



RECOMMENDED BY THE NEIGHBOR WHO KNOWS HOW TO FIX ANYTHING WITH AN ENGINE.

Start mowers, chain saws, and other outdoor power equipment up to 26% faster than standard spark plugs. Move up to Autolite® Xtreme Start™ spark plugs. Their advanced .6mm finewire design enhances ignitability and fuel combustion to help engines start quickly and consistently in any season. Learn about Xtreme Start™ and all Autolite® electrical parts at autolite.com.

Autolite®
Move up.



continued from page 18

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?”

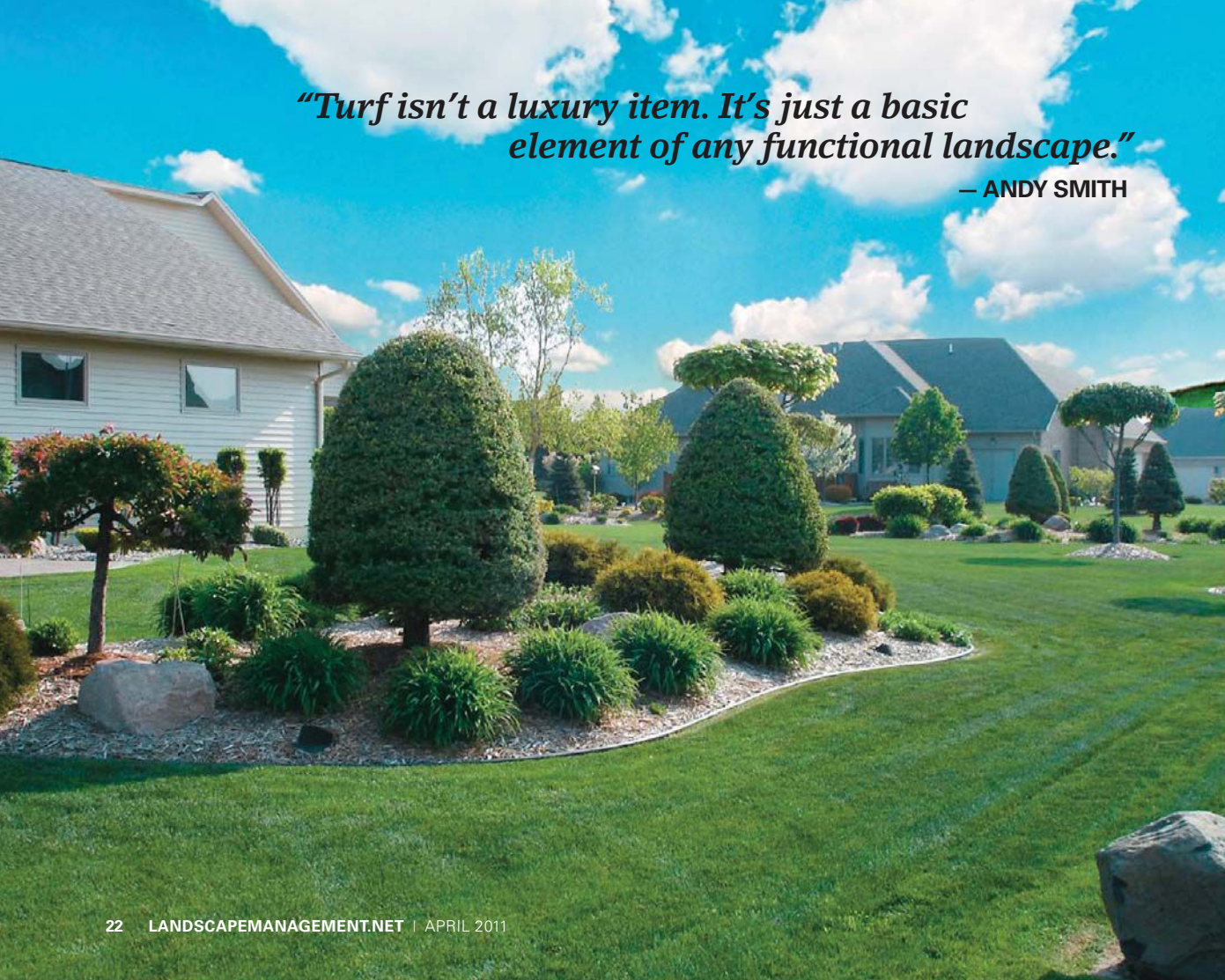
In fact, water is a good place to start. The EPA estimates the average family of four can use 400 gallons of water every day,

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

continued on page 24



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

— ANDY SMITH

ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass
rassgrassgrassgrassgrassgrassgra
ssgrassgrassgrassgrassgrassgrass



Isn't it about time your grass choked out the weeds?

