



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

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

bined 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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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

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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**