

*“To sit by a clear river on a warm day in early July  
with the smell of cut grass in the air.”*

**OSCAR-WINNING ACTRESS** Helen Mirren describes her idea of perfect happiness in a *Vanity Fair* article last September.

The smell of freshly cut grass also made Neil Pasricha’s bestselling *Book of Awesome*, listing the top 1,000 awesome things. Pasricha depicts this scent as “heavenly” and “one of the quintessential summertime memories” that reminds one of “twilight in the countryside, a football game about to start or a sunny Saturday morning.”

And this is just its smell. Don’t get people started on describing walking barefoot in its cool stand as each blade tickles the toes.

Turf. Lawn. Grass. Green space. It’s called

many things, but it usually brings about the same hopeful, nostalgic feelings. “In the gallery of national icons, lawn care is as all-American as baseball,” says Evan Ratliff in a *ReadyMade* article.

That could be the reason 71% of all U.S. households participate in some form of lawn care or gardening, the most popular being lawn care (48% of households), per the National Gardening Association. And 30% of all U.S. households hire at least one type of lawn and landscape service, spending \$53 billion annually. A Gallup Survey says 62% of all U.S. homeowners feel this investment in lawns and landscaping is as good as or better than other home improve-

# Is turf MISUNDERST

The industry struggles to prove turf’s true potential in the landscape.

BY **NICOLE WISNIEWSKI** EDITOR-IN-CHIEF

ments with a recovery rate of 100% to 200%.

There are 80 million home lawns in the U.S., according to Scotts. And total U.S. turf is estimated at 46.5 million acres, The Lawn Institute reveals.

Turf is adored; cared for; played, walked and jumped on; and is used to stabilize and green landscapes. “Many people’s favorite childhood memories happened on turfgrass,” points out T. Kirk Hunter, executive director of Turfgrass Producers International, East Dundee, IL, “whether it was a family picnic, playing ball with friends at the park or scoring the winning point in a competitive sport.”

All these statistics leave many landscape

professionals wondering when turf started to become such a bull’s eye for hate. When did people start to view lawns as something to be removed in favor of “environmentally friendly landscaping,” as an article in the *Long Beach Gazette* described it? When did green space become environmentally *unfriendly*? When did 73% of Americans want to begin exploring reduced lawn environments, per the 2011 American Society of Landscape Architects Residential Trends Survey? When did sports fields become battlefields over green space that is synthetic vs. natural? Nearly every week, a new headline touts a “lawn-less landscape” or programs that reward homeowners for removing grass.

The problem, landscape professionals say, is “turfgrass is definitely misunderstood, unappreciated and under-valued,” Hunter says. “It’s the Rodney Dangerfield of landscape plants — it gets ‘no respect.’”

“In my mind, turf has never been understood,” adds Andy Smith, national accounts manager with Reinke Manufacturing Co., Deshler, NE, and former external affairs director for the Irrigation Association.

Why? “Because there is so much misinformation regarding natural turfgrass and because of the sometimes misleading media coverage on turfgrass-related issues,” Hunter says.

Therefore, turf’s benefits get forgotten. As Smith says, “we are lacking some serious metrics that show the true potential of turf as a useful tool in the environmental toolbox.” And, as Vic Gibeault, horticulturist and delegate to the University of California Riverside Turfgrass Research Advisory Committee, points out, “turf has a multifaceted story that we need to tell.”

### Where it all began

Turf has a long history as a “natural surface that covered the plains long before people populated the Earth,” Hunter says.

Andrew Jackson Downing published one of the first U.S. landscaping books in 1841. As *The New Yorker* pointed out in “Turf War,” Downing’s *Treatise on the Theory and Practice of Landscape Gardening* urged readers to improve themselves by improving their front yards.

To achieve this feat, Downing told readers to group trees in clusters, mix forms and colors with enough variety to “keep alive the interest of the spectator and awaken further curiosity,” and essential to any perfect garden, he said, was an expanse of “grass mown into a softness like velvet. No expenditure in ornamental gardening is productive of so much beauty as that incurred in producing a well-kept lawn.”

Downing’s suggestions inspired others, who continued spreading his message. Calvert Vaux, Downing’s protégé,





*“There’s a realization that incorporating nature into the places where we live, work and play has a profound impact on our well-being”*

— WILLIAM SULLIVAN, PH.D., who studies how regular exposure to green spaces helps people function better.

and Frederick Law Olmsted designed New York’s Central Park with broad lawns, and this continued to influence countless suburbs, *The New Yorker* explained. According to Ted Steinberg, author of the book *American Green: The Obsessive Quest for the Perfect Lawn*, “with the start of suburban development in the late 1800s, the idea of surrounding a house with turf began to make real headway,” he said in a 2005 *New York Times* article. “But it was not until after World War II that the suburban lawn rose to dominance.”

It was Abraham Levitt, whose family pioneered the idea of the affordable, cookie-cutter housing found in today’s suburbs, who had “the foresight to realize that by intelligent landscaping the normal depreciation of our houses could be offset,” as said in a 1952 *Fortune* magazine article.

As lawns spread, well-manicured ones were seen as reflections of their owners. “A fine carpet of green grass stamps the inhabitants as good neighbors, as desirable citizens,” Levitt wrote in the late 1800s — even then Levittowners agreed to mow their lawns once a week between April 15<sup>th</sup> and November 15<sup>th</sup>. And still today, people tend to equate unkempt lawns with what Ratliff described as “laziness, indolence or domestic discord.” He quoted Lee Coltman, an anthropologist at the University of California at Los Angeles who studies suburban lawn attitudes, as saying, “There is a sense that not only should neighbors care for their lawns, but if a neighbor isn’t

caring for his lawn, there’s something wrong with him.”

