Trends in turfgrass use: a Question-and-Answer session with NTEP exec

1) Is there a trend away from the more popular but higher maintenance grasses (like Kentucky bluegrass) for home and commercial lawns and landscapes? If not, why not? If so, what grasses are being substituted?

Kentucky bluegrass is still the dominant turfgrass species in many areas of the U.S., and probably will be for many years to come. Development of new Kentucky bluegrass varieties is increasing (especially at Rutgers University), so demand must be strong. Kentucky bluegrass is still used quite extensively in the traditional bluegrass areas — the Cool-Humid (Northeast and Upper Midwest) and Cool-Arid (Western and Mountain states) areas.

However, in much of the Transition Zone, tall fescue is now the grass of choice by landscapers and homeowners. Sod growers in the middle and upper Transition Zone have been forced to shift to more tall fescue production and less Kentucky bluegrass production as a result of increasing demand for tall fescue sod.

Perennial ryegrass is being used in mixtures more, and as monostands some in the Northeast and Pacific Northwest (Kentucky bluegrass succumbs to leaf spot and other diseases in the Pacific Northwest), but its winter kill problems in the northern U.S. and disease susceptibility in the Northeast and Transition Zone has limited its use in those areas.

Fine fescues are being used more in the traditional bluegrass areas, but mainly on low-maintenance lawns, no-mow slopes and droughty sites.

2) Has the concept of using seed mixes totally caught on by now, since it's long been believed that monostands are harder to maintain? Are the favorite components in mixes changing at all? In other words, are Kentucky bluegrass and perennial ryegrass still the most popular components, or are astute landscapers substituting other species?

Seed mixes are quite commonly used by landscapers and homeowners since lawns and commercial landscapes frequently contain several sub-environments or microclimates (that is, sun and shade, traffic and compacted soils in some areas, buildings and shrubs that reduce air flow, etc.). The reasoning is that several different species present in the lawn give some insurance: maybe one will survive better in shade or during a drought than another. The exception is probably tall fescue, as I see mostly tall fescue monostands being established.

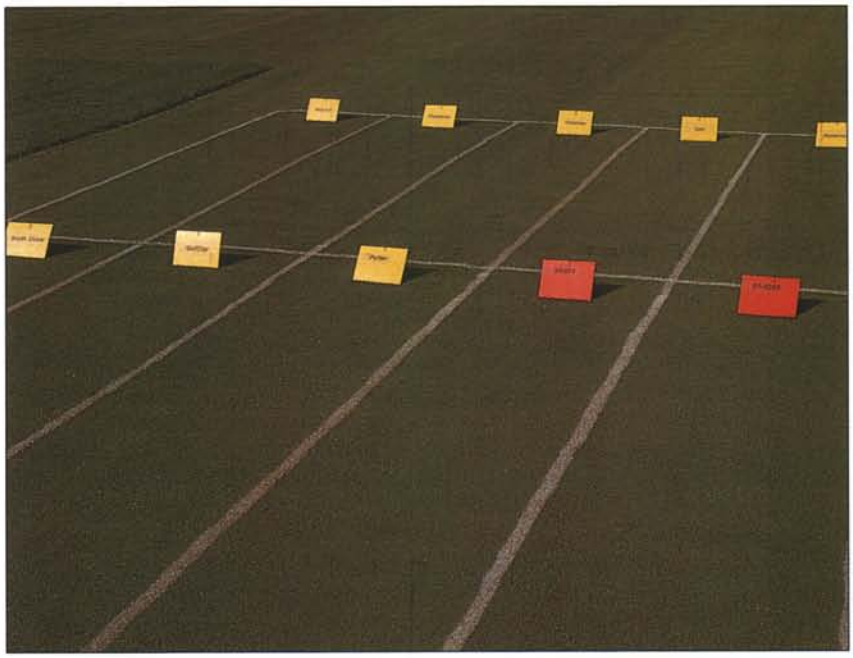
The situation is quite different in the golf course industry where monostands still prevail.

3) What about overseeding dormant warm-season grasses? Is perennial ryegrass still the species of choice for home lawns and commercial landscapes? Are choices regionally-based, or are there national trends?

Perennial ryegrass is still the dominant species used. On golf courses, other species such as Poa trivialis and even bentgrass are increasing in popularity because they transition well (disappear when the warm-season grasses start to grow again in the spring). In commercial landscapes, however, perennial or annual ryegrass are most frequently used.

When overseeding a thin stand of cool-season grass lawn, species used are mostly regionally-based. Much tall fescue is used in the transition Zone, but perennial ryegrass is used for temporary turf situations. Perennial ryegrass is used extensively for overseeding in northern areas, but often in mixtures with Kentucky bluegrass. Landscapers seem to want a seed mix that provides quick cover (perennial ryegrass) along with long-term performance (Kentucky bluegrass).

