



**PENDulum**<sup>Herbicide</sup>  
AquaCap™

You've got enough things to worry about. But the proven performance of **Pendulum® AquaCap™ herbicide** means weeds aren't one of them. Its water-based formulation gives you long-lasting, broad-spectrum preemergent grass and broadleaf weed control, with reduced staining and odor, plus easier clean-up. So don't worry about weeds popping up. Use **Pendulum AquaCap**.

**[betterturf.basf.us](http://betterturf.basf.us) | 800-545-9525**

**BASF**  
The Chemical Company

Always read and follow label directions.  
Pendulum is a registered trademark and AquaCap is a trademark of BASF.  
© 2009 BASF Corporation. All rights reserved.



## BEST PRACTICES

BRUCE WILSON

The author is a partner with the Wilson-Oyler Group consultancy. Visit [www.wilson-oyler.com](http://www.wilson-oyler.com).

# Careful analysis of the surrounding business climate is key to success

**W**e're living in a changing world. Most of the past 12 months have been extremely challenging, and most people don't see that changing in the next 12 months. As a result, I see many companies in a reactionary mode.

During times like these, it's difficult to slow down. Our business practices require an extreme sense of urgency. However, our business health is dependent on sound strategy, which will evolve only if we take time to reflect on what's happening around us in many different arenas.

---

Our business health is dependent on sound strategy, which will evolve only if we take time to **reflect on what's happening around us** in many different arenas.

How will political events, such as the healthcare debate, affect our businesses? How will the spending habits of the American consumer affect the business environment? Sooner or later, government spending will affect interest rates, taxes and inflation. Do the high unemployment numbers suggest an opportunity for us to upgrade our work forces? Will there be immigration reform? Will there be business opportunities arising out of the green or sustainability movements?

I don't remember a time when there was so much uncertainty in the business environment in so many areas simultaneously. Yet some companies are going to come out of this unstable environment smelling like roses. It always happens.

Some people will worry themselves sick about this. Others will get mad, and still others will reflect and find a strategy that positions them favorably in the future.

As I reflect, I like to think about best-case and worst-case scenarios. As I see events unfolding, I think about the best outcome I could hope for that would be helpful to my business — or, if that outcome develops, what I need to do to use it to my advantage. If a worst-case scenario develops, I need to think about how can I prevent becoming a victim and minimize any negative outcome to my business.

It's imperative to reflect internally and externally on how customers and potential customers will be affected. Only then can you understand how to position your company for success.

Investigate possible outcomes for your business environment.





---

## WHILE YOU'RE AT IT

---

It's easy and profitable to add tree care to your existing service – and it won't add much time to your call. Mauget insecticides, fungicides, and other products are in a completely enclosed micro-infusion system, so all you do is drill, inject and let it drain. Environmentally safe, Mauget can be used near pools, ponds, schools and parks. Provide clients with Mauget professional tree care, and get your other work done too.

- Simple to add to current service
- Minimal investment in tools
- High profit potential
- Can be used where other methods can't

The Right Way To Treat A Tree





High Quality  
Mowing

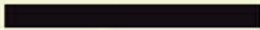
INDEPENDENT  
INNOVATORS

*Take a Test Drive Today*

**WALKER  MOWERS**

5925 E. Harmony Road • Fort Collins, CO 80528 • 800.279.8537 • [www.walkermowers.com](http://www.walkermowers.com)

As landscapes come under increasing scrutiny from water authorities, the Green Industry ramps up its efforts to develop sprinkler technology and new turfgrasses that make every drop of water count.



PART



# Counting on **TECHNOLOGY** to save irrigation

PHOTOS AND ILLUSTRATIONS BY: ISTOCK INTERNATIONAL, INC.



## **37** Turfgrass in critics' bull's eye

What we're doing to maintain a vibrant turf industry despite calls to restrict "water-hogging" lawns.

## **43** Catching the rain for irrigation

Rainwater harvesting is growing at an incredible rate. But is it a business opportunity for us?

