Better specific and in-depth evaluations needed in national tests

By KEVIN MORRIS

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The National Turfgrass Evaluation Program (NTEP), a cooperative program between the U.S. Department of Agriculture (USDA) in Beltsville, Md., and the National Turfgrass Federation, Inc., was initiated in 1980 to evaluate turfgrass varieties and experimental selections in different locations and under various management situations throughout the United States and somewhat in Canada.

Since that first test of Kentucky bluegrass in 1980, almost all the major turfgrass species have been tested or are currently being tested. At present more than 550 cultivators and experimental selections are included in 12 separate NTEP tests at anywhere from 15 to 50 locations nationwide.

These tests are conducted mainly at university sites by university turfgrass scientists using a standard format for data collection and submission. Data is summarized annually and released as public information. Interpretation of the data is left to turfgrass scientist, extension personnel, seed companies and consumers.

Many of the turfgrass species have benefitted from these nationwide evaluations. Perennial ryegrass probably has been improved more over the last decade than any other grass used in the United States. Saturn perennial ryegrass, ranked number one for turfgrass quality in testing from 1987-1990,

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Best Sand employee Neil dies from motorcycle crash

CHARDON, Ohio — John Neil, a 12-year employee of Best Sand Corp., died as a result of injuries suffered in a motorcycle accident June 17.

Neil, 29, was a sales representative for the company and worked primarily with the golf course and foundry industries.

Daughter Kallie, his parents, grandparents and two sisters survive.

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Better evaluations needed under specific situations

ranked number 45 (for turfgrass quality data averaged from 21 locations) out of 123 entries in first year data from the current national perennial ryegrass test established in 1990. Out of the 45 entries ranked above Saturn, 27 entries performed statistically better (for turfgrass quality) than Saturn.

My purpose here is not to belittle a particular variety but to demonstrate the outstanding progress that has been made in perennial ryegrasses with darker green color, better density and lower growth habit.

It appears, also, that disease resistance has been improved somewhat in these new cultivars. In addition, approximately 70 of the 123 entries contain at least 50 percent fungal endophyte which adds resistance to certain insect pests and stress tolerance.

Tall fescue is another species that has come a long way from the old, well-known, forage variety Kentucky-31. Genetic color, density and leaf texture have been greatly improved in tall fescue, increasing the use of this grass on home lawns, athletic fields, golf course roughs and other areas.

Unfortunately, the older forage and first-generation turf-type (i. e. Rebel and Falcon) cultivars seem to survive better during extreme heat, humidity and prolonged drought conditions, especially during typical homeowner mismanagement that often occurs.

But I believe breeders are trying to improve on the "survivability" of the newer, denser, lower-growing, turf-type tall fescues.

Bentgrasses (creeping, colonial and dryland types) were first evaluated by NTEP in 1989 with three separate tests established- greens management on modified soils, greens management on native soils, and a fairway/tee test. The first data was collected in 1990.

The data has shown that considerable variation is present among the entries in that test. Genetic color and density have been improved in creeping bentgrass. In some instances, disease resistance has been improved and in other instances it has not. The strengths found in colonial bentgrasses have been better dollar spot resistance and winter color than creeping bentgrass. Unfortunately, colonial bentgrass seems to be more susceptible so brown patch than creeping types.

The NTEP has been a good vehicle for the introduction of newly improved species such as buffalograss and zoysiagrass. Although these two species have only been in nationwide tests for one year, considerable information has been gained on their possible adaptation and use in the United States.

Buffalograss, native to the Great Plains area, has shown to be fast-spreading, drought-tolerant and, in some instances, quite attractive for well manicured turf. Investigations are under way concerning wear tolerance and insect and disease resistance of buffalograss.

Determining locations and use situations (roughs, lawns, roadsides) where buffalo grass will work best is still under way, although the grass seems to have the most utility in the Midwest and Western United States, and somewhat less utility in the humid, Eastern states where disease pressure is greater.

Zoysiagrass has been used for more than 40 years in the United States but has seen a resurgence in interest in the the last three to four years. This increased interest results from environmental concerns with pesticide use and the need for a grass that will perform well in hot, humid summers and still survive moderate cold winter temperatures.

The main drawbacks to the use of zoysiagrass (slow-spreading,vegetative establishment only) have been addressed with faster-spreading vegetative types and seeded types currently being tested by NTEP.