4) What seem to be the most



Plots like this are an integral part of the NTEP testing process, as seed breeders and marketers continually seek to define the most desirable traits for lawn and landscape turfs.

desired characteristics of new varieties that seed companies are entering in the NTEP program? Are there trade-offs to obtain these characteristics? For instance, do you necessarily have to sacrifice color for wear tolerance, or disease resistance for color?

Grasses that are top performers in NTEP trials need to have at least the following characteristics:

- medium to dark green color;
- medium to high density;
- good to excellent disease resistance; and
- good summer persistence.

Under specific management or in extreme environments, the needs may also include such things as tolerance of close mowing, ability to prevent Poa annua invasion, and good to excellent winter tolerance.

It is possible to have a dark green, dense, wear-tolerant or disease-resistant grass. But in some cases, changing one characteristic will affect something else in the variety. For example, tall fescue varieties that are extremely dense and do not produce as much upright growth are generally more susceptible to brown patch than varieties that are less dense and have an upright growth habit. Also, it is possible that very dark green perennial ryegrasses absorb more heat and therefore have more problems during summer.

Grasses that perform well in many different areas of the U.S. and therefore perform well in NTEP trials must have improved persistence. (They survive summer heat and drought well, resist several important diseases). Again, medium to dark green color and good density is important and can be incorporated into an improved variety, but the basis of the improvement has to be persistence.

5) How close are some of the breeders' pet projects to becoming reality? (Like endophyte-enhanced Kentucky bluegrass and Roundup-resistant tall fescue.)

There are many projects in the works, but it is hard to say which will make it to commercialization.

Endophyte-enhanced Kentucky bluegrass and bentgrass will eventually be commercially available, but will most likely take longer than expected. Many aspects of the host plant/endophyte relationship that are not well understood could slow down the development process considerably.

Roundup (or other herbicides) resistance is coming, but there are so many legal issues involved that it is unsure when these products will be available. For instance, patents are held by different companies on the Roundup-resistant gene, the gene gun (used to incorporate the gene into plant cells), and other technologies needed to produce one of these grasses. All of the patent-holders have a stake in the development process. Royalties will have to be negotiated with

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each patent owner, and that cost will be passed on to the consumer.

There is a big question in my mind of the ultimate demand for herbicide-resistant grasses. Will consumers pay much more for a grass that has herbicide resistance? Only time will tell, but most plant breeders are using biotechnology as but one tool to improve grasses, along with traditional breeding techniques of crossing, hybridizing, and population improvement.

Probably more progress can be made in collecting and improving little-known but promising species such as Koeleria (prairie junegrass), Deschampsia (tufted hairgrass) and seashore paspalum.

Grasses that will provide quality turf with reduced inputs is the wave of the future. Another technique that breeders are using to develop improved grasses involves screening for improved stress tolerance. The best example of this is tall fescue developed for use in high-stress, acid soil situations (such as much of the Southeast).

6) What kinds of trends do you personally envision coming down the road, in the near future, as far as turfgrass use and breeding?

I think breeders and companies will develop grasses that are more regionally adapted or that provide better performance under a particular stress

(like traffic or drought).

Biotechnology will be important in adding genes for resistance to various stresses (for example, resistance to brown patch in tall fescue). Much more work will be done on endophytes, including identification of disease-suppressing strains. As stated before, new species will be investigated, but their acceptance in the marketplace is unclear at this time.

More breeders will be searching the world for new sources of germplasm (plants that have beneficial genes to create new varieties). This will broaden the gene base of varieties in the market.

7) Finally, given the NTEP's partial dependence on USDA funding, what is the program's future, in your opinion?

Federal funding constitutes only about 8 percent of total NTEP funding with the majority of funding resulting from entry fees charged to test grasses. The federal funding is actually use of offices, greenhouse and land at the USDA in Beltsville, MD. The funds do not come directly to NTEP and cannot be spent the way a business would buy supplies with a checking account.

Federal funding is important, however, because NTEP is a national program that is neutral and therefore unbiased. Federal support gives the NTEP the credibility and visibility worldwide to be successful.

The future of the NTEP is bright. We have new programs including testing of grasses in actual use situations (on golf course putting greens). We are investigating new and better methods to analyze the NTEP information and present it to the general public. And we are using specific management regimes on our test sites to more precisely identify those grasses that require less water, pesticides, and fertilizer.

Our goal is to help the end-user find superior grasses for their region or level of management. ❑

Kevin Morris is director of the National Turfgrass Evaluation Program (NTEP), an arm of the United States Department of Agriculture, which conducts seed trials all across the country. Because of that, he's in the perfect position to observe how turf breeders and marketers are adapting to market needs, and turfgrass use trends in the U.S. Last month, we posed seven trend-related questions to him. Here are his responses.—ED.