So a lush lawn became an American ideal.

Back in its earlier days in 17<sup>th</sup> century Europe, turf was also recognized as a sign of wealth, but today it is a low cost, low maintenance option. “Turf isn’t a luxury item,” Smith says. “It’s just a basic element of any functional landscape.”

## The inputs

Some say the American lawn started making enemies when some people became obsessed with its care. In a May 2010 *Men’s Health* article “Could Your Lawn Be Lethal?” Steinberg says, “there’s nothing wrong with a lawn. I have a lawn. But there is something wrong with the ‘perfect’ lawn.”

This obsession is described in the form of inputs. Like any plant or living thing, turf requires water and care. But industry professionals say the level of care required does not need to reach obsessive levels and is not environmentally threatening, especially considering turf’s many benefits.

The problem then centers on misinformation and assumption, industry veterans say.

“The visible drawbacks associated with lawns, such as images of over-watering lawns on hot summer days in arid climates or obvious exces-

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Is turf the  
**“Right plant,  
wrong place?”**  
Find out on  
page 20.

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In a desert climate, like parts of Arizona, 100% turf doesn't make sense.

Northeast U.S. states are well-suited for lawns.

## RIGHT PLANT, WRONG PLACE?

Location is one of the most important factors concerning proper turf use and care.

"The Northeast is one of the ... regions in the country that is actually well-suited to lawns," The New Yorker reports in "Turf War."

But "if you live in a desert climate, like parts of Arizona, for example, 100% turf doesn't make sense," explains Gina Zirkle, a scientist and environmental stewardship expert with The Scotts Miracle-Gro Co., based in Marysville, OH. "When looking at precipitation and temperature maps of the U.S., most areas of the country can support turfgrass growth with minimal inputs. In other areas of the country with high temperatures and little precipitation, other green plants and groundcovers adaptable to those conditions may be a better choice."

As a result, when it comes to legislators attempting to limit inputs, such as water, location also needs to factor into the equation. "You can't nationalize regional viewpoints," points out Andy Smith, national accounts manager with Reinke Manufacturing Co., Deshler, NE, and former external affairs director for the Irrigation Association.

"Natural turfgrass is a plant and therefore any 'one size fits all' approach by regulators is not feasible," adds T. Kirk Hunter, executive director of Turfgrass Producers International, East Dundee, IL. "With many spe-

cies of turfgrass and varying climates around the country, programs like the EPA's 'Water Sense,' which mandates a limit of 40% turfgrass in a home lawn, don't make any sense. This is supposed to work for a lawn in Phoenix and Seattle, where the annual precipitation between the two locations varies from a mere 8 in. in Phoenix to 36 in. in Seattle."

Instead, they should be "providing a reasonable allocation for landscape water use and creating a pricing structure around it to make it fair for everybody," Smith suggests.

"There are times, places and situations where particular types of turfgrass and turf management practices may not be appropriate," explains Ranajit Sahu, a Southern California-based university professor, in his report *Think Before You Remove Your Lawn — The Benefits of Turfgrass*. "But getting rid of all turfgrasses everywhere is not the answer.

"Optimization starts with proper selection of turfgrasses suitable for specific climate regions and includes proper and appropriate cultural practices for turf maintenance, including optimized watering and cuttings management, sparing pesticide use and judicious use of technology," he continues. "This requires careful consideration and weighing of the site and case-specific values of turfgrass, both positive and negative." — *NW*



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sive fertilizer use, often drive knee-jerk, generalized, negative reactions to all lawns as being nothing more than ‘water-wasting, pesticide-addicted, fertilizer-dependent, landfill-clogging, energy-consuming insults to mankind and the environment,’” says Ranajit Sahu in his report *Think Before You Remove Your Lawn — The Benefits of Turfgrass*. “The push to remove grass areas can be short-sighted since this action often relies on erroneously based data, preconceived perceptions and emotion, which have no place in thoughtful policy making.”

Hunter agrees. “There is a disconnect between science and the world we live in today,” he says. “Environmental extremists who only look at one piece of the puzzle think getting rid of turfgrass will save water and save the planet. So mulch, pavement or some other impervious surface must be better because you don’t have to water it. If that were true, how do we recharge our aquifers and reduce water runoff from heavy rain?”

In fact, water is a good place to start. The EPA estimates the average family of four can use 400 gallons of water every day,

and approximately 30% of that water is used outdoors. More than half of that 30% is used to water lawns and gardens, and of that, The Saving Water Partnership says half is defined as effective landscape watering while the other half is wasted as a result of overwatering, improper irrigation system design, evaporation and wind. Nationwide, landscape irrigation is estimated to account for almost one-third of all residential water use, totaling more than 7 billion gallons per day.

The question many people cannot answer is: How much water does a specific landscape need? As referenced in a July 2010 *Landscape Management* article, Larry Cammarata, green management consultant for Brickman, a 687 million company with headquarters in Gaithersburg, MD, says outdoor overwatering can be controlled by looking at the relationship between plants, soil and water. “By fixing the plant location and soil, you can reduce the supplement water that plant needs considerably.” Proper plant placement, based on that plant’s needs, is the key. “I’m seeing the right plants being used, but not always in the right place or right soil.”