Introducing the only residential herbicide you can apply at seeding to stop nimblewill, bentgrass, and crabgrass from day one.

tenacityherbicide.com



©2011 Syngenta Crop Protection, LLC., 410 Swing Road, Greensboro, NC 27409. **Important: Always read and follow label instructions before buying or using this product. The label contains important conditions of sale, including limitations of remedy and warranty. Tenacity® is not currently registered for use in all states. Please check with your state or local extension service prior to buying or using this product.** Tenacity® and the Syngenta logo are registered trademarks of a Syngenta Group Company.



continued from page 22

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

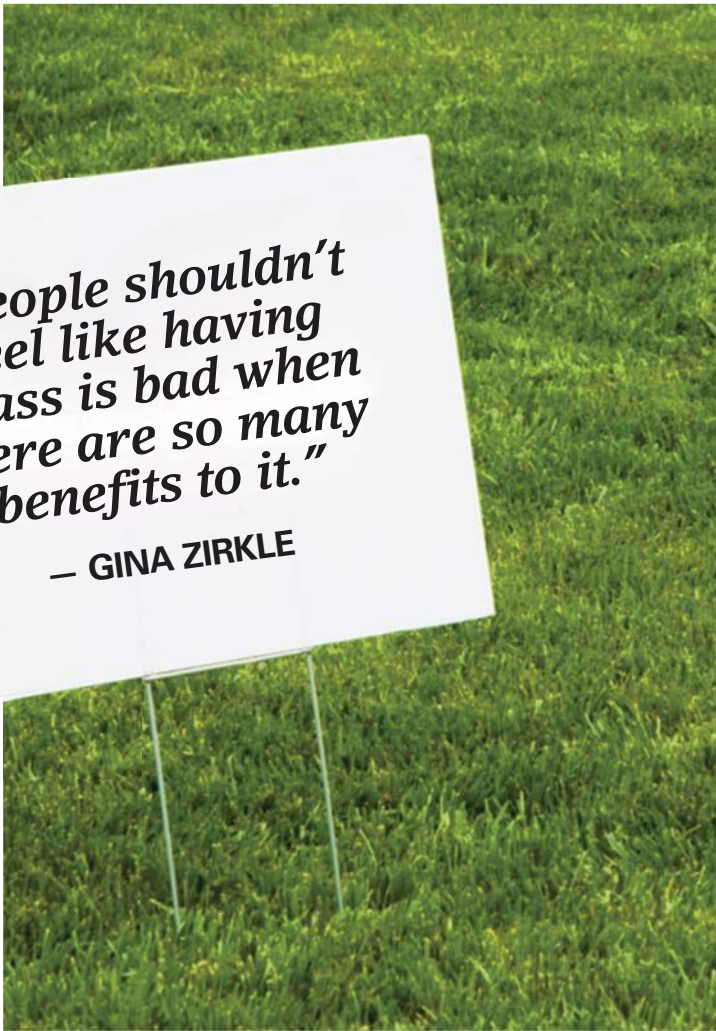
“Turfgrass is definitely and under-valued. It’s the Rodney — it gets ‘no respect.’”

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.

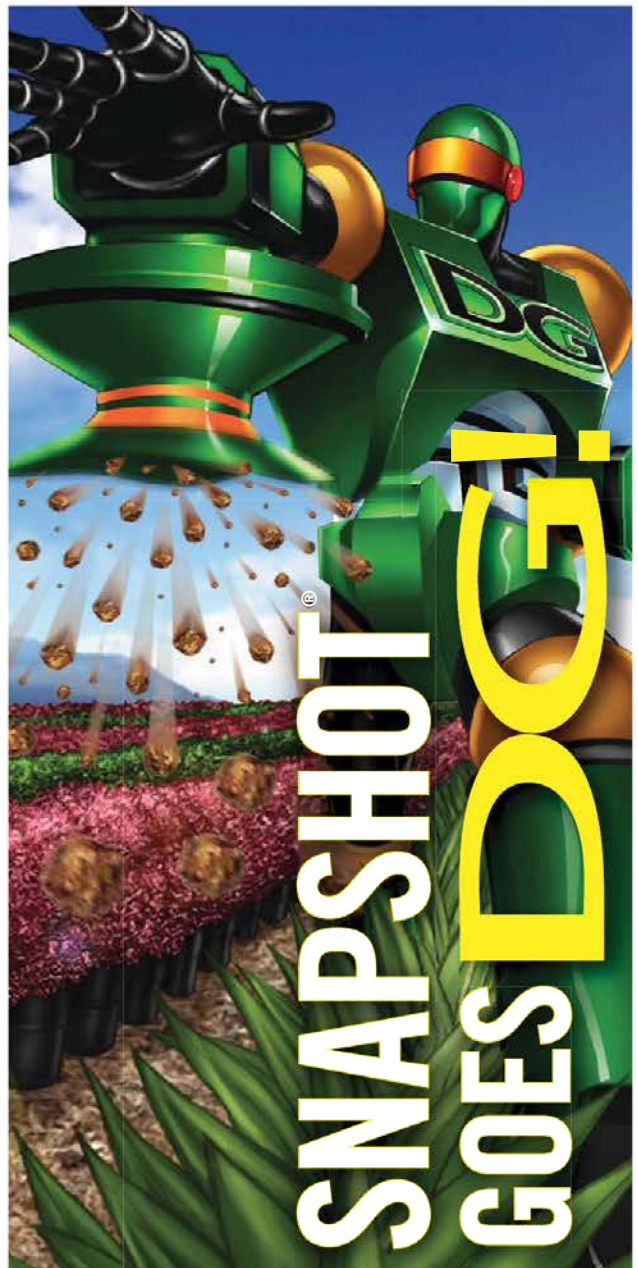
Turf also stabilizes the landscape — reducing runoff and soil erosion and minimizing dust. “You can’t find a plant that grows such a dense groundcover per square inch than grass,” Zirkle says. Mowed turfgrasses are estimated to have shoot densities ranging from 75 million to more than 20 billion shoots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