## WORD FROM OUR PARTNER

# Rain Bird: Smart Technology for a Better Future

**AS THE WORLD'S WATER** supply continues to be challenged by population growth, drought and contamination, there's little doubt that the future of the irrigation industry rests upon a very important goal. We must consistently develop and implement new, more efficient systems that maintain healthy landscapes while using as little fresh water as possible. At Rain Bird, we're dedicated to achieving this goal each and every day.

Every new product or service developed at Rain Bird is assessed for its contribution to The Intelligent Use of Water™. At one of the largest indoor irrigation testing facilities in the world, we continually test new and current products for quality and accuracy. As a result, we're developing new products that incorporate the latest "smart" or weather-based technology, helping us provide the most efficient irrigation solutions available on the market today.

In June, Rain Bird introduced its ESP-SMT Smart Control System, a simple-to-use tool that provides weather-based control while saving time, money and water. This control system combines a sophisticated controller with an on-site weather sensor that calculates evapotranspiration rates and deducts actual effective precipitation to determine how much water it should apply to maintain an optimum moisture level in the soil. Until the launch of this product, weather-based controllers were often too expensive and complicated for residential use. The ESP-SMT has changed all that by providing an affordable and accurate level of irrigation control that was formerly out of reach.

October 2009 marked the launch of the newest member of Rain Bird's smart irrigation family—the SMRT-Y Soil Moisture Sensor Kit. After the SMRT-Y (pronounced "smart why") is installed, its digital sensor measures absolute soil moisture levels every ten minutes and relays that information back to the SMRT-Y controller interface. When soil moisture levels are above a pre-determined level, the controller interface interrupts the irrigation schedule that's been programmed into the system's timer. If the sensor recognizes dry soil conditions, the system's next watering cycle will proceed as originally scheduled. This closed-loop feedback process means that actual plant and turf conditions at the roots are being communicated back to the controller for a truly accurate snapshot of a landscape's moisture needs.

In addition to these groundbreaking new products, Rain Bird continues to produce many other water-efficient system components that can make a tremendous impact on the amount of water used for irrigation. From rotary nozzles with matched precipitation rates to rotors with pressure-regulating stems and our patented Rain Curtain Technology, Rain Bird continues to make it easier than ever before to incorporate smart, water-saving practices into any irrigation system.



# Turfgrass in critics' bull's eye

Responding to growing criticism that lawns "waste" water, the Green Industry ramps up technology and focuses on turfgrass breeding to maintain the popularity and benefits of lawns in American landscapes.

BY **RON HALL** EDITOR-AT-LARGE

**T**HE AMERICAN lawn is under attack. It's being criticized on several fronts, but most vehemently for "wasting" potable water. This criticism is misdirected, say many people in the Green Industry. Water isn't wasted *by* turfgrass, which almost every scientific study has shown uses water efficiently; rather, it's wasted *on* turfgrass. There's a difference. A big difference, they claim.

"We've established the basic principles of the drought tolerance in turfgrass," says turfgrass expert Dr. James Beard, professor emeritus Texas A&M University. "Now it's a matter of documenting the specific details. There's a lot of pressure to do more research on this



Developing turfgrass with better drought and heat tolerance has become a top priority in the industry.

## HYBRID GRASS COULD HELP CONSERVE WATER

When Dr. James H. Baird joined the Department of Botany and Plant Sciences at the University of California-Riverside as turfgrass extension specialist on Jan. 1, 2008, he found a full plate of projects waiting for him. One of them was reviving a program to develop a drought-tolerant, cool-season grass for California lawns. That project, stalled because of the retirement of turf expert Dr. Vick Gibeault several years earlier, had been kept alive through the efforts of geneticist Adam Lukaszewski.

Lukaszewski had been working on crosses of ryegrass with a variety of meadow fescue. He is attempting to find the right combination of stress-resistant genes to produce a turfgrass that remains attractive with extremely little water. The investigations of selections have moved to test plots at Riverside's 15-acre turfgrass center.