Today, “people begin with the assumption that everyone

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***“Turf isn’t a luxury item. It’s just a basic element of any functional landscape.”***

**— ANDY SMITH**



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overwaters,” Smith says. And since turf is very visible, it gets targeted. But if people eliminate turf, there’s no proof they’ll save water, he explains. “People treat watering turf like a linear relationship where we use it at the top end and then it dumps at the bottom,” he says. “But water on turf doesn’t work that way. It’s cyclical. If I apply water to my grass, it transpires into the atmosphere and comes back down in the form of rainfall, as long as I don’t overapply it or create runoff or leaching. And plants purify this water as it transpires and turns into pure, clean vapor. If I apply water to concrete, however, it just runs off. We should be looking at turf as a tool instead of painting an ugly picture of it.”

The solution industry professionals suggest is better educating their crews and consumers on proper plant and water use, discouraging overapplication and alerting people to areas that need renovated to use water more efficiently, and even capture and hold that water for extended and future use. Since landscapes don’t require drinking water, there are also possibilities when it comes to using gray or recycled water.

Other inputs that are regularly criticized with regard to turf are pesticides and fertilizers.

For instance, “Could Your Lawn Be Lethal?” quotes the EPA, stating “Americans apply 100 million pounds of fungicides, herbicides and insecticides a year to their lawns.” The information that is missing from this figure, says Gina Zirkle, a scientist and environmental stewardship expert with The Scotts Miracle-Gro Co., Marysville, OH, is it includes both the home and garden category, which covers pesticides used on lawns, gardens, landscape beds, indoors and on pets. So, is the lawn really using 100 million pounds? Home and garden totals only 11% of the amount of pesticides used in the U.S., according to the EPA’s Pesticide Industry Sales and Usage Report. Approximately 76% — or 722 million lbs. — is used in agriculture and 13% — or 114 million lbs. — is used in industry/government.

“I’m in a hotel sleeping on sheet that may have been treated with a chemical to kill bedbugs,” Smith points out, “yet grass is the easy and visible target.”

And, “turfgrass is not the only plant in the landscape that needs inputs,” Hunter says, pointing out this is a big reason removing turf from the landscape is not the best solution for reducing overall inputs.

One lawn care professional in Smith’s region started customizing his service to limit inputs. Instead of offering the same five-application lawn care program to each property, he studies each specific site, conducts a soil test and recommends a program to fit that property. “And my place looks fabulous and the contractor is making more margins

***“Turfgrass is definitely and under-valued. It’s the Rodney — it gets ‘no respect.’”***

and doing a better job for his customers,” Smith says.

Similar to challenges with water, industry professionals say education and proper use solves the problem. With fertilizer, this means ensuring the application stays on target, placing any misplaced granules back on the target, knowing the correct square footage to apply the correct amount, and properly calibrating spreaders for different sites, says Tom Delaney, PLANET’s government affairs director.

Ultimately, saying we should eliminate turf is like saying “because a 757 flies into the World Trade Center, we should ban all 757s,” Smith says. “It’s not the plane’s fault. It’s the same with turf. It’s not the plant’s fault, but the people who are misusing it and using the incorrect amount of inputs.”

Sahu feels the same way, saying: “Just as no one would suggest the proper response to a headache is removal of one’s head, the proper strategy in minimizing drawbacks due to turfgrass is optimization, not elimination.”

***“People shouldn’t feel like having grass is bad when there are so many benefits to it.”***

**— GINA ZIRKLE**

## *misunderstood, unappreciated Dangerfield of landscape plants*

— T. KIRK HUNTER

### **The benefits – seen & unseen**

Before judging turf on just its inputs, many industry professionals say one must factor in its benefits because, in some cases, they warrant and then cancel out any related threats.

Turf has many benefits that are very visible.

First, “turfgrass is one of the softest, safest playing surfaces for family fun and relaxation ... in backyards, as well as in parks, sports fields, etc.,” Hunter points out. In a study of football injuries at 12 Pennsylvania high schools, researchers determined one-fifth were field-related. “Fields with good quality turfgrass cover have higher traction, cushioning and resiliency, and lower surface hardness, reducing the probability of injury,” a UCR turf report explains.