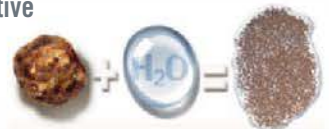
“How much extra energy would be used to cool a home if it weren’t for turf?” Smith asks. Lawns are 30 degrees cooler than asphalt and 14 degrees cooler than bare soil in

WEB EXTRA

For four vital turf maintenance pointers, visit www.landscapemanagement.net/turf.



One advanced technology **SNAPSHOT DG Granule** + **Water Rapidly Dissolves** Into thousands of micro particles forming a potent, long lasting control treatment that's effective on over 100 Grassy And Broadleaf Weeds.



Contact 800-253-5296 or visit www.AndersonsTurf.com

SnapShot DG™

The Andersons

©2011 All rights reserved.
®™ The Andersons and DG are trademarks of The Andersons, Inc.
© SnapShot is a registered trademark of Dow AgroSciences LLC.
Always read and follow label directions.

PHOTO BY: ISTOCK INTERNATIONAL INC.



continued from page 25

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.

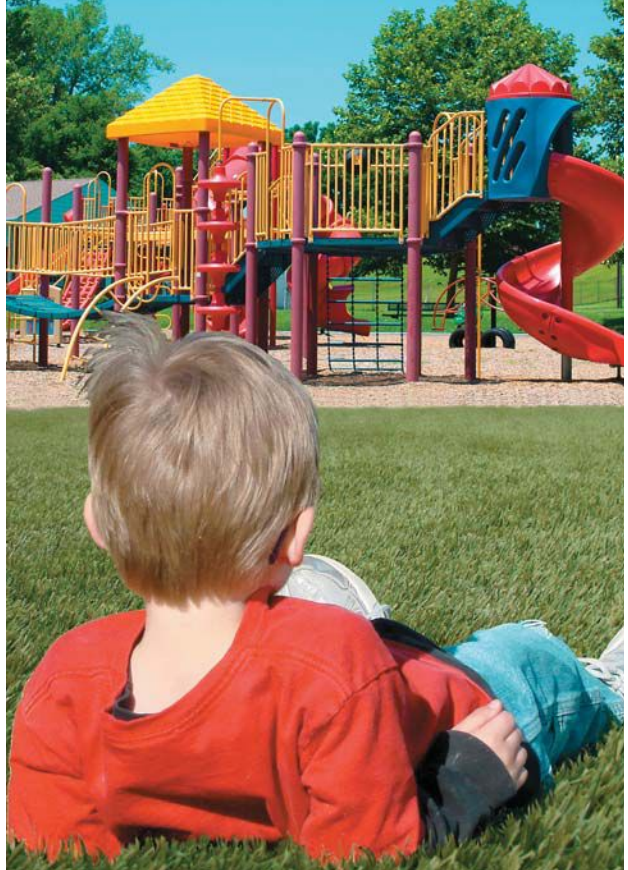
Eliminating turfgrass would result in a reversal of this benefit, adding to the atmospheric burden, Sahu points out. “This benefit alone should cause a reassessment of any policy that encourages reduction in turfgrass areas,” he says.

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 21st-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 for a sample letter or contact PLANET’s Government Affairs Director Tom Delaney at tomdelaney@landcarenetwork.org or 800-395-2522.



The last time turf herbicides saw
an innovation this big, man
had yet to walk on the moon.

**Introducing DuPont™ Imprelis™ herbicide—
one giant leap for broadleaf weed control.**

DuPont™ Imprelis™ is the most scientifically advanced turf herbicide in over 40 years. Thanks to its innovative technology, you can control even the toughest broadleaf weeds—like ground ivy and wild violets—with more application freedom than ever before. Apply Imprelis™ on rainy days, hot days, dry days, cold days ... even reseeding days, and experience longer-lasting residual control on a wider range of broadleaf weeds. Imprelis™ is easy on the environment too—with one of the lowest application rates in lawn care, combined with low mammalian toxicity. **Make the leap with DuPont™ Imprelis™ herbicide.**



The miracles of science™

DuPont™ Imprelis™ may not be registered for sale or use in all states. Contact your DuPont sales representative for details and availability in your state. The DuPont Oval Logo, DuPont™, The miracles of science™, and Imprelis™ are trademarks or registered trademarks of DuPont or its affiliates. Copyright © 2010 E.I. du Pont de Nemours and Company. All rights reserved.



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

continued on page 29

continued from page 28

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

continued on page 32



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 TGWCA) 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. — RH