.

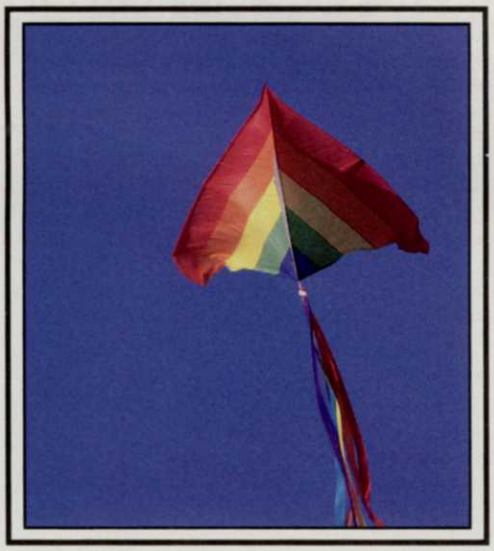
A substitute?—Another approach to summer fertilization is to use foliar applications of iron to improve color without stimulating excessive growth.

In our research, we were able to reduce the amount of N and get equivalent color by including iron in a foliar spray with N.

INFLUENCE OF NITROGEN FERTILIZATION ON DISEASE RESISTANCE

Severity increases with under-fertilization	Severity increases with over-fertilization
Cool-season turfgrass diseases	
anthracnose	brown patch
dollar spot	leaf spot
red thread	melting out
rust	pythium blight
Warm-season turfgrass diseases	
anthracnose	brown patch
Cercospora leaf spot	gray leaf spot
dollar spot	leaf spot / pythium blight
rust	melting out
	spring dead spot

Source: Dr. Koski



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Apply the homogeneous, balanced feeding of Greenskeeper 20-4-10 with DURSBAN insecticide for even growth and color. Or the economical, yet highly effective, SCU blended Lebanon Pro 20-3-5. Available with DURSBAN insecticide in 1% and 0.6% formulations.

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DURSBAN

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CHARACTERISTICS OF NITROGEN FERTILIZERS

Fertilizer name	Analysis (N-P-K)	Source of N	Moisture dependence	Low temp. response	Residual N activity	Salt Index (per N unit)	Leaching potential
QUICKLY-AVAILABLE N FERTILIZERS							
ammonium nitrate	33-0-0	ammonium nitrate	minimum	rapid	4-6 wks.	3.2	high
ammonium sulfate	21-0-0	ammonium sulfate	minimum	rapid	4-6 wks.	3.3	high
ammonium phosphate	18-46-0	diammonium phosphate	minimum	rapid	4-6 wks.	1.6	high
urea	46-0-0	urea	minimum	rapid	4-6 wks.	1.6	moderate
SLOWLY-AVAILABLE N FERTILIZERS							
Slow-release sources							
Sulfur-coated urea	22-38% N	urea	moderate	mod. rapid	10-15 wks.	NA	low
Once	24-35% N	urea, nitrate, ammon. N	moderate	mod. rapid	15-36 wks.	NA	low
Slow-soluble sources							
IBDU	31-0-0	isobutylidine diurea	high	mod. rapid	10-16 wks.	0.2	mod.-low
Ureaform reaction fertilizers							
Nitroform	38-0-0	ureaformaldehyde	high	slow	10-30+ wks.	0.3	very low
FLUF	18-0-0	urea/ureaformaldehyde	moderate	medium	6-10 wks.	NA	low
Nutralene	40-0-0	methylene ureas	moderate	medium	10-16 wks.	NA	low
Methylene urea	39-0-0	methylene ureas	moderate	medium	7-9 wks.	0.7	low
Coron	28-0-0	urea/methylene ureas	mimimum	mod. rapid	7-9 wks.	NA	moderate
N-Sure	28-0-0	triazone/urea sol.	minimum	mod. rapid	6-9 wks.	NA	moderate
Natural organic fertilizers							
Ringer	6-1-3	blood, bone, seed meals	high	medium	10-12 wks.	0.7	low
Sustane	5-2-4	composted turkey waste	high	medium	10-12 wks.	0.7	low
Milorganite	6-2-0	activated sludge	high	slow	10-12 wks.	0.7	low

Source: Dr. Koski

Applications of 1 to 2 lbs. of actual iron per acre to Kentucky bluegrass resulted in a darker-green color that lasted for several weeks depending on the grass's growth rate (the faster the growth, the shorter the response period). Because of this, it may not be feasible to use iron where the turf manager is not able to frequently monitor results. Also, iron is more expensive to use than nitrogen.