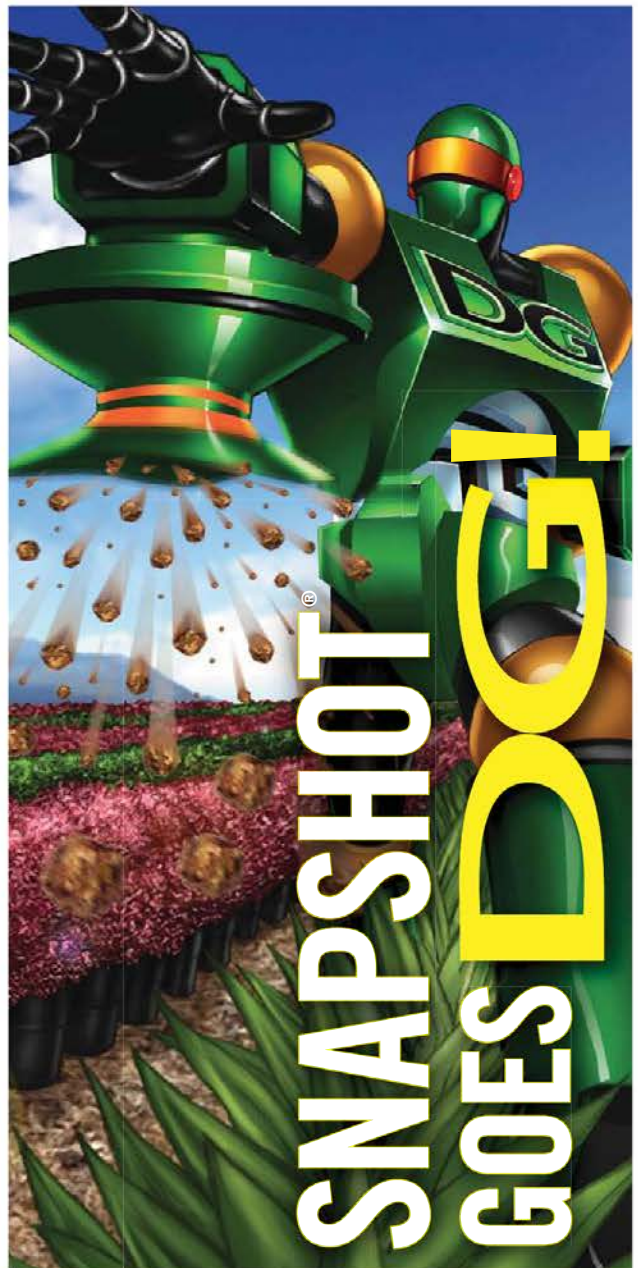
Turf also stabilizes the landscape — reducing runoff and soil erosion and minimizing dust. “You can’t find a plant that grows such a dense groundcover per square inch than grass,” Zirkle says. Mowed turfgrasses are estimated to have shoot densities ranging from 75 million to more than 20 billion shoots per hectare, UCR turf says.

Turf’s cooling effects are also easy to feel. The EPA says the annual mean air temperature of a city with more than 1 million people can be 1.8 to 5.4 degrees F warmer than its surroundings, and in the evening the difference can be as high as 22 degrees F. This phenomenon, also known as the “heat island” effect, can increase summertime peak energy demand, air conditioning costs, air pollution, greenhouse gas emissions, heat-related illness and mortality, and water quality, the EPA says. The EPA points to green spaces as appropriate ways to lessen these effects because their leaf evapotranspiration, or loss of water via transpiration and subsequent evaporation, causes this cool down.

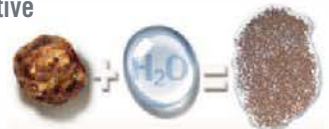
“How much extra energy would be used to cool a home if it weren’t for turf?” Smith asks. Lawns are 30 degrees cooler than asphalt and 14 degrees cooler than bare soil in

#### **WEB EXTRA**

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summer, Project EverGreen reports. And, more importantly, if a portion of the water used in a lawn evapotranspires, providing this cooling benefit, “is this water really being wasted?” Sahu asks.

The heat island effect also increases water evaporation from nearby reservoirs. Turf functions as a sponge that traps water and increases groundwater recharge. “Turfgrass areas can even be designed with contours to temporarily hold water (i.e. swales), further decreasing storm water runoff,” Zirkle explains.

As water availability continues as an issue, particularly as the population is expected to grow 50% by 2050, “whatever resource stretch we feel now will be exacerbated,” Smith says.

Better capturing rainfall may help future water reserves. “We should be using our yards to filter the rain where it fall,” Zirkle says. “We should be soaking up water like a sponge, capturing and retaining as much as we can,” Smith agrees.

“While turfgrass is aesthetically appealing, it also provides functional benefits beyond what the eye can see,” Hunter adds.

One invisible concern to many Americans today is carbon dioxide. Once released into the atmosphere, scientists say it lingers for 100 to 200 years, building in concentration and raising the Earth’s average temperature, otherwise known as global warming.

Zirkle worked on a thesis called “Modeling Carbon Sequestration in the U.S. Residential Landscape” at The Ohio State University under Dr. Rattan Lal in

March 2010 looking at how because of its permanent cover, turf naturally sequesters carbon in the soil. Even after factoring in the energy associated with turf maintenance, lawns are net carbon sinks, she found.

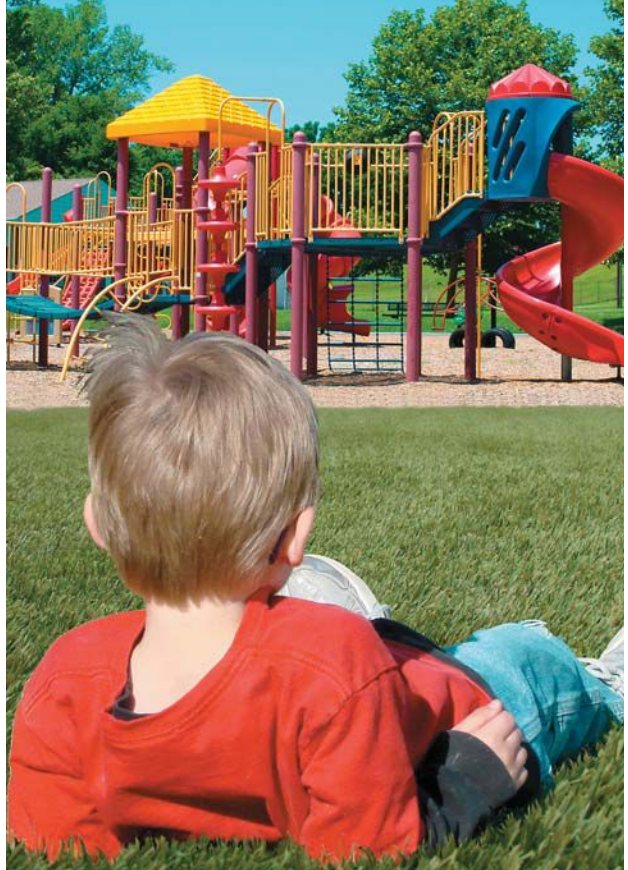
Eliminating turfgrass would result in a reversal of this benefit, adding to the atmospheric burden, Sahu points out. “This benefit alone should cause a reassessment of any policy that encourages reduction in turfgrass areas,” he says.