Much variation exists within the different zoysia species for genetic color, leaf texture and density. Some of the zoysias approach the fineness of bentgrass. All grasses have negative aspects, with the very fine-leaf zoysias being less winter-hardy and probably only suitable for use in the lower southern states.

Zoysiagrass may not be able to compete effectively in the marketplace with Bermudagrass and buffalograss in many of the drier areas of the Midwest and West as the latter two species have better drought tolerance.

However, zoysiagrass probably can have its greatest impact in the more humid Eastern and Southeastern states where disease and weed pressure is high and summer stress is common along with occasional "deep freeze" winter conditions.

With the improvements in the various grasses, many more seed companies have become interested in marketing these newer grasses. In fact, many of these companies are not only marketing new improved grasses, they are directly involved in the breeding, development and production process as opposed to just obtaining the right to market varieties of other companies. This situation has led to dramatic increases in the number of grasses in NTEP tests and consequently an increase in the num-

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More complete tests expected

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ber of grasses available in the marketplace.

The NTEP is mainly an open system that allows developers of varieties to have their grasses tested nationwide for a relatively modest fee. The information released by the NTEP is valuable to these developers in production, marketing, and further breeding efforts. Using this information, a company can decide how and when they should market their grasses or whether to try to sell the grass to another company.

In many cases, a grass is never released to the marketplace due to poor turf performance or production problems.

Most European countries use a different system of variety evaluation. The majority of European countries have recommended variety lists for consumers. These variety lists carry much weight with consumers. Seed companies have found that if a variety is not included on a country's recommended list, the company will not be very effective in marketing that variety.

To be considered for inclusion on a country's recommended list starts with several years of turf evaluations, usually at multiple sites within the country along with DUS (distinctness, uniformity and stability) grow-outs.

The purpose of DUS testing is to determine that the variety 1) is distinctly different from other available varieties; 2) is uniform and consistent in seed production, and 3) will remain stable in seed production (certain plant types will not dominate others over time and therefore alter the variety).

This system takes sometimes seven years or more to complete, with costs comparable to, or more than the NTEP. All this time and money does not assure that a particular variety will be placed on that country's recommended list.

Please note that the NTEP does not conduct DUS-type testing. However, the USDA does grant Plant Variety Protection (PVP) for varieties that are shown to be distinctly different.

More cultivars to choose from is good for consumers if information available on these grasses is adequate to determine where and when each should be used. Unfortunately, with the number of grasses in the marketplace increasing (probably more than 100 varieties each of perennial ryegrass, Kentucky bluegrass and tall fescue), the ability to choose one variety over another becomes more difficult.

Varieties with better color and density tend to rank highest for turfgrass quality in NTEP tests. Sometimes, the varieties that are not as dark green or as dense have other attributes that add value (like drought tolerance and low maintenance). Although differences other than color and density are important to consider, it is difficult for companies to develop and promote varieties on just these other characteristics.

In addition, I am not sure that NTEP information on wear and shade tolerance, tolerance of close mowing (less than 1 inch) and drought resistance is complete enough to detect distinct variety differences for these characteristics. For instance, I am aware of only one location that is maintaining the current national perennial ryegrass test at fairway height.

Some diseases and insects occur sporadically within test plots and therefore very little data is available for these pests over several locations and years. Also, some locations have not collected as much information on these tests as other locations. This incompleteness leads to more questions than answers concerning performance.

To better serve the various needs of the different consumer groups in the United States, the following issues concerning variety development and evaluation need to be addressed:

1) A need for more in depth evaluations including several locations each for such problems as shade tolerance, drought tolerance, ability to survive extreme stresses including low and high pH soils, etc.

2) Better evaluations under specific management situations - i. e. reduced maintenance (pesticide, fertilizer and water) and wear tolerance under golf traffic.

3) More complete data collection for turfgrass quality, diseases and drought by each university involved in NTEP testing.

The NTEP is already addressing many of these issues using different avenues. Kentucky bluegrass is now being tested in coordinated, separate low-maintenance and high-maintenance tests.

The NTEP Grants Program, initiated in 1990, is funding 23 studies ($480,000 over three years), some of which will hopefully increase our knowledge of drought tolerance, disease resistance and identification of particular locations or management situations where specific varieties offer improved performance.

The NTEP Grants Program, starting with tests established in 1992, is also partially funding the basic evaluations at universities. This funding will help university scientists conduct more uniform tests and collect better and more complete data.

In the end, the NTEP hopes to offer more complete information to consumers, which will benefit all who purchase and market turfgrass seed.