"We're going to push this grass to being a ryegrass because that's essentially what it is," Baird says. "Even though its parent is a forage-type fescue, it walks, talks and quacks like a ryegrass."

But even if the program is successful, Baird sees the "super" ryegrass as a short-term solution.

"Ultimately, especially in Southern California, we should be using warm-season grasses," he says. "We want to apply the same type of technology we're using on this ryegrass to develop a warm-season grass that stays green year-round. That would be a home run."

because of issues with water use."

This sheds a different light on "water-hogging turfgrass," which has become a journalistic catch phrase when describing lawns in relation to water issues. Industry's response to this description is direct: *Grass doesn't waste water; people waste water.* The people are property owners and usually homeowners.

Yes, a lot of our water is used outdoors. As much as 30% to 70% of homeowners' water use occurs outdoors, mostly for landscapes and lawns, says the U.S. Environmental Protection Agency (EPA). And as much as 50% of that water is wasted by inefficient irrigation.

### Where the grasslands occur

There's a lot of drought resistance in grasses, says Dr. Leah Brilman, veteran turfgrass breeder at Seed Research of Oregon in Corvallis, OR.

"Consider where grasses are native



in the world," she says. "These are in the world's arid or semi-arid regions."

Consider that before settlement in the 19th century, deep-rooted native grasses covered the U.S. Great Plains. Tall grasslands in the eastern regions received an average of 20 to 25 in. of rain annually, and the short grasslands beyond the 100th Meridian received less than 16 in. of rain. These were native grasses, of course.

While practically none of America's popular turfgrasses are native, nevertheless, many are efficient users of water, too, says Brillman. Most cool-season turfgrasses originated in northern or central Europe. Almost all warm-season species came from Africa and other warmer climates. Even so, many of these "introduced" species (especially the improved cultivars) survive droughts and recover. To do this they typically go off color and and (to many people's eyes) become unattractive.

And that's at the heart of the issue, she says. Homeowners expect their lawns to be green and lush year-round regardless of conditions. As a result, they use too much water on their lawns, she says.

"Unless they have even coverage with their sprinklers, they'll develop dry spots and be tempted to up the amount of water they're using. They end up using way too much water," Brillman says.

### Education is crucial

Educating the public to water intelligently is key for all segments of the Green Industry. It's critical for turfgrass sod growers since grass production is their sole livelihood. "Turf has its place in the landscape like other valuable plants, and all plants use water," says Dave Dymond, general manager of H&H Sod Company in Kenansville, FL. "We know that people who have irrigation usually water too much. If we could just train and educate them better, we

## IRRIGATORS SEEK MORE SAY WITH EPA WATERSENSE

The big-lawns-waste-water sentiment is hardly confined to the arid Southwest or to Florida, which faces severe groundwater issues in light of its continued population growth and development. The sentiment has become national, and has found a partner in the U.S. EPA WaterSense program, a voluntary government/industry partnership to encourage water conservation.

One of the options in the most recent draft of its Water-Efficient Single-Family New Home Specification suggests turfgrass shouldn't exceed 40% of the landscapable area. This and several other guidelines in the draft, which was released in May 2009, aren't being viewed kindly by the Green and Irrigation Industries.

Early in 2009, the Irrigation Association (IA) formed a WaterSense Task Force consisting of contractors, irrigation product manufacturers and distributors to respond to the draft of the WaterSense specification. The group made a formal request to the EPA to delay the release of the outdoor portion of its program.

"We requested an alternative outdoor portion of the future New Home specification be based on performance results, which are also outcome-based, rather than the prescriptive measures," says John Farner, IA Federal Affairs Director.

"Next, we requested the EPA work with industry experts to develop a science-based alternative," says Farner. "Finally, we stated to the EPA the outdoor criteria, as currently written, are flawed and aren't something that the IA can support."

As of this writing it wasn't clear whether the EPA would modify its stance on turfgrass and other contested issues in its WaterSense outdoor program. Indeed, agencies throughout the United States are seeking to replace turfgrass-dominated properties with plant material they've identified as requiring less water.