Another invisible turf benefit people feel rather than see is oxygen generation via photosynthesis. “Thirty acres of grass provides enough oxygen for 2,000 people to breathe,” Smith says.

Stress reduction is also a hidden green space perk. A recent *Men’s Health* article “Recapture Your Wild Side” says one in four U.S. workers describe themselves as chronically angry. Over the past 20 years, outdoor playtime has decreased by 50% as adolescent obesity rates have tripled.

The article says “the 21<sup>st</sup>-century man spends 90% of his time sealed off from nature. The ultimate cost of this separation is impossible to calculate. But in recent years, scientists have measured enough specific benefits of exposure to the outdoors — less anger, more productivity, quicker thinking, faster healing, longer lives — that the lesson seems obvious.”

“Imagine a therapy that had no known side effects, was



***“Imagine a therapy that had no known side effects, was readily available, and could improve your cognitive functioning at zero cost.”***

This from a *Psychological Science* study.

The therapy: interacting with nature, as T. Kirk Hunter’s son, Talon, does here.

readily available, and could improve your cognitive functioning at zero cost,” *Psychological Science* asks readers. The therapy: interacting with nature. In a University of Michigan study, a short nature hike sharpened memory and attention by 20%.

“There’s a realization that incorporating nature into the places where we live, work and play has a profound impact on our well-being,” says William Sullivan, Ph.D., in *Men’s Health*. He studies how regular exposure to green spaces helps people function better. “Find a home in a green neighborhood, one with street trees and sidewalks that encourage walking.”

For these reasons, “green space has been and will continue to be a coveted commodity,” says Evin Ellis, marketing communications manager for Husqvarna, Charlotte, NC.

And, “of course, to advocate a single replacement for the lawn is to risk reproducing the problem” because research will need to be done to factor in the inputs and benefits relating to those substitutes, The New Yorker says.

In the end, “people shouldn’t feel like having grass is bad,” Zirkle urges, especially “when there are so many benefits to it.” **LM**

**WEB EXTRA**

To share the positive attributes of turf with your local legislators and regulators, go to [landcarenetwork.com](http://landcarenetwork.com) for a sample letter or contact PLANET’s Government Affairs Director Tom Delaney at [tomdelaney@landcarenetwork.org](mailto:tomdelaney@landcarenetwork.org) or 800-395-2522.





# SEEDS of change

**Turfgrass developers are shifting the focus of their efforts to meet the industry's environmental challenges.** BY **RON HALL** EDITOR-AT-LARGE

**A SEED CROP** of turfgrass at its full mature height under Oregon's pastel-blue, mid-summer sky is one of agriculture's more beautiful sights. Fickle breezes swirl the mass of stalks with their smallish seedheads, the whole golden mass seemingly extending to dark green mountains in the distance.

Oregon is the grass seed capital of the world and its Willamette Valley, flanked east and west by mountain ranges, is where most of it is grown. Grass seed is the state's fifth largest crop and, in good years, generates sales of more than \$500 million. Turfgrass (much of coming from the seed grown in these fields) is also the foundation of the \$53 billion professional

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landscape/lawn service industry.

In recent years the soft, green, living carpet that surrounds our properties and that the great majority of Americans greatly appreciate is being attacked. It's being criticized for its water use, for the chemical inputs used in its management and for the emissions released into our atmosphere by fossil-fueled mowers.

Often (too often) these charges are made without mention of the documented societal and environmental benefits turfgrass provides urban communities.

Stung by the implications that the turfgrass industry is not "green" enough, the industry is starting to focus on the function as well as the beauty of lawns.

"We have to position the lawn as a resource beyond aesthetics," says Dr. Frank Rossi, Turfgrass Extension Specialist, Cornell University. "We have to optimize the functional aspects of lawn turf in harmony with the conservation of its natural environment and using economically and socially responsible management."

While Rossi focuses on and promotes "socially responsible" management of turfgrass, a related but separate segment of the industry is addressing turf's environmental issues with breeding and development.

"The big issues right now are water use and low-maintenance requirements," says Dr. William Meyer, Director of the Turfgrass Breeding Project, Cook College, Rutgers University. "We've expanded our breeding effort to address those concerns in a big way. We're maintaining and evaluating big areas that are not irrigated in the summer, fertilized once a year and mowed at three inches."

While Meyer doesn't expect these tests to immediately result in turfgrasses that would be acceptable to most homeowners, he's confident they and others like them (See "Turf for dry times" sidebar.) will lead to the continued development of lower maintenance turfgrasses that homeowners will embrace.

This is not too much to expect based

on the remarkable improvements to cool-season turfgrasses made by the Rutgers breeding program, starting with the pioneering work by Dr. C. Reed Funk almost a half century ago. Practically all of the top-performing cultivars of lawn grasses – perennial ryegrass, turf-type tall fescue, fine-leaf fescues and the majority of the available Kentucky bluegrass varieties, as well – are products of the University's program in collaboration with private seed companies.