Several considerations relative to using iron are listed in Table 3. Note that iron is not a replacement for a sound N fertilization program but rather a supplement.

Experiment with application rates to determine what provides the best results for the species of grass and conditions that you are working with.

Healthy plants—Insect or disease problems can further reduce the plant's ability to withstand stress periods. This is particularly important when diseases affect the roots, as is the case with summer patch and necrotic ring spot on Kentucky bluegrass, or where nematodes may be present. Compact or water-logged soil will reduce rooting, thus weakening the plant.

Researchers have observed stress problems where soil phosphorus has declined to low levels, such as on creeping bentgrass putting greens where phosphorus was withheld to combat annual bluegrass encroachment.

Also, the plant must have enough phosphorus and potassium. Researchers have observed stress problems where soil phosphorus has declined to very low levels, such as on creeping bentgrass putting greens where phosphorus was withheld to help combat annual bluegrass encroachment.

Soil tests should be taken every two to three years to monitor pH and nutrient levels.

Strategy for success—By starting with a healthy plant and carefully matching fertilizer applications to existing growing conditions, the turf manager can ensure that the turf stand will survive the summer stress period with minimal problems.

—Dr. Wehner is an associate professor of horticulture at the University of Illinois at Urbana-Champaign.

Addendums to fertilization, insect control

■ The insecticide Crusade was inadvertently omitted from the cool-season insect control article in the April issue of LANDSCAPE MANAGEMENT.

Crusade is registered for control of insects in professional turf areas such as golf courses and commercial sod growing areas. Applied in the spring, summer or fall, at 4 lb. ai/acre, it is effective against white grub larvae such as Japanese beetle, black turfgrass ataenius, chafers, *Phyllophaga spp.*, green June beetle and Asiatic garden beetle. At 3 to 4 lb. ai/acre, Crusade is also labelled for controlling chinchbugs, cutworms and sod webworms.

All applicable directions, restrictions, and precautions on the EPA-registered label are to be followed.

—Harry D. Niemczyk, Ph.D.
Professor Emeritus
OARDC/Ohio State Univ.

■ In the February issue of LANDSCAPE MANAGEMENT on page 24, you show residual N activity of Nutralene at only 7 to 9 weeks. This statement is in gross error: actual residual is 10 to 16 weeks.

—James H. Taurasi
Jayson Associates (agent for Nor-Am)
Winchester, Mass.

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You read it right! Roundup® herbicide has dropped its price right through the floor for the second straight year. Now the suggested retail price of a 2½ gallon container of Roundup is a full 39 dollars less than it cost just two years ago!

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LAWN CARE INDUSTRY

TruGreen/ChemLawn deal widens gap between the biggest and the rest

ChemLawn, Columbus, Ohio, becomes part of SVMQ.

ServiceMaster buys huge chunk of pro lawn care market; thinks baby boomers will have more $$$ than time.

■ ServiceMaster Quality Service Network (SVMQ), Memphis, Tenn., is now the nation's professional lawn care leader.

It happened May 20th with its purchase of the operating assets of ChemLawn. The cash purchase price was $50 million plus the book value of net tangible assets of $54 million. TruGreen signed a letter of intent in late April, about two months after Ecolab put ChemLawn up for sale.

The SVMQ consumer service network, which includes TruGreen, has grown to:

- more than 3,000 cleaning franchises,
- the Terminix termite and pest control services,
- almost 500 maid operations, and
- American Home Shield with its 40 percent share of the U.S. market in home appliance warranty and repair.

C. William Pollard, chairman of ServiceMaster, noted that after an initial transition period, the two companies will be combined into one operation. Pollard added people from both companies would be merged into the single larger company.

"We've moved from being No. 3 to No. 2," wryly observes Patrick Norton. Norton's Barefoot Grass Lawn Service recorded sales of just more than $50 million in 1991. It trailed just ChemLawn and TruGreen in sales.

Big is bigger now—There will be an even bigger gap between the new lawn care market leader and the rest of the industry. ChemLawn had net sales of $355 million in 1991, and TruGreen about $92 million.

"They (ServiceMaster) were about the only ones in the industry able to bite off that much," comments Bob Andrews, president of the Professional Lawn Care Association of America.

A TruGreen/ChemLawn combination will have 20 to 25 percent of the residential lawn care market which a 1991 *Lawn Care Industry* magazine survey estimated at $2.1 billion. (ChemLawn historically has said it has a bigger share of the residential market.)