To view the IA's complete response to the WaterSense Specifications for New Homes, visit [Irrigation.org](http://Irrigation.org) and click on "Gov't Affairs" at the top of the home page.

John Farner, works with the IA's WaterSense Task Force.



could provide the water savings our water districts are seeking."

That's a tall order and, to this point, one that's being driven mostly by local governments and water agencies. As these bodies attempt to educate the public (often at great effort and expense), they also put measures in place to force water conservation. These measures include irrigation restrictions and landscape ordinances to discourage the use of certain plant material. Reducing the amount of

turfgrass almost always tops these lists.

In September, commissioners in Orange County, FL, approved a plan to limit the amount of grass homes in new neighborhoods can have. They want yards in new homes to be less than 60% grass. The new law can save half of the water used outdoors, the commissioners claim.

The new law is similar to efforts in communities throughout the arid Southwest where property owners are being asked to reduce the amount



## A&M ROAD WARRIORS PUSH TURF TO ITS LIMITS

**N**ever let it be said that turfgrass experts don't go the extra mile to discover something new about the grasses used on lawns, sports fields or golf courses. Drs. David Chalmers and Kurt Steinke went the extra 350-plus miles as they drove from Texas A&M University in College Station, TX, to San Antonio each week for two years as part of an ambitious project studying the drought tolerance of turfgrasses. The project was headed by Chalmers and used facilities at the modern Irrigation Technology Center (ITC) in San Antonio.

Chalmers and Steinke discovered that turfgrass can be a remarkable survivor.

"The consumer has to recognize how turfgrass has evolved," says Steinke, who left A&M this past year and is now with the Michigan State University turf team. "When conditions are tough for grasses, they shut down to survive — and they will survive."

Steinke makes those comments as a result of the ITC study that used a portable rainout shelter to stress grasses to their limits. The two-year project investigated the 60-day drought tolerance of 25 cultivars of four different species. The study compared and recorded how replicated plots of the different species and cultivars performed when planted on native soil with unrestricted root depth relative to plots with a 4-in. topsoil depth.

The Turfgrass Producers of Texas and the San Antonio Water System (SAWS) funded the study. SAWS had been considering banning the planting of St. Augustine grass, which it described as a high-water-use grass. It was also looking at requiring 4 in. of topsoil for newly established lawns.

Using digital photography, the researchers recorded the condition of the grasses each week as they were forced to go longer and longer without irrigation. It took St. Augustine between 26 and 50 days before losing 50% of its color, and Bermudagrass between 43 and 60 days, Steinke says.

"Consumers view color as indicating plant health," he says.

The grasses growing in the native soils with unrestricted root depth survived even 60 days of drought, says Steinke, while the grasses growing in just the 4 in. of topsoil perished within a month.

"Turfgrasses are a lot more drought-tolerant than most people think," Steinke says. "If you don't water it, it'll recover eventually."

To review the complete report of the 60-day drought study, visit [http://itc.tamu.edu/documents/2008FinalReportSAWS&TPT\\_s.pdf](http://itc.tamu.edu/documents/2008FinalReportSAWS&TPT_s.pdf)



The ITC Center's state-of-the-art rainout shelter, above, was used in the ambitious drought study.

of turf on their properties, in some cases being offered cash incentives to remove lawns.

"If the lawn isn't being used for anything, why have so much of it?" notes Doug Bennett, conservation manager for the Southern Nevada Water Authority. A horticulturist by training and charged with conserving his region's scarce fresh water, he makes no apologies for taking a dim view of big lawns in his water district. Las Vegas, after all, is located in the Mojave desert and receives an average of just 5 in. of rain annually.

Turf is viewed in a similar light by some authorities in Florida in spite of the state's vastly wetter climate.

"It's been an uphill battle for us because turf is such an easy target," says Dymond, who has been in the sod business more than 30 years and is past president of the Florida Sod Growers Cooperative. "When people