Just don't expect too much, too soon, Meyer cautions.

### Taking a hit

One of the drags on the turfgrass development business in recent years has been the stress of the country's poor economy.

The lack of construction (particularly of new homes) dramatically reduced demand for seed, at least from professional service lawn service providers. Americans are on track to buy fewer new homes in 2011 than in any year since the government began keeping data almost a half century ago. The anticipated annual rate of 250,000 is far below what economists say is healthy, about 700,000 a year.

Also, as luck would have it, the 2008-'09 Recession came at a time of overproduction, not uncommon in the cyclical seed production business, helping to depress prices of most popular turfgrass species in 2009, with the downward spiral continuing into 2010. Total sales of Oregon's grass seed crop fell from approximately \$467 million in 2008 to \$228 million in 2010. (See chart.)

"They were hit by a double whammy, the economy and overproduction. I think it really hurt them, although they seem to be coming out of it now as they're working through some of their surplus issues," says Kevin Morris, executive director of the National Turfgrass Evaluation Program (NTEP), Beltsville, MD.

Strangely, bad news elsewhere – weather usually – is actually good news for the seed industry. Seed companies

For "Right plant, wrong place?" sidebar, please turn to page 20

benefit when unusual weather devastates lawns. Last summer's unrelenting heat and humidity com-

combined with below-normal precipitation in much of the U.S. East, devastated lawns in large sections of the usually verdant Midwest, Northeast and Mid-Atlantic. Demand for lawn renovations will be great this season, lawn care professionals predict.

Another factor in the seed industry's recovery; Oregon seed producers reduced acreage significantly, from 489,660 acres in 2008 to 375,665 acres in 2010. This also should also help equalize the supply/demand equation and stabilize prices.

The poor economy will improve and home construction will resume to a healthy level — eventually. The larger long-term challenge for the seed business, indeed for the turfgrass industry as a whole, will be dealing with the environmental concerns related to turfgrass management, and certainly not just water use.

In addition to lower water use, breeders are accelerating their efforts to develop turfgrasses that require less fertilizer and other chemical inputs, respond better to traffic and are more disease resistant. They're making headway on all of these, says Meyer.

"In the 1970s it was nothing to fertilize with five or six pounds of nitrogen per year. No one is using that much anymore. In our turf trials we don't put down more than three pounds per year in half-pound increments. In our low-maintenance tests we fertilize just once a year," adds Meyer, who worked for a

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## TURFGRASS FOR DRY TIMES

How many times have you heard the term “water-thirsty Kentucky bluegrass” used in connection with landscape irrigation restrictions or incentives to homeowners to replace or reduce the size of their lawns? If you answer “too often,” you know your turfgrass.

Research has verified a wide range of responses to drought among bluegrass cultivars. Some varieties, in fact, compare favorably to the better-performing turf-type tall fescues, the cool-season species most often touted for its ability to stay green during periods of extended dryness.

“We were shocked that we had bluegrasses in the upper percentages of what we’ve surveyed in the best of the tall fescues,” says Kenneth Hignight, director of research NexGen Turf Research, Albany, OR. His company has been testing cool-season turfgrasses for a range of environment-friendly characteristics, including drought tolerance, for almost 20 years.

Bluegrasses that can stay acceptably green even during dry periods are significant for obvious reasons.

Landscape architects, landscapers or lawn care professionals can now confidently specify or recommend these water-efficient cultivars for customers desiring the beauty and texture of Kentucky bluegrass

lawns while still requiring reduced landscape water use.

To that end NexGen initiated the formation of the Turfgrass Water Conservation Alliance (TWCA), described on its website as “an unbiased independent foundation whose number one goal is water conservation focusing on live plant material.” Other founding members include ProSeeds Marking, Inc., Turf Merchants Inc. and Pennington Seed.

Research cooperators include Dr. Cale A. Bigelow at Purdue University, Dr. Mike Richardson and Dr. Douglas Karcher at the University of Arkansas, Dr. Jeffrey Derr at Virginia Tech and Steve Langlois, Langlois Turf Consultants in New Jersey. Drought stress testing continues at turf research sites in Albany, OR; West Lafayette, IN; Fayetteville, AR; Virginia Beach, VA and Pitman, NJ.

NexGen’s collaboration with Karcher (and the impetus of the idea for the TWCA) began in 2004 after Hignight, attending an agronomy meeting, learned of Karcher’s use of digital imaging analysis to evaluate specific turfgrass characteristics. He realized that by taking digital images of selections of turfgrass as they dry down and analyzing these images, researchers could very accurately determine the percentage of green tissue for each selection over a period of days and weeks and, in

NexGen researchers evaluate the results of their drought tests plot by plot.

effect, measure its drought tolerance.

“A percentage of total pixels tells you the percent of green tissue color,” says

Hignight. “Now we have a system, counting the pixels, that says when a particular cultivar contains any level of green tissue between 100% and 0%, and compare its performance to other cultivars.”

Hignight says his company takes more than 30,000 digital images of turf plots each year of all popular cool-season lawn grasses which are being subjected to drought conditions inside of rainout shelters and out in the field.

“We could see differences in the first trials we ran. They were dramatic,” he says.

The difference in the ability of the most drought-tolerant bluegrasses to remain acceptably attractive under dry conditions is not insignificant. For example, using the cultivar, Mallard, one of the top performing varieties, as opposed to one of the least drought-tolerant cultivars can mean the difference between applying 8,000 and 19,000 gallons of water per summer to keep a typical 5,000 sq. ft. lawn in Albany, OR, acceptably green.