Together, TruGreen and ChemLawn claimed about 1.5 million customers in 1991. *continued on page 40*

ELSEWHERE

More on Chemlawn, p. 40

Customer education, p. 44

A revolutionary leap in the evolution of mowing.
To see where rotary mowing is headed, take a good look at the sleek new Jacobsen HR-5111.™ It delivers an 11′-plus, high-production cut and exceptional trimability in a rugged four-wheel-drive package.

Built for long life in rough country.
Hydrostatic 4WD, a heavy-duty axle with differential lock, and a reliable, fuel-efficient, 51-hp diesel let the HR-5111 confidently tackle tough hills that stall the competition.

Our new box-channel steel, straight-line frame takes the pounding of tough conditions like no other mower in its class. Plus, the full-fiberglass body keeps its good looks for years, even in the harshest environments. And it's all backed by a 2-year, 1,500-hour warranty.*

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THE PROFESSIONAL'S CHOICE ON TURF.

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TEXTRON
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*See your Jacobsen distributor for full warranty details.

Circle No. 115 on Reader Inquiry Card

THERE'S NOTHING LIKE IT ON TURF.

Both companies are in most lawn care markets already. ChemLawn operates in 45 states and TruGreen in 23.

"I don't see it (the purchase) as having a tremendous impact, not yet anyway," says Andrews.

Adds Barefoot's Norton: "If someone had come into the industry from the outside then, I think, we'd see a bigger impact."

SVMQ's growing presence in diverse consumer service markets are well documented. To date, it's been enviably successful too.

ServiceMaster keeps growing—In 1990, SVMQ increased its ante in consumer services by buying TruGreen and a network of pest control operations from Chicago-based Waste Management (WM retains 22 percent ownership). That deal was pegged at about $180 million, by industry insiders.

Later that year, in a press conference, SVMQ President Carlos Cantu said ServiceMaster operates on the premise that "people are time-poor and money-rich, and they need the services we (SM) will be offering the marketplace."

He said that 40 percent of the U.S. population was born between 1946 and 1964. This represents 53 million households, with a median income of about $50,000 and a median house value of about $105,000. SVMQ's research indicates 60 percent of this target market is made up of two-income families.

TruGreen regional office, Columbus, Ohio: growing stronger.

Also, SVMQ, reportedly, was heartened by TruGreen's operation in 1991, the one full season it owned it.

"It may take two or three years for ServiceMaster to convert the lawn care over into a single operation," muses industry consultant Ed Wandtke of Wandtke & Associates, Inc., Columbus, Ohio.

"The real question may be, can the tail (TruGreen) wag the dog (ChemLawn)?" he wonders.

Adds John Buechner, of Lawn Doctor in Matawan, N.J., "I think the acquisition is an interesting project, but only time will tell how it affects the industry."

—Ron Hall

No more ChemLawn to kick around (or imitate)?

■ ChemLawn, a name synonymous with professional lawn care, is a name in eclipse.

What seemed inconceivable a few years ago may happen. ChemLawn may cease to be—at least as ChemLawn.

Late this past winter, Ecolab, owner of ChemLawn since 1987, put the "For Sale" sign on the company that laid the foundation for a $2 billion-plus industry. ChemLawn: the most closely watched, copied, competed against and, increasingly, condemned company in the industry.

TruGreen's pending purchase of ChemLawn raises questions that neither TruGreen nor ChemLawn officials would discuss, pending completion of the sale. Among them:

- How will TruGreen absorb the three-times larger ChemLawn? Is the ChemLawn name itself an asset or a liability? Or both?
- Will ServiceMaster Quality Service Network, of which TruGreen is a part, continue to buy lawn care companies to expand its share of the professional lawn application market?
- What happens to ChemLawn's new and heavily promoted EcoScape full-service landscape care?
- How will TruGreen deal with competing sister operations, specifically franchises? For the last eight years, ServiceMaster Lawn Care has been growing a network of franchises (more than $4 million in sales in 1988). Many of them compete against TruGreen branches and/or ChemLawn branches or franchises. In 1991 TruGreen began buying and folding in SM franchises.

"If they're in competition and want to sell their business, they don't have to go shopping," a source close to SM tells LANDSCAPE MANAGEMENT.

- Whose management and service pricing philosophies—ChemLawn's or TruGreen's—will emerge? TruGreen, fairly or not, has typically been perceived by competitors at pricing at the lower end of the spectrum.
- Will TruGreen/ChemLawn operations use the herbicide 2,4-D? ChemLawn hasn't for several years. (Several other large companies have quietly quit using 2,4-D also.) TruGreen reportedly does.
- Will TruGreen/ChemLawn work with the rest of the industry—which, broken into individual parts, are overwhelmingly gnat-sized compared to the ServiceMaster operations?

—R.H.