Hignight, however, doesn’t recommend using a single cultivar of bluegrass (or any species, for that matter) to establish a lawn. Each species and each cultivar of each species has unique characteristics. The strengths of one mask the weaknesses of others, he explains.

To that end, he and cooperators across the United States, continue to investigate all species of cool-season grasses and are measuring warm-season species, as well, for their drought tolerance.

To date the TWCA has certified 24 cultivars representing five cool-species meeting its criteria for offering end users “proven water conservation benefits.” They and other information about the TWCA can be found at [tgwca.org](http://tgwca.org). — RH



## OREGON GRASS SEED CROP ESTIMATES\*

SPECIES	HARVESTED ACRES	PRODUCTION	PRICE PER CWT	SALES
2008 Perennial ryegrass	122,860	174,861,000	75.62	\$132,230,000
2009 Perennial ryegrass	107,420	165,061,000	49.67	\$81,984,000
2010 Perennial ryegrass	91,579	146,590,000	49.50	\$72,569,000
2008 Tall fescue	174,580	262,237,000	67.07	\$175,833,000
2009 Tall fescue	157,570	268,223,000	40.04	\$107,409,000
2010 Tall fescue	117,080	186,363,000	31.52	\$58,734,000
2008 Kentucky bluegrass	20,500	26,132,000	111.46	\$29,127,000
2009 Kentucky bluegrass	17,970	18,967,000	104.69	\$19,857,000
2010 Kentucky bluegrass	13,350	16,445,000	96.37	\$15,848,000

\* The majority of cool season grass seed is produced in Oregon. The figures are indicative of the industry as a whole.

Source: Extension Economic Information Office, Oregon State University

*continued from page 29*

Chicago lawn care company very early in his 40-year industry career.

That experience and everything he's learned since has convinced him that homeowners will not accept a lawn that's not green and attractive, even if it is more "sustainable".

### Green still king

Proof of this is not hard to find.

An effort to popularize the use of buffalograss to California homeowners during a severe drought in the late 1980s fell flat on its face, says Dr. Ali Harivandi, longtime environmental horticulturist at the University of California, Davis. Homeowners didn't take to the drought-tolerant native grass, which had been improved in Nebraska and is still extensively used in the Plain States. Californians, who have year-round outdoor lifestyles, didn't like that buffalograss goes dormant and brown five months of the year, and doesn't do well in shade or under traffic.

"We, in this industry, tend to oversell things," says Harivandi. "We tend to talk about all the attributes of a particular grass and we don't tell about the problems. People get excited to do something, and when, later on, they find out that it wasn't so great there is a backlash."

Harivandi says when he arrived in California 30 years ago most lawns were Kentucky bluegrass or a mixture of bluegrass and ryegrass. Now, most are turf-type tall fescue, except for Bermudagrass, which is common in hot, desert communities.

"I have no doubt we have reduced water use on lawns by 15% to 20% over these past 30 years by switching from Kentucky bluegrass to tall fescue," he says.

Cornell's Rossi feels a similar shift to tall fescues and away from less-water-efficient varieties of bluegrass would reduce landscape water use in the Northeast. That is if (a big "if") property owners would do a better job of watering.

"We are the worst water managers in the world in the Northeast. We don't get it. Typically, we count on precipitation to forgive us our sins," he says.

In recent years, both Harivandi and Rossi have been looking at a range of fine-leaf fescues as a viable option for certain types of low-maintenance, low-water-use landscapes. While they're not suitable for home lawns — at least not when they're allowed to grow to their full height or mowed at four inches as they are in some locations of the Cornell campus — they could be just the grass for industrial sites, highway medians,

naturalized commercial sites, slopes and even as decorative mounds on residential landscapes.

Similar strides are being made in the development and improvement of warm-season turfgrasses.

In 1993 the University of Georgia initiated its seashore paspalum breeding program and has since released several attractive cultivars that grow well using saline water. So far, seashore paspalum been used mostly on golf courses and sports fields, but the species' popularity for home lawns should grow as more communities mandate or offer reclaimed water for landscape irrigation.

Meanwhile, the University of Florida is touting its UltimateFLora Zoysiagrass as an alternative to St. Augustinegrass, the predominant lawn grass in Florida around the Gulf Coast. The University says that its improved zoysia requires less water and fertilizer to stay healthy and attractive than St. Augustine.

Discovering genetics and incorporating them into new cultivars that deal with drought and other environmental stresses is a slow painstaking process, but it continues on a steady pace.

Every year brings advances that will allow turfgrass to maintain its role as our most versatile and popular landscape plant. **LM**



# Setting the TONE?

**As New Jersey passes the most restrictive fertilizer legislation to date, other states may be looking to follow suit.** BY CASEY PAYTON

**AFTER TWO YEARS** of negotiations, New Jersey's Fertilizer Pre-Emption Bill was signed in January, with what is now the most restrictive legislation in the country. It's no doubt that many states will soon follow suit and that has many worried about what's in store for the future of the industry.

"I was willing to adapt to any changes regarding the fertilizer type we put down or even the amount — but to put a restriction on when you can apply the product crossed the line," admits Jeff Cooper, president of Lawn Con-

nection, West Berlin NJ. "It hit a nerve with me. That'll affect my livelihood."

What Cooper is referring to is part of the legislation that prohibits fertilizer applications before March 1st or after December 1st. Among other things, the legislation restricts the amount of quick-release nitrogen allowed in products and application amounts; bans all phosphorus use (no phosphorus can be used unless a soil test proves phosphorus application is needed or after soil disturbance when reestablishing turf surfaces); prohibits applications when raining or

on impervious surfaces; requires all professionals to be certified; and establishes fines for noncompliance with all of these regulations. The comprehensiveness of this legislation has made it the strictest in the country to date.

“Other states have phosphorous bans and date restrictions but none address nitrogen restrictions and the percentage of slow-release nitrogen,” says Jim Jensen, regional sales manager, Nufarm Turf & Specialty — Nufarm Americas, and a member of the board of directors of the New Jersey Green Industry Council (NJGIC), an umbrella organization which represents, promotes and defends Green Industry interests. “All of these various elements in one bill are what makes it so restrictive. Never has a fertilizer law incorporated so much regulation.”

Lawn care operators (LCOs) are finding this troubling, but it seems the shortened season is the biggest worry of all. “Economically that’s going to zing us,” admits Cooper, who says he’s already become an organic-based company and dramatically reduced the amount of pesticides he’s putting down. “I feel like we were doing everything right, and they’re still coming after us. I value every single day I have to work, including the months of December, January and February. I feel like I’m now a seasonal business. I’m only getting nine months to operate, and if you also subtract the bad weather days, it may be down to eight.”

Nancy Sadlon, executive director of NJGIC, says unfortunately the differing date restrictions and content requirements for consumers vs. and professionals were part of the emotion-based legislation that passed without any scientific backing, including information about weather fluctuations and freeze and thaw variations. “In a world that’s regulated based on science, we would have one standard for both consumers and professionals and dates of applications would be region specific without

the limiting windows,” she says. “But now, even if the ground isn’t frozen and the turf active, they can’t apply fertilizer simply because of a law’s limiting dates. Since LCOs can only do so much in the time period they’re now dealing with, it’s going to limit business growth.”

### A fight for science

NJGIC has been involved in the discussions about nutrient management since it began about five years ago. Their primary role as a consolidating voice for the whole Green Industry in New Jersey has been education and communication to regulators at New Jersey Department of Environmental Protection (NJDEP) about real world lawn care operations. Sadlon says they fought for science-based legislation when the conversation seemed to be driven by emotion. “Just one example is we surprised many of the decision makers involved when we showed them professional lawn care companies have already eliminated phosphorus from many of their programs because there was no need to add the nutrient,” she says. “This practice was started over 15 years ago.”

While Sadlon was happy with many of the compromises NJGIC was able to reach, she says a lot of emotion-based information still made it into the bill. Once these types of unscientific regulations make it into the law books, they can be hard to change, and since emotion-based policy is spreading, it would behoove others to get involved now since it does seem other states will be soon to follow suit, she adds.

“It’s already happening,” asserts John Buechner, director of technical services at Lawn Doctor, Inc. “Pennsylvania is in the draft stages of a bill, and Maryland is even a little ahead of them. Plus, Delaware and Virginia are also considering legislation because of their own proximity to the Chesapeake Bay.”

And these other states are adopting the language from New Jersey’s bill. “It’s likely New Jersey is going to be a

## THOUGHTS ON NJ’S FERTILIZER PRE-EMPTION BILL

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**NANCY SADLON,**  
New Jersey Green Industry Council



“It’s likely that New Jersey is going to be a model for future legislation. And just looking at what’s happening in these states near large bodies of water, you can predict that the Great Lakes states may be the next targets.”

**JOHN BUECHNER,**  
Lawn Doctor





model for future legislation,” says Buechner. “And just looking at what’s happening in these states near large bodies of water, you can predict the Great Lakes states may be the next targets.”

Buechner says LCOs can make a difference in what their regulations will be if they’re willing to get involved. “Individuals may feel helpless but they can make a difference when they join together and form coalitions with others in the industry,” he says. “Even if you don’t want to be a part of the group doing the advocating, a small contribution can help support the people who are doing it for you. Most of those people are making that effort on a volunteer basis and putting their own time and money into fighting for the best legislation for the whole industry.”

What happened in New Jersey should be a call to action for the rest

of the country, Jensen adds. “There is a clear agenda by environmentalists to characterize fertilizers as a primary cause of the nutrient problems of our waters — despite lack of evidence to prove such a claim,” he stresses adding that the basis of the environmental activists’ push is they feel nitrogen ends up in nearby waterways as a result of fertilizer runoff, but science proves there are many contributing factors. Commercial turf fertilizers are a minor contributor, but the easiest target to go after. “Legislators like to be saviors of the environment, and so long as it is perceived by their voting public to be true, they will accept these false claims about fertilizers and pesticides. Efforts to stand up for our products and practices have never been more important.”

The “Safe Playing Fields Act” (a bill that would impose a ban on the use of all pesticides at schools, child care facilities and recreation fields) is the next big issue for New Jersey, and Cooper says he’s

63



*% of lawn care professionals who will purchase fertilizer or fertilizer/pesticide combination products this year.*

SOURCE: LANDSCAPE MANAGEMENT

going to be ready this time around. “I’m going to learn as much about the bill as I can and represent my side — the small businesses of New Jersey. I’m learning you can’t change the world, but you can get your voice out there and be heard.”

Strong voices can make a difference in the end result of a bill, Sadlon adds.

And with regulations like these, industry professionals agree even small changes can make a big difference on business survival. **LM**

*Payton is a freelance writer with six years of experience covering landscaping